

**Ciudad Juárez-El Paso, The Formation of A Cross-border Market:
Mexico-U.S. Economic Relations in Perspective, 1840s-1920s**

Belinda Román

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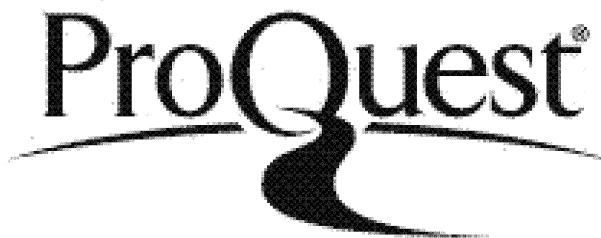
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Abstract

This thesis will demonstrate that C. Juárez, Chihuahua- El Paso, Texas have operated as a cross-border market since the nineteenth century. As a consequence of this, it may be inferred that economic integration between Mexico and the United States of America (U.S.) is a historical process that also begins in the nineteenth century. This positions challenges the conventional academic wisdom that integration, in this case, is primarily a post-World War II phenomenon. The study uses economic integration theory as a new way of conceptualising the Mexico-U.S. borderlands.

The fundamental premise is that factor mobility and the formation of a distinct, unified regional market underpin the integration process. A case study of the C. Juárez-El Paso, Texas border area between the 1820s and the 1920s is used to examine the complex nature of the interchanges between the two countries. The analysis is divided into eight chapters, with the major analytical chapters focussing on the ability of the factors of production (entrepreneurs, capital and labour) and goods to move freely throughout the region. The two key assumptions are that the C. Juárez-El Paso area possesses a common transportation infrastructure and resource base.

The study of entrepreneurs is based on qualitative material taken from travel diaries, government documents and business records. The work of Chandler and Casson is utilised to show the similarities in activities and organisational structure across the border. The formation of a cross-border labour market is applied to low wage, low skill workers and evidence for regional wage rates is gleaned primarily from the work of Clark and Gamio on Mexican labour in the U.S. Southwest. The financial aspects of entrepreneurial activities are used as a proxy for capital movements. The sources include notarial and business records. Finally, the intensification of trade between Mexico and the U.S. due to specialisation at the border is examined. Data is taken from numerous sources, including contemporary accounts and U.S. government documents.

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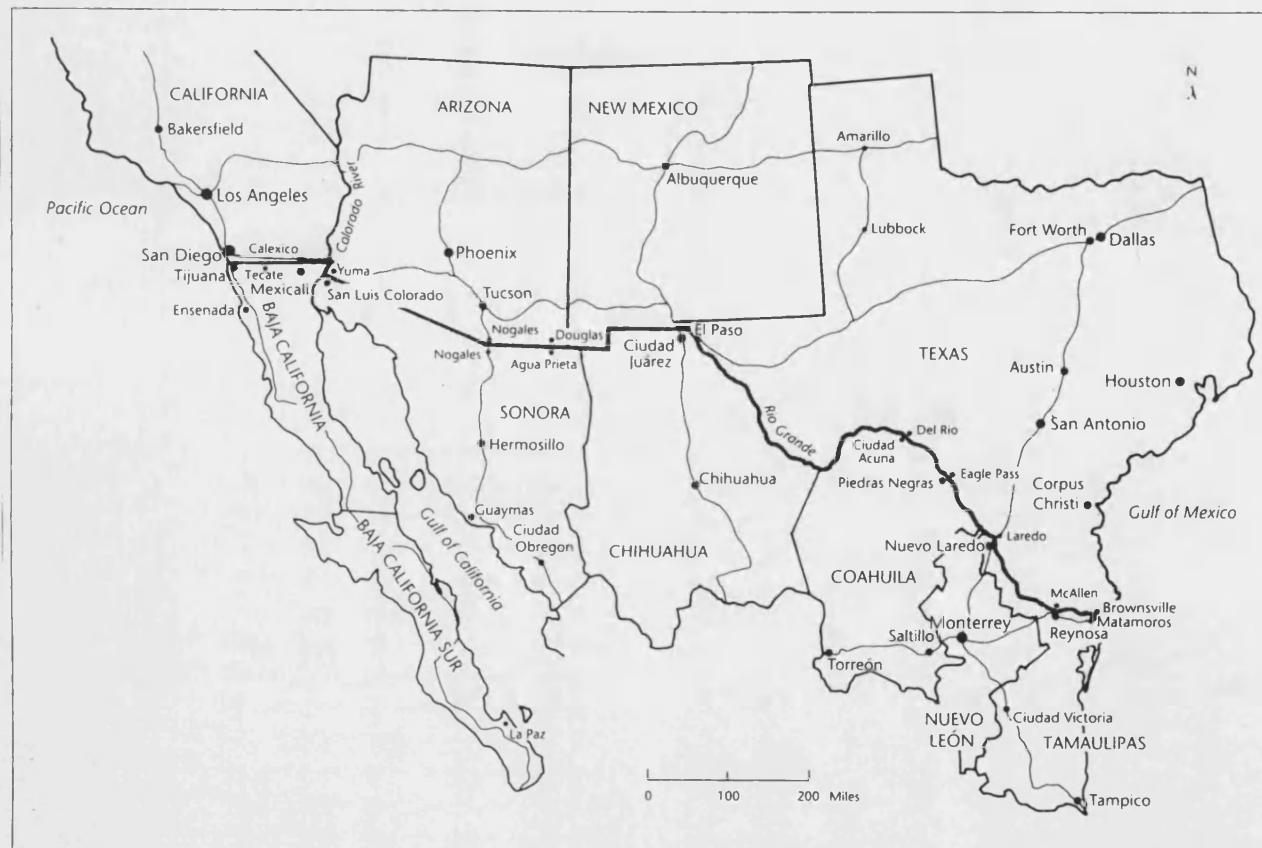
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Part I

Figure 1.1
Mexico-U.S. Borderlands¹



This map was adapted from a map found in L. Herzog, *Where North Meets South: Cities, Space and Politics on the U.S.-Mexico Border* (Austin, 1990) introduction.

CHAPTER ONE

INTRODUCTION AND LITERATURE SURVEY

In 1993 the Economic Development Division of the Greater El Paso Chamber of Commerce commissioned DRI/McGraw Hill to conduct an extensive economic strategic analysis of the El Paso, Texas, area in an attempt to produce a 'straight forward' and factual analysis of the city's economy.¹ Completed in 1994, the report revealed that, economically speaking, El Paso was co-dependent on Ciudad Juárez, Chihuahua² in a way that could be considered unique. Furthermore, the document asserted that, 'the seamless, smoothly functioning cross-border metropolitan economy,' had enormous potential.³ However, individually, the two cities would be isolated within their respective national economies, and their continued development would be limited.

The concept of a cross-border metropolitan economy is relatively new and an outgrowth of the process of increasing integration experienced in many parts of the world. The implication of the terminology is that the political frontier no longer serves as an economic frontier. Consequently, the factors of production (capital, entrepreneurs and labour) and goods and services are mobile between contiguous nation-states. And yet, the formation of cross-border markets is not a recent phenomenon, despite the fact that economists, economic historians and other academics often assert that it is, in general, a post-

¹ The DRI/McGraw Hill study was part of the Strategies for Economic Development project under the management of the Institute for Manufacturing and Materials Management at the University of Texas-El Paso. *The El Paso Economy: A Diagnosis for Action*, DRI/McGraw Hill (1994).

² Hereafter cited as C. Juárez

³ The report was commissioned to provide a plan for the city's future economic development strategy. DRI/McGraw Hill produced a plan based on integrated economic clusters, the driving engines of the local economy. *The El Paso Economy*, p. 2.

WWII phenomenon.⁴ Mexico-United States of America (U.S.) specialists are equally insistent, taking the position that economic integration between the two countries is also a by-product of the post-WWII era. Integration at any level is the result of an ongoing temporal and spatial process; limiting it solely to a twentieth century phenomenon is myopic.

This thesis will demonstrate that the formation of a cross-border market at C. Juárez-El Paso is a historical process that began in the mid-nineteenth century and gathered momentum in the 1880s. More importantly, it will show that this long-term process arose from two simultaneous processes: (a) geographic isolation; and (b) the response of local factors to the broader bilateral relationship.⁵ Precisely because of these forces, this study focuses on a specific example of regional integration rather than divergence or separatism, as is the case in most research on this subject. In the bilateral relationship, Mexico-U.S. economic, political, social and cultural relations tend to be framed within the context of the industrialised giant of the north versus the weak and underdeveloped country to the south. This is an antagonistic framework that does not permit the full exploration of the formation of an economic space that straddles the international border. Furthermore, it obviates the fact that the economic relationship, as manifested along the Mexico-U.S. frontier, even in historical terms, is one in which the regional Northern Mexico economy is not necessarily overshadowed by its U.S. Southwest counterpart. This circumstance has led to the formation of an economic space that transcends the international political boundary, as was found in the DRI/McGraw Hill study mentioned above. The following study also contributes to the broader discussion on the economic integration of Mexico and the U.S., giving it greater historical scope and challenging conventional wisdom that integration, in this case, is primarily a post-WWII phenomenon.

The thesis is divided into two parts. The first will locate this work in its broader context in terms of the contemporary state of the subject of Mexico-U.S. border relations and the existing literature, the theoretical and methodological scope of this work, and an overview of the historical development of both countries. The second part of the study contains the application and analysis of the cross-border economic relationship in both qualitative and

⁴ The point will be elaborated upon with the context of methodology in Chapter 2.

⁵ Borderlands are zones bordering an international political frontier. The term is further defined in the next section and chapter.

quantitative terms. This chapter divides into three sections, in which section one describes the issue as seen in current terms, including a brief historical introduction to the Mexico-U.S. borderlands. Section two surveys the historiography and methodologies utilised in Boundary Studies to explore the relationship, and section three presents a survey of the Mexico-U.S. borderlands literature.

I

This sections presents a stylised historical sketch and highlights some of the contradictory manifestations of the interlacing of the Mexican and U.S. economic systems as experienced along their common border. These observations are balanced against the back drop of formalised integration following the North American Free Trade Agreement (NAFTA).

After the expulsion of the Spanish from the North American continent in the early nineteenth century, Mexico was left with an enormous territory and a common, although undefined, boundary with the U.S.⁶ This was not a wholly unpopulated territory, since both Spain, and later Mexico, sought to colonise the extreme northern periphery in order to justify its boundary claims.⁷ However, the ensuing influx of primarily Anglo-American settlers into regions such as Texas, ironically became problematic to Hispanic officials because of the vagueness of the respective (Spanish/Mexican and U.S.) national territorial limits. Eventually, cultural, political and economic differences between the settlers in Texas and Mexican officials, coupled with U.S. expansionism, led to armed conflict. The ensuing Mexico-U.S. War (1846 - 1848) ended with Mexico relinquishing half of its land area to the U.S. in partial fulfilment of the terms of the war settlement. This did not put an end to the boundary disputes, which continued to plague Mexico-U.S. relations for more than a century. It was not until the signing of the Chamizal Treaty (1963) that the struggle over an island

⁶ Mexico declared its independence in 1810; however, a final plan (Plan de Iguala) for Independence was not agreed until 1821. Chapter 3 will give a broader overview of the general histories of both the U.S. and Mexico.

⁷ Both countries were particularly eager to populate the northern periphery of New Spain in order to protect it from encroaching foreign interests. This was accomplished in a very limited way by offering incentives to would-be settlers. Mexican nationals as well as foreigners were afforded the opportunity to settle in the region provided they met certain stipulations. In the case of Texas, many Anglo-Americans immigrated from the western frontier of the U.S. and settled in and around the San Antonio and Austin areas. See H.H. Bancroft, *History of North Mexican States and Texas* (San Francisco, 1886), J.F. Bannon ed., *Bolton and the Spanish Borderlands* (Norman, 1964) and E.C. Barker, *Mexico and Texas, 1821-1835* (New York, 1965).

between El Paso and C. Juárez was resolved and a permanent land boundary was fixed. Today, the ceded land, together with Mexico's northern states, form what some scholars consider to be a single socio-economic region contiguous to the 2,000 mile long international boundary known as the Mexico-U.S. borderlands. Herzog goes so far as to suggest that this border is the dividing line between North and South, between the First World and the Third World, and between the centre and the periphery.⁸

The Mexico-U.S. borderlands have undergone significant changes in terms of their economic, social and political landscapes. In the early years prior to the boundary demarcation, they remained a frontier zone, isolated from and peripheral to each nation. Small-scale agricultural production and ranching, as well as occasional inter-regional trade, allowed the communities to remain self sufficient. After 1848, the residents south of the boundary experienced an erosion in their standards of living because vital domestic trade links had been altered and suddenly had become international in character, and therefore subject to the heavy duties imposed by Mexico on external trade. Some communities along the new boundary became official points of entry and exit between Mexico and the U.S. Residents north of the new political demarcation unexpectedly found themselves in U.S. territory, but not necessarily as U.S. citizens.⁹ As the century progressed, the general remoteness and isolation of the region declined with the arrival of the railroads (1881), bringing more settlers on both sides of the border. This was followed by a process of industrialization, urbanization and immigration that further modified the character of the region during the period covered by this thesis.¹⁰

Figure 1.1 displays a modern-day representation of the Mexico-U.S. borderlands and the principal urban centres in the region. It is natural to assume that cities on the U.S. side

⁸ L. Herzog asserts this in his work *Where North Meets South*, pp. 5-6. This point will be further elaborated upon in the literature review. (See **Figure 1.1** for complete citation.)

⁹ Many citizens of Mexican heritage chose to remain as such not only because of birth right, but also because of the discrimination they experienced at the hands of Anglo Americans. Chicano Studies literature abounds with material regarding this aspect of the Mexican and Mexican-American experience in the U.S. Southwest. See works such as R. Griswold del Castillo, *The Los Angeles Barrio, 1850-1890: A Social History* (Berkeley, 1979); R. Acuña, *Occupied America: The Chicano's Struggle Toward Liberation* (San Francisco, 1972); G. López y Rivas, *The Chicanos: Life and Struggles of the Mexican Minority in the United States* (New York, 1973); D.J. Weber, *Foreigners in Their Native Land: Historical Roots of Mexican-Americans* (Albuquerque, 1973); and M. García, *Dessert Immigrants* (Austin, 1981).

¹⁰ L. Herzog, *North Meets South*, p. 34.

Table 1.1
Population for C. Juárez, Chihuahua and Mexico, 1802-2000

Year	C. Juárez	Chihuahua	Mexico
1802/04	6,400		5,837,000
1810	10,121		6,122,000
1825	6,287		6,218,000
1831			
1834	8,495		
1835			6,174,875
1845			7,263,246
1850	4,000		
1855			7,515,538
1857	13,000		
1860			
1865			8,105,443
1872	10,000		
1875			8,183,705
1885			9,568,408
1887	20,000-29,000		
1890	12,000		
1895		267,000	11,347,625
1900	8,218	328,000	13,607,000
1910	10,621	406,000	15,160,000
1920		402,000	
1921	19,451		14,335,000
1930	39,669	492,000	16,553,000
1940	48,881	624,000	19,654,000
1950	122,566	896,000	25,791,000
1960	276,995	1,227,000	34,923,000
1970	424,135	1,613,000	48,225,000
1980		2,000,500	66,847,000
1990	798,000	2,442,000	81,141,000
2000	1,217,818	3,047,867	98,000,000

Sources: *XII Censo General de Población y Vivienda* (Mexico, 2000); City of El Paso, Industrial Development Board, *Statistical Abstract of El Paso*, 1988; D. Lorey ed., *United States-Mexico Border Statistics since 1900* (Los Angeles, 1990); B.R. Mitchell ed., *International Historical Statistics, The Americas* (London, 4th edition, 1998); Archivo del Ayuntamiento de Paso del Norte, Microfilm Series 495, C.L. Sonnichsen Special Collection, University of Texas - El Paso; J. Delgadillo Macías and F. Torres Torres, *Geografía regional de Mexico* (Mexico, 1930), p. 63.

Table 1.2
Population for El Paso, Texas and the U.S., 1850-2000

Year	El Paso	Texas	U.S.
1850	200	213,000	23,192,000
1860	428	604,000	31,448,000
1870	764	819,000	39,818,000
1880	736	1,592,000	50,156,000
1890	10,388	2,236,000	62,948,000
1900	15,906	3,049,000	75,955,000
1910	39,279	3,897,000	91,972,000
1920	77,560	4,663,000	105,711,000
1930	102,421	5,825,000	122,775,000
1940	96,810	6,415,000	131,669,000
1950	130,485	7,711,000	150,695,000
1960	276,687	9,580,000	179,323,000
1970	322,261	11,197,000	203,212,000
1980	480,000	14,229,000	226,546,000
1990	591,000	16,986,000	248,710,000
2000	563,662	20,851,820	281,600,000

Sources: City of El Paso, Industrial Development Board, *Statistical Abstract of El Paso, 1988* and Department of Planning, Research and Development Demographics. D. Lorey ed., *United States-Mexico Border Statistics since 1900* (Los Angeles, 1990); B.R. Mitchell ed., *International Historical Statistics, The Americas* (London, 4th edition, 1998); and The U.S. Bureau of the Census, *Census of the United States of America, 1850-2000* (Washington, D.C.).

of the boundary would exhibit characteristics associated with one of the world's leading industrialised economies, including for example, a high per capita income and low unemployment and population growth rates. Likewise, Mexican border communities would be expected to mirror that country's overall economic character, which would consist of, for example, a lower per capita income, and higher unemployment and population growth rates. However, present economic growth along this frontier is uncharacteristic of each of the respective countries. The piecemeal nature of data for C. Juárez and Mexico in general prior to 1900 makes it difficult to construct a long term trend in population growth. Nevertheless, available information for both cities has been gathered and placed in two separate tables, **Table 1.1 and Table 1.2**. These show that the growth in C. Juárez' population was erratic. In fact, the city experienced depopulation at certain points in its history. This is not surprising given the troubled past of the country, as will be discussed in Chapter 3. El Paso, on the other hand, demonstrated a phenomenal growth in its population as time progressed. Taking into account the fluctuations in C. Juárez' figures, the table draws attention to the uncharacteristically high rates of population growth that the Mexico-U.S. borderlands communities have experienced since 1881, relative to their respective countries. Certainly after 1940, both C. Juárez and El Paso demonstrate population growth rates that consistently exceed the state and national levels.

In economic terms, the communities immediately north of the border are considered underdeveloped when compared to similar communities in the states in which they are found, while the main communities immediately south of the border are prosperous compared, in relative terms, to the state and country in which they are located.¹¹ In the case of El Paso, the median income for the city in 2000 was US\$ 34,900 compared to US\$ 59,981 for the country as a whole and \$53,791 for the state of Texas.¹² In 2001, the unemployment rate for the U.S. was 4.9 percent, and for Texas, 4.7 percent, while El Paso's hovered at 8.9 percent.¹³ By contrast, in 2000 Mexico set a new national minimum wage equivalent to US\$3.75 per day, while Mexican workers living near the northern frontier and working for maquiladoras

¹¹ L. Sklair, *Assembling for Development: The Maquila Industry in Mexico and the United States* (Boston, 1989), p. 37.

¹² *The El Paso Economy*, p. II-2.

¹³ U.S. Department of Labor, Bureau of Labor Statistics, *Nation-, State- and City-at-a-Glance* reports, updated September 2001.

(foreign-owned plants that typically import components that are assembled in Mexico, and then export the finished products such as televisions or car parts), could expect a minimum wage that varied between US\$ 8.50 and US\$ 200 per day.¹⁴ These figures clearly reflect the disparity in overall economic performance between Mexico and the U.S. at the international level. However, these types of comparative income measures between the communities adjacent to the international boundary overlook the nuances of the local experience. On the state and national planes, the measures are a source of concern for local policy makers because of the belief that the border communities are intertwined. Hence, the Mexico-U.S. borderlands manifest internal contradictions as well as similarities that make them a paradox in the larger bilateral relationship.

It is important to give NAFTA its place relative to this study, and certainly because it is referenced in the following literature survey. The free trade agreement between Mexico, Canada and the U.S. that entered into force on 1 January 1994 (NAFTA) was considered by many to be the first official step towards integration on a continental scale.¹⁵ For the Mexico-U.S. borderlands, the agreement only legitimated what was already understood to be the reality, a process of ongoing integration between the two countries. In the case of Canada, some observers have also taken this position that the significance of NAFTA is in what the agreement was perceived to represent and not in what it actually was upon implementation. Still, many of the issues arising out of the agreement have long historical roots. For example, immigration has always been of particular importance. Early assessments of NAFTA have

¹⁴ Foreign-owned companies are permitted to import machinery and components duty-free; no tariffs are paid on the products which are re-exported from Mexico. Since states and cities in Mexico have little authority to levy taxes, most maquiladoras do not pay state and local taxes. Historically, maquilas have been used by capital as instruments to reduce costs by using cheap labour, or through flexibility. The minimum national wage was set by policy, while the daily wage in C. Juárez was calculated using monthly salary figures for various occupations obtained from the Greater El Paso Chamber of Commerce. A.M. O'Connor, 'Mexico's City of Promise: Immigrants from across the country are pouring into Tijuana,' *Los Angeles Times*, 26 January 1998. Sam Dillon, 'Sex Bias at Border Plants in Mexico Reported by US,' *New York Times*, 13 January 1998, and S. Weintraub, 'Mexico Workers' 15-Year Nightmare,' *Los Angeles Times*, 11 January, 1998. See also *The Political Economy of North American Free Trade*, ed. R. Grinspan and M.A. Cameron (New York, 1993).

¹⁵ Some observers have suggested that the importance of the agreement lay in the fact that it hopefully would be regarded as a step towards protecting the advances made in trade and investment policies, primarily between Mexico and the U.S., from volatility should the political environment in Mexico change. Texas Department of Commerce, *The North American Free Trade Agreement*, (Austin, 1992). See also, U.S. Chamber of Commerce, *A Guide to the North American Free Trade Agreement: What it means for U.S. Business* (Washington, D.C. 1992)

shown that the flow of Mexican immigrants into the U.S. was not slowed by the agreement, as had been hoped.¹⁶ However, as there was no provision to deal with unauthorised migration (provisions were made only for trade-related migrations such as intra-company transfers), it could hardly be expected that increased economic integration would stem population movements. In fact, the opposite was to be expected, leading to a greater movement of labour. The ubiquitous maquiladora is another case in point. Once a cost centre for business, these manufacturing centres have increasingly become autonomous from their headquarters in order to function as profit centres, demanding skilled labour and inputs. As this study will suggest, industrialisation has a longer history of profitability because of regional specialisation, although the nature of labour demand differed in that low skill/low wage labour was important. Thus, in a sense NAFTA has been anticlimactic for the region.

The Mexico-U.S. borderlands possess a history of their own in which the two countries are inextricably linked. The communities found in this region manifest a confusing mix of developed and underdeveloped economic conditions. This paradoxical information suggests that the Mexico-U.S. borderlands, far from being the great divider of nations, are rather the point at which they experience an ongoing process of integration. This is the focal point of this study.

II

This section reviews the principal body of literature that has attempted to analyse the functioning of boundaries in general Boundary Studies (also referred to as Border Studies). Borders and borderlands have almost exclusively been the purview of diplomacy and international law because of the sovereignty question. Hence, Boundary Studies have focussed on conflict and resolution of conflicts through political means. Notwithstanding, the discipline is now increasingly moving toward studies focussed on co-operation between and the integration of nations at local and supranational levels. This review highlights the theoretical perspectives employed in Boundary Studies and then surveys the types of studies that have been undertaken on other parts of the globe.

There are over 300 land boundaries in the world.¹⁷ In the search for explanations as

¹⁶ *Migration News, North America*, 5 (1998) 2, p. 1.

¹⁷ 311 as of 1993. See C. Schofield ed., *World Boundaries*, Vol. 1, Global Boundaries (London, 1994) introduction, p. xii (hereafter cited as Global Boundaries).

to why one country develops and another does not, economists, economic geographers and regional economists have emphasised the disadvantages of border regions in terms of industrial location and international trade.¹⁸ However, increasingly the borderlands are playing a larger role in the overall development and incorporation of a country into the world market. Therefore, another means of evaluating the long-term growth and development of border regions beyond traditional trade theory must be found. Boundary Studies, a relatively new field of inquiry, is one such attempt. The field is multi-disciplinary in its approach and has yet to give rise to a clearly defined theoretical body, preferring to draw from many perspectives in order to accommodate the reality of border regions.

One of the main reasons why Boundary Studies has yet to develop a coherent theoretical perspective is the concept of boundary itself. The terms boundary and frontier are often used interchangeably, therefore confusing their actual function. Historically, the frontier meant what it suggested – an area that was part of a whole, specifically that part which was ahead of the hinterland. According to Kristoff, it was neither a legal, political or intellectual concept, rather it was a phenomenon. In this regard, the frontier represented a meeting place for different ways of life and ideas about life.¹⁹ Conversely, a boundary indicated certain well established limits of a given political unit. As a fixed obstacle, the border took on the character of an impediment to the process of integration initiated by the frontier. Furthermore, the more rigid the line the more difficult the assimilation and integration processes. Border is a term appropriate to the present concept of nation-state in which the absolute right to rule and exercise power (sovereignty) is linked to clearly defined territorial limits.²⁰ Interestingly, in the case of the Islamic world, the notion of sovereignty has no territorial limits. It is ideological and neither political nor territorial: the focus is on community and not territory.²¹ Therefore, in some respects, the reach of Islam is global and

¹⁸ A.I Asiwaju, 'Borders and borderlands as linchpins for regional integration in Africa,' in *Global Boundaries*, p. 58.

¹⁹ L.K.D. Kristoff, 'The Nature of Frontiers and boundaries,' *Annals of the Association of American Geographers*, Vol. 49, No. 23, pp. 269- 270.

²⁰ G. Joffé, 'Territory, State and Nation in the Middle East,' in *World Boundaries*, Vol. 2, The Middle East and North Africa (hereafter cited as Middle East and North Africa) (London, 1994), p. 1, L.K.D. Kristoff, 'The Nature of Frontiers and boundaries,' p. 271, and A.I Asiwaju, 'Borders in Africa,' p. 58.

²¹ G. Joffé, 'Territory, State,' p. 4.

transcends the generally accepted view of sovereignty. Notwithstanding, the incorporation of the Middle East and North Africa into the world market place, particularly as suppliers of oil, has been responsible for the adoption of a nation-state paradigm as in Europe and elsewhere. In this study, the term 'border' means a frontier condition and not a rigid international political division.

The promulgation of new trade treaties and political initiatives that dissolve political boundaries and merge national economic markets has forced Boundary Studies to take on concepts such as planning, development and economic co-operation across borders. This has been accompanied by attempts to develop generalisations about borders and their associated borderlands, although these have tended to be either deterministic because of the political status of a boundary or incredibly vague because of the lack of a proper means with which to study boundaries. Each boundary is unique because of its place within the country to which it belongs: governments and their ideas as to how residents on either side of the border should interact often lead to the parallel processes of separation and integration. Therefore, certainly in the economic sphere, the process of building an economic model within Boundary Studies has been fraught with difficulties leaving politics, culture, language and social factors to dominate the theoretical landscape.

Two main theoretical perspectives predominate in Boundary Studies: Liberal and Marxist. In general, the basic factors leading to the emergence of a global economy are the same between the two: the international division of labour, the expansion of trade on a global scale, and the emergence of new technologies all figure in the explanations. Both the Liberal and Marxist perspectives use the nation-state as the basic unit of analysis. Hence the importance of sovereignty. However, Marxists interpret the changes in political structures and inter-territorial relationships as emerging from the exigencies of class relations and the contradictions inherent in capitalism. Liberals, for the most part, regard these changes as partly arising from political will and partly from market forces.²² Despite these differences in interpretation, both schools agree that the sovereignty of many nation-states has rapidly eroded and certainly in the economic domain, no state has genuine autonomy. This trend has forced Boundary Studies to accommodate a new reality.

²² M. Anderson ed., *Frontiers: Territory and State Formation in the Modern World* (London, 1996), p. 33.

Some European scholars (integrationists) have moved beyond the nation-state paradigm to look at inter-regional and supra-regional organizations, exchange and policy formulation.²³ This new approach has arisen from the need to deal with the emergence of supra-national organizations such as the European Common Market and the emergence of economic regions that transcend national boundaries such as Basel (Switzerland)-Baden (Germany)-Alsace (France) or the Basque Country (Franco-Spanish border), now considered cross-border cultural, social and economic wholes.²⁴ Another noteworthy example of the trend away from nation-state orientated studies is the thesis that political borders have become less relevant in modern society. According to Ohmae, a proponent of this perspective, information and the spread of technology should underpin any analysis. He explains that early cartographic representations of economic sources indicated the location of raw material deposits, energy sources, navigable rivers, deep water ports, railroad lines, paved roads and national boundaries. The landscape was invariably defined and circumscribed by the political boundaries of the nation-state. Today, Ohmae writes, economic activity defines the landscape, resulting in the possibility of region-states that are economic in character and not political units. Furthermore, they are anything but local in character.²⁵

These 'integrationist' approaches emphasise either local or supranational considerations as a means of integrating countries. In the case of the importance of supra-national organizations in the process, functionalist and neo-functionalist lines have emerged.²⁶ The functionalist position is based on Liberal assumptions such as rationality and gains from co-operation (i.e. trade). Tannam uses the Northern Ireland/Ireland case to elaborate the functionalist approach, which is that the border is undermined from the bottom-

²³ See the work of R. Strassoldo and G. Delli Zotti, *Cooperation and Conflict in Border Areas* (Milan, 1982), or M. Anderson ed., *Frontier Regions*, for a discussion on trans-regional co-operation and supra regional programs dealing with economic exchange and political policy.

²⁴ See G. Delli Zotti, 'Trans-frontier cooperation at the external borders of the EU'; and F. Letamendia, M. Gómez Uranga, G. Etxebarria, 'Astride two states: Cross-border co-operation in the Basque Country,' in L. O'Dowd and T.M. Wilson ed., *Borders, Nations, and States* (Aldershot, 1996).

²⁵ See K. Ohmae, *The End of the Nation State: The Rise of Regional Economies* (New York, 1995).

²⁶ E. Tannam offers a good definition and explanation of these two approaches in *Cross-border cooperation in the Republic of Ireland and Northern Ireland* (London, 1999), pp. 14-21. Other approaches are intergovernmental or hybrid. (pp. 21-37). The key is that these approaches are supranational in their perspectives.

up and that those interests involved in the transactions taking place at the border should have a greater say in the integration process. This is offered as a counter to boundary policy being developed by elites who might entrench borders through policy in order to protect domestic interests.²⁷ In the case of Northern Ireland and Ireland, Tannam proposes that interdependence may be one of several driving forces behind co-operation. That is, that the economic well-being of the communities along the border depends on both sides, and that this will eventually erode the border.²⁸ The Neo-functionalism position is driven by politics.

The basic argument is that the form and consequences of integration are the outcome of political bargaining and decisions. In this case, supra-national institutions such as the European Commission are necessary to provide the motivation for co-operation. Elites play a key role in helping promote welfare because welfare arises only from political considerations. Furthermore, the logic of economic markets must be harnessed in order to reach this end. Although Tannam goes on to cite other approaches, the functionalist and neo-functionalism are the most relevant to the Mexico-U.S. boundary because of their consideration of economic aspects of the cross-border relationship.²⁹ The others tend to focus on the politics of nation-state relationships.

In short, Boundary Studies has emerged as a new field of study on the nature of international relations along international boundaries. Sovereignty has been the main point of departure in explaining the interaction of nation-states at their shared borders, however this perspective is changing as the limits of political sovereignty are being eroded. Integrationist approaches, emphasising supra-national or local political and economic factors are beginning to emerge, particularly for European studies. A survey of Boundary Study literature helps to illustrate this process, as well as locate the study of C. Juárez-El Paso within the larger body of literature. Because of the vastness of the subject, only a few examples of studies on

²⁷ Tannam cites Mitrany as the founder of federalist position. E. Tannam, *Cross-border Cooperation*, pp. 14 -17. Anderson focuses on A. Pinelli, who considered that Europe would be integrated by a series of deliberate political decisions, which would eventually establish a true federation. See M. Anderson, *Frontiers: Territory and State Formation in the Modern World* (London, 1996), p. 33.

²⁸ E. Tannam, *Cross-border Cooperation*, p. 17.

²⁹ Intergovernmental approaches such realist/neo-realist doubt the ability of the economic logic of co-operation to overcome ethnic conflict. Hybrid approaches such as liberal institutionalists and multi-level governance predict that the existence of a supranational political organization will help economic integration. Tannam presents a good summary table in E. Tannam, *Cross-border cooperation*, p. 36.

boundaries in other parts of the globe are highlighted below. A striking feature of these studies the lack of coherence in terms of the functional/neo-functional paradigm proposed by the European school.

One example of Middle East boundary studies is Drysdale's work on Syria and its relations with Lebanon, Jordan, Iraq and Turkey.³⁰ The position of Syria relative to its neighbours gave it historical prominence as a route between Europe and Asia, Africa and Asia, and the Mediterranean and Persian Gulf. All of Lebanon's land trade, and until the 1980s, most of Iraq's oil exports, and historically most of Jordan's trade, passed through Syria in order to reach Beirut. However, the division of Levant after WWI, according to Drysdale, obviated the fact that for the residents of the region, the boundary was artificial, given that little ethnic, linguistic and cultural differences existed between the sides.³¹ In the case of Syria and Lebanon, there was a long history of a closely integrated geography and economy, but because of a political divergence in the fortunes of the two nation-states, Lebanon became a dynamic and entrepreneurial partner while Syria stagnated. This divergence gave rise to entrepreneurial Lebanese border communities that catered almost exclusively to the Syrian market.³² Neo-functionalism plays a key part in the overarching analysis of this case, but it also appears that functionalism, that is the response of local Lebanese and Syrians is also important. The border community characteristics described by Drysdale are similar to those mentioned in the previous section in respect of the twin-cities along the Mexico-U.S. border. However, instead of continued integration, Drysdale suggests that Lebanon and Syria diverged. The role of entrepreneurs as agents of continuing integration in a cross-border setting is one of the main tenets this study.

In the case of the Green Line between Jews and Arabs in Palestine, Newman notes that prior to 1948, the region west of the River Jordan was a single spatial unit for all

³⁰ A.D. Drysdale, 'Transboundary Interaction and Political Conflict in the Central Middle East,' in *Middle East and Africa*, pp. 21-34.

³¹ In the same volume as Drysdale, Davie gives a history of the demarcation of the political boundaries of Beirut. See M.F. Davie, 'Demarcation Lines in contemporary Beirut,' in *Middle East and North Africa*. See also M. Johnson, *Class and Client in Beirut: The Sunni Muslim Community and the Lebanese State, 1840-1985* (Beirut, 1986), S. Khalaf, *Persistence and Change in 19th Century Lebanon. A Sociological Essay* (Beirut, 1979), or L. Tarazi-Fawaz, *Merchants and Migrants in Nineteenth Century Beirut* (Harvard, 1983).

³² A.D. Drysdale, 'Transboundary Interaction,' pp. 21-34.

residents, and that transportation routes, trading patterns and cultural links resulted from a 'spontaneous pattern of regional development'.³³ However, this development had a decidedly cultural difference. Prior to the demarcation of the line, Jewish Zionist settlement took place in the relatively uninhabited lowlands, away from the mountains. Thus, there was no Zionist settlement in the West Bank when the line was imposed and sealed between 1948 and 1967.³⁴ From 1967-1980, this condition changed, leading to a process of de-frontierisation that Newman believes was the result of both formal and spontaneous processes (i.e. functional and neo-functional) as both sides saw the need for goods, services and employment. Although government policy was important in creating this system, Newman clearly places the initiative for development on the residents. Within this process of integration, the most important aspect has been the development of a integrated labour market. Palestinian labour has been important to Israel and utilised in much the same way as Mexican labour has been utilised along the U.S. border, as will be discussed in Chapter 6.³⁵

Asiwaju believes that borders in Africa are mirror images of those in Europe, and therefore they serve the same function of attempting to preserve official languages, national histories and culture.³⁶ However, he uses France to demonstrate how boundaries may also cut across natural histories where linguistic and cultural ties have been obviated by the drawing of political boundaries. For example, in the North-East of France, the Flemish are found both in Belgium and France. In the South along the border with Spain, the Basques

³³ D. Newman, 'The Functional Pressure of an 'Erased' Boundary', in *Middle East and North Africa*, pp. 71-98. See also M. Brawer, 'The Green Line; functions and impacts of an Israeli-Arab superimposed boundary', in C. Grundy-Warr ed., *International Boundaries and Boundary Conflict Resolution* (Durham, 1990), or A. Drysdale and G.H. Blake, *The Middle East and North Africa: A Political Geography* (1985).

³⁴ See *The West Bank and Gaza Atlas* (Jerusalem, 1988), M. Brawer, 'Geographical and other arguments in delimitation in the boundaries of British Palestine,' in C. Grundy-Warr ed. *International Boundaries*.

³⁵ Newman's proposition that growth was spontaneous is interesting given that certainly in Export Base Theory explained below, endogenous growth is considered impossible because regions are subsystems of national economies and external demand is important. D. Newman, 'The Functional Pressure of an 'Erased' Boundary', in *Middle East and North Africa*, pp. 71-98

³⁶ A.I. Asiwaju, 'Borders and Borderlands as Linchpins for Regional Integration in Africa', in *World Boundaries*, Vol. 1, *Global Boundaries*, ed. C. Schofield (Durham, 1994) and A.I. Asiwaju and P.O. Adeniyi eds., *Borderlands in Africa: A multi-disciplinary and Comparative Focus on Nigeria and West Africa* (Lagos, 1989).

and Catalans are found astride two nations.³⁷ Hence, he concludes that the concept of shared populations and natural resources are common to both parts of the world. After assessing the condition of African border cities, Asiwaju suggests that micro-diplomacy in the form of regional and local (functionalist) initiatives at the boundary are perhaps the better way forward, given that the actors in this area are better informed of the realities of the border. He supports the empowerment of local polities with the ability to undertake 'international' relations at a micro level in order to better serve local transboundary co-operation in Africa.³⁸ To strengthen his position, Asiwaju points out that the main experiments in transboundary co-operation in Europe, the European Outline Convention on Trans-frontier Cooperation (1979-1982), was preceded by local initiatives such as the *Regio Baseliensi* (1963) or Conference of Upper Rhine Planners (1973).³⁹ Asiwaju's micro-diplomacy model relates to the C. Juárez-El Paso in that it focuses on individual responses to the realities of the cross-border economic space.

The reunification of Germany has supplied fertile ground within European boundary studies for comparative studies on the order of planned versus market economic organisational arrangements (neo-functionalism).⁴⁰ According to Black, the imposition of the border between East and West Berlin after WWII and the progressively restrictive measures instituted to prevent contact that took place from the 1950s to 1970s was unable to counter

³⁷ For Studies on the Basque Country see P. McPhee, 'A case study of International colonization; the Francization of Northern Catalonia,' Review 3 (1980) 3; P. Shalins' *Boundaries: The making of France and Spain in the Pyrenees* (Berkeley, 1989); or F. Letamendia, M. Gómez Uranga G. Etxebarria, 'Astride two states.'

³⁸ A.I. Asiwaju, 'Regional Integration in Africa', p. 68. See also council of Europe, *European Outline Convention on Transfrontier Cooperation between Territorial Communities or Authorities* (Strasbourg, 1980).

³⁹ See H.J. Riner, *Coordination of Regional Planning Across National Frontiers: Regio Test Case - Switzerland/France/Germany* (Basel, 1981).

⁴⁰ See M. Farr, *Vanishing Borders: The Rediscovery of Eastern Germany, Poland and Bohemia* (London, 1997). Other volumes include a broader survey of boundary cooperation such as L. O'Dowd and T.M. Wilson, *Borders, Nations and States* or J.F.R. Wright, S. Goldenberg and R. Schofield, *Transcaucasion boundaries* (London 1996), which offers a broad historical survey the European and Asian interests in the Caucuses as well as Russian interest. Russia-Ukrainian relations are also increasingly studied. See also P.J. D'Anieri, *Economic Interdependence in Ukrainian-Russian Relations* (New York 1999).

the flow of refugees and communication between the West and East.⁴¹ Notwithstanding, despite an element of openness, the increasingly rigid border gave rise to two communities with very distinct features a lack of investment; gentrification of the population; and out-migration due to a lack of opportunities for the development of human capital. In a similar article on the Inner-German boundary, Buchholz explains that the two governments responded in different ways to these conditions. The Federal Republic used public support policies to strengthen the border regions, thereby preventing their decline. On the eastern side, the process of creating ever greater security precipitated its demise. It was a buffer zone between the East and West, designed to keep population from leaving. In 1989, when the division was erased, the differences and their impact became apparent. For example, infrastructure in the form of roads was needed. Additionally, the economic organisation of the respective economies differed necessitating a review of issues such as property rights which were well established in the West, but not so in the East.⁴² Certainly, the comparative study of development between the two Germanies is relevant because in the Mexico-U.S. case, their respective economic systems appear disparate. However, as this thesis will demonstrate, a neo-functionalism approach that focuses on the national level may obviate important aspects of the regional case. It is argued herein that C. Juárez-El Paso, and by extension Northern Mexico and the Southwestern U.S., had more in common than is normally suggested or recognised, and many of their economic responses were locally-motivated.

The shared border between India and Bangladesh provides an opportunity to view the relationship between a relatively powerful economic country (India) and a poor country (Bangladesh).⁴³ Security has proved of primary importance to Bangladesh because of its long

⁴¹ H. Buchholz, 'The Inner-German Border: Consequences of its establishment and abolition,' *World Boundaries*, Vol 3. Eurasia, ed. C. Grundy-Warr (hereafter cited as Eurasia) (London, 1994), pp. 55-58.

⁴² Furthermore, Buchholz rightly emphasises that the biggest change for the border was that it became the centre of Germany; it was transformed from the periphery to the centre. H. Buchholz, 'Inner German Border,' pp. 58-62. See also J. Minghi article in the same publication, 'European Borderlands,' pp. 89-98, and D. Rumley and J. Minghi, *Geography of Border Landscapes* (London, 1991).

⁴³ N.I. Nazem, 'The Impact of River Control on An International Border', in Eurasia, pp. 101-110. See also R.K. Chatterjee, *India's Land Borders: Problems and Challenges* (New Delhi, 1978) or R. Choudhury, *Genesis of Bangladesh* (Bombay 1972).

history of territorial antagonism with India. A another other key issue has been Bangladesh's sovereignty over her water resources. According to Nazem there are 54 rivers in Bangladesh, and three of the major ones (Ganges, Brahmaputra and Meghna) have their sources outside her boundaries, namely in India. Additionally, most of the rivers form some part of the international boundary between the two countries, precipitating demarcation problems. Thus, control over water resources, according to Nazem, constitutes a case of hydro-political problems for the Bangladeshi state.⁴⁴ In this instance, the issues of conflict and sovereignty (neo-functionalism) are key to any boundary study. In respect of the present analysis, access to the waters of the Rio Grande remains a key issue between Mexico and the U.S. with the interesting caveat that Mexico has control over some of this resource. As explained in the previous section, a fixed river boundary was not agreed between the two countries until the 1963. Conflict and sovereignty are present in the ongoing relationship. However, agreements at the local level to harness these water resources helped foster regional development in the case of Mexico and the U.S. While the end agreement required a treaty, meaning that neo-functionalism solution was sought, local actors actively endeavoured to find a less complex solution prior to intervention from Washington, D.C.

The boundary that existed between Hong Kong and China was the result of treaties drawn up in the nineteenth century that ignored the fact that they belonged linguistically and culturally together, with the Cantonese being the predominate language.⁴⁵ Between 1949 and 1978 the Chinese government managed almost every aspect of cross-border relations to the degree that the type of relations were regulated, as were the conditions of exchange. Clearly this can be classified as a neo-functionalism approach to border management. However, as Goodstadt points out, the boundary was never sealed, allowing for contact through the existence of cross-border family ties, immigrants and exports. Hong Kong received a stream of exports from China, and a counter-flow of remittances through trans-boundary family ties were important to the latter. In 1978-9 China revised its policies giving special autonomy to Guangdong to establish flexible systems and incentives for external trade and Special Economic Zones were set up to attract external investment. This arrangement approximates a shift to a more functionalist approach to relations with Hong Kong, and offers an

⁴⁴ N.I. Nazem, 'The Impact of River Control,' p. 104.

⁴⁵ P. Goodstadt, 'Hong Kong-China Border,' *Eurasia*, p. 132.

interesting point of similarity with Mexican border policy during the latter part of the nineteenth century when Mexican border states were permitted a *Zona Libre* in order to promote their development. As with China's perspective, this policy was not necessarily designed to promote cross-border development. The objective was to find a way to co-opt Mexican border communities into the national economic sphere. This is elaborated upon within the context of Mexico's tariff and trade histories in subsequent chapters.

The most crucial element of exchange between China and Hong Kong was emigration, which ran counter to China's desire to control the movement of its population and Hong Kong's desire to maintain security. A gradual system of agreements and a repatriation scheme helped stem the flow of illegal emigrants. However, the existence of a cross-border labour market meant that Hong Kong could never really distance itself from China. Early in the relationship, emigration from China helped supply Hong Kong with labour. A 'baby boom' in the 70s in Hong Kong and increased female participation in the labour market changed the nature of the local market, but a subsequent need for additional labour to fuel growth forced Hong Kong to seek more emigrants. The geographic proximity of its labour supply prompted Hong Kong investment in China as an option to increasing labour resources in the domestic market.⁴⁶ Again this is an interesting similarity with the Mexico-U.S. case, in that the porous nature of the boundary permitted labour to flow freely through the borderlands, also resulting in a merging of markets. This is the subject of Chapter 6.

The Canada-U.S. boundary has been neglected as a subject of Boundary Studies; fortunately, this is rapidly changing.⁴⁷ Recent work has tended not to focus on the historical impact of the international boundary on the borderlands *per se*, but rather NAFTA has precipitated a renewed interest in the border communities with the increasingly porous border and American cultural imperialism emerging as important topics in Canada-U.S.

⁴⁶ Writing in 1994, Goodstadt posited that the international boundary would continue to serve an important function in that it would serve as an administrative border between communism and capitalism as well as serve as means of integrating Hong Kong into China. *Ibid.*

⁴⁷ L. McKinsey and V. Konrad, *Borderlands Reflections: The United States and Canada*, Borderlands Monograph #1 (Orono, 1989); R. Gibbins, *Canada as a Borderlands Society*, Borderlands Monograph Series #2 (Orono, 1989) and C. Blaise, *The Border as Fiction*, Borderlands Monograph #5 (Orono, 1990).

relationship.⁴⁸ Interestingly, the modern-day interchanges between residents on either side of the Quebec-U.S. border has precipitated a series of (locally-driven) agreements on issues such as culture, education, the environment, youth exchange and general economic co-operation.⁴⁹

In analysis of Quebec-U.S. relations, Slowe points out that day-to-day interactions between residents have been neglected. NAFTA, according to Slowe had very little real significance for the bi-national relationship. Eighty percent of Canada's exports and sixty-five percent of her imports were freely traded between the two countries in 1989 when the Agreement began to be implemented. Therefore, the gradual removal of restrictions did not signal a great change in their relationship. Additionally, NAFTA, as was mentioned above, did not remove restrictions on the movement of labour therefore it did not create a European-style common market. In attempting to analyse the impact of NAFTA on the Quebec-U.S. border, Slowe surveyed retailers in the borderlands and found that the Quebec-side was suffering a 'run down'.⁵⁰ His study suggested that the benefits accruing to the U.S. retailing sector were based more on perceptions rather than reality, because of the strong marketing tactics of American shopkeepers. Non-tariff considerations such as 'Buy American' and the language barrier (Quebec is French-speaking) served as obstacles to increased investment in Quebec, and an outcome contrary to what was expected.⁵¹

⁴⁸ In Slowe's study of the Quebec-U.S. borderlands, he notes that the boundaries between Quebec and Vermont, and Quebec and New Hampshire were not demarcated until 1771 and 1774, respectively. Furthermore, the Quebec-Maine boundary was not set until 1842. During the ensuing years, these regions saw very little military enforcement of the border and remained a relatively uninhabited area. The most exciting time for the region was Prohibition when smuggling was an important subject. This accounts for the relative lack of interest on the early development of the borderlands region. Furthermore, this stands in contrast to the Mexico-U.S. case, where militarization was a key component of the early relationship, as will be discussed in subsequent chapters. P.M. Slowe, 'The Geography of borderlands: The case of the Quebec-US borderlands', in P.O. Girot ed., *World Boundaries*, Vol. 4, The Americas (Hereafter cited as The Americas) (London, 1994), p. 6.

⁴⁹ It is important to note unlike in the case of Mexico, both the constitutions of Canada and the U.S. permit provincial and state authorities to enter into agreements covering most cultural and environmental matters, but not in respect of those that affect trade. In all three cases, local authorities have no legal right to enter into formal international agreements, therefore they can only be loose and are unenforceable. See A.O. Hero and M. Daneau eds., *Problems and Opportunities in U.S.-Quebec Relations* (Boulder, 1984) or J.E. Carroll, *Environmental Diplomacy: An Examination and a perspective of Canadian-U.S. Transboundary Environmental Relations* (Ann Arbor, 1983).

⁵⁰ P.M. Slowe, 'Quebec-US borderlands', p. 6-7.

⁵¹ *Ibid*, pp. 6-10.

The theme of relative neglect of the Quebec-U.S. borderlands in a historical sense is very similar to the Mexico-U.S. case. Interestingly, many of the topics highlighted as present-day issues resonate in the historical development of the Mexico-U.S. borderlands language, culture, political empowerment, environment, etc. The present study breaks new ground by adding a long-term temporal analysis of economic transactions.

In an interesting study on the Brazilian frontier, Becker applies a scientific-technological model to the development of territorial space.⁵² She highlights that Latin America experienced development of the state before it experienced development as a nation.⁵³ Geopolitical considerations and authoritarianism, Becker suggests, shaped policies as governments sought to modernise by entering into arrangements with local political actors. In the case of Brazil, the economic frontier was separated from the political frontier in the historical development of the country, leading to an absence of innovation in technology due in part to the use of labour in the plantation economy. Becker attributed the twentieth century development of Brazil's frontier space to the military-industrial complex and the way it was managed in the country. Authoritarian rule coupled with military control of certain industrial activities was used to develop frontier regions. As this political arrangement collapsed so did the development of the frontier.⁵⁴ This type of military-technological model is not necessarily applicable to the Mexico-U.S. borderlands because the military did not play an important role in modifying the borderlands environment, rather government supply contracts and troops on either side played a role in populating and maintaining the region through the creation of a transportation infrastructure and market demand for local production. The military was not a technological leading-force during the period under study along the Mexico-U.S. frontier.

This overview of the general state of Boundary Studies has revealed that despite attempts to formulate a coherent model for the evaluation of international boundary activities, a multi-disciplinary approach still prevails, and the sovereignty of nation-state means that

⁵² B. Becker has written on the subject namely in 'Nation-building in a "newly industrialised country": reflections on the Brazilian Amazonia case', in R.J. Johnston., D. Knight, and E. Kofman eds. *Nationalism and Self-determination and Political Geography* (London, 1988). This review is based on her article, 'Technology, Geopolitics and frontiers in Brazil,' in *The Americas* .

⁵³ See F.H. Cardoso, 'On the character of authoritarian regimes in Latin America,' in D. Collier, *The New Authoritarianism in Latin America* (Princeton, 1979).

⁵⁴ B. Becker, 'Technology, Geopolitics,' pp. 133-150.

divergence instead of integration is still the focal point. Notwithstanding, there is a growing body of literature on borderlands as areas of contact, exchange, change and continuity. In surveying a limited number of studies and methodologies, similarities and differences between the Mexico-U.S. case and other cases have been highlighted. For example, in the Canada-U.S. case, the greatest difference is the disparity in international position of Canada *vis a vis* the U.S. The Mexico-U.S. situation is much the same, and may even be said to be in line with India-Bangladesh case. The China-Hong Kong case studies, as well as the Israel-Palestine studies, offer similarities that warrant further comparative study. As Boundary Studies are searching for generalisations, it is the similarities with the myriad of case studies that make this C. Juárez-El Paso (Mexico-U.S.) study so important.

III

Much of the literature specific to C. Juárez-El Paso, alone or as part of the Mexico-U.S. borderlands, is also plagued by an absence of a clearly defined theoretical framework that takes as its point of departure the existence of a cross-border space. This is not to suggest that topics such as integration, dependency and inter-dependence are not mentioned, but rather that very few studies take integration as fundamental starting point for the ongoing relations of this particular space. In general, the Mexico-U.S. borderlands tend to be studied along more dogmatic lines, following traditional fields of study: anthropology/sociology, economics, geography, history, and political science. Over the years, there has emerged a sixth field, bibliographical surveys and guides, and sub-disciplines such as Chicano, Mexican American and, of course, Mexico-U.S. border studies. In each of these cases, the works range from broad assessments of the region as a whole to monographs or case studies of cities, sub-regions or issues. The multiplicity of fields along with the various levels of disaggregation illustrate the lack of a generalised framework from a methodological or ideological standpoint with which to study the region. Nonetheless, a regular underlying theme is a common cultural heritage.

The treatment of the region in anthropological and sociological terms has remained relatively constant over the years. These studies have tended to focus on the changes over time to social and cultural institutions. Obviously, the long history of Hispanic presence in the region permits the temporal framing of studies that have ranged from sweeping surveys covering over five centuries to monographs focussing on the post-WWII period. The theoretical underpinnings have been, in some instances, Marxist. This stems, perhaps, from

the large pool of migrant labourers found in the region, making it an attractive starting-point for labour-based studies. The notion that the Spanish colonial institutions have had a longer lasting effect on the region than is explicitly stated in any text is perhaps also a motivating factor. The early Spanish colonisation of the region provides an excellent counterpoint to the sweeping changes precipitated by U.S. expansion into the region. Hall's study of the connections between the social changes in the region and their global context is of particular interest. He seeks to determine how change over time has been affected and shaped by state and non-state organisations using 'modes of production'-world system theory.⁵⁵ His approach to the borderlands focusses mostly on New Mexico, which has the longest history of institutions and social interactions in the region. Another example is the volume edited by Ross that emphasises cultural change and identity as well as political and economic aspects of the borderlands.⁵⁶ The post-WWII trend is exemplified by Young and his more narrowly defined study of C. Juárez.⁵⁷ Here, Young concentrates on the urbanization of the Mexican-side of the frontier and its impact on housing needs and the familial implications of the changing nature of the work place. This phenomenon is treated as relatively new to the region and draws from the increasing urbanisation trends described in the previous section.⁵⁸ As anthropological and sociological studies have moved through time, it has become increasingly clear that there are inconsistencies in how these studies treat the borderlands. This has forced scholars to focus almost exclusively on one side of the frontier, thereby undermining the notion of cultural and social cohesion.

For this study, the most relevant framework is economics, although economic history is noticeably absent from the literature. Attempts to conceptualise and form a coherent body

⁵⁵ See T.D. Hall, *Social Change in the Southwest, 1350-1880* (Kansas, 1989). Other texts with a similarly broad perspective include W.W. French, *A Peaceful and Working People: Manners, Morals and Class Formation in Northern Mexico* (New Mexico, 1996), L.I. Perrigo, *The American Southwest: Its People and Cultures* (New York, 1971) and E. Spicer, *Cycles of Conquest: The Impact of Spain, Mexico and the United States on the Indians of the Southwest* (Tucson, 1962).

⁵⁶ See S. Ross ed., *Views Across the Border: The United States and Mexico* (New Mexico, 1978).

⁵⁷ G. Young ed., *The Social Ecology and Economic Development of C. Juarez* (Boulder, 1986). Another noteworthy text is L. Sklair's, *Assembling for Development*.

⁵⁸ Similarly, González's study on the church and social movements in Mexico utilises a comparative case study of C. Juárez and the Isthmus of Tehuantepec to explore social interactions. V.G. Muro González, *Iglesia y movimientos sociales en México: los casos de Ciudad Juárez y el Istmo de Tehuantepec* (Michoacan, 1994).

of literature on the economic relations of the borderlands have been scant, but the number of economic studies of the borderlands have increased in recent years as a result of a rising emphasis on development issues in the wake of policy initiatives such as NAFTA. However, it would be incorrect to suggest that studies with an economic emphasis stem solely from this event. They have always been difficult to undertake because of the perceived lack of comparable data sets, particularly historical. Additionally, the persistent emphasis on the larger bilateral relationship often overshadows the possibility of a regional cross-border market and its formation over time. Nevertheless, Hansen's attempt to model the border economy from a orthodox economic position and Fernández's profile of the same region from a Marxist perspective are salient examples of emerging trends in the discipline.⁵⁹

Hansen is concerned with post-WWII development. He looks at the development of U.S. cities along the border applying the tools of neoclassical economics and political geography. He utilises nodal cities (U.S. communities with a sphere of economic influence that reaches across the boundary) as the basis for his study. The reach of these nodes is established using the U.S. Census rating of standard statistical metropolitan areas and its relevant statistical data (i.e. the value of purchases made by Mexican nationals in the local economy and *vice versa*). He singles out communities such as: El Paso, Texas and C. Juárez, Chihuahua; San Diego, California and Tijuana, Baja California, Norte; and San Antonio, Texas and Monterrey, Nuevo León. The problem with this type of analysis is the incompatibility of statistical measures. It is difficult to look at the economic interconnections of border communities since, until recently, there existed no comparable measure of nodal cities in the Mexican census data. Thus, for obvious reasons, the approach is limited. Furthermore, the study fails to account for how these cities came to be interdependent, in other words, a fully realised account of their historical development. Finally, cities such as San Antonio, Texas and Monterrey, Nuevo León, are located some distance from the actual border. Their economic influence possibly obscures the economic potency of smaller communities located closer to the boundary. And, if San Antonio and Monterrey are to be

⁵⁹ N. Hansen, *The Border Economy, Regional Development in the Southwest* (Austin, 1981). See also N. Hansen, 'Border Region Development and Cooperation: Western Europe and the U.S.-Mexico Borderlands in Comparative Perspective,' *Border Perspectives*, Center for Inter-American and Border Studies, University of Texas-El Paso, 10 (1985). R. Fernández, *The United States-Mexico Border, A Politico Economic Profile* (Notre Dame, 1977) See also R. Fernández, *The Mexican-American Border Region: Issues and Trends* (Notre Dame, 1989).

included in studies of economic influence, then what of Los Angeles, Phoenix, Tucson, Dallas, or Houston as U.S. cities that also have economic spheres of influence that reach into Mexico?

The Fernández text examines the Mexico-U.S. border in terms of class relations and has more historical content. Here he characterises the organization of the border economy as a struggle between landowners and peasants, similar to Hall's modes of production emphasis. A treatment of this nature is not necessarily applicable throughout the U.S.-Mexico borderlands since the 'feudalistic,' hacienda-style estate upon which it is based is not a universal characteristic of the region's productive organization. In fact, as this study will demonstrate, the pattern of economic activity in the borderlands area evolved from self sufficiency to a predominately market economy. Furthermore, the migratory nature of labour through the region meant that the formation of a borderlands working class with a sense of unity was difficult.⁶⁰

The larger bilateral relationship has given rise to more narrowly defined economic studies, many of which have focussed on a single issue such as labour market interdependence. Immigration has been one of the most contentious issues between Mexico and the U.S. in the post-WWII era.⁶¹ However, more often than not, labour studies are categorised as political science or history texts rather than economic studies, perhaps due to the difficulty in finding comparable data sets and conceptualising the regional economy as a cross-border whole. Additionally, the emergence of Chicano Studies has tended to focus attention on cultural and social issues related to labour utilisation in the Mexico-U.S. borderlands.⁶² The role and function of trade policies have also been important in the literature. Here, Weintraub's works have been influential in framing the bi-national trade relationship, while works on the impact of national trade policies on the borderlands

⁶⁰ Chapter 6 will discuss the mobility of labour throughout the region.

⁶¹ For example, J. Bustamante, C.W. Reynolds, and R.A. Hinajosa eds., *U.S.-Mexico Relations: Labor Market Interdependence*, (Stanford, 1992).

⁶² Several examples include K.L. Stewart and A. de León, *Not room enough: Mexicans, Anglos and socio-economic change in Texas, 1850-1900* (New Mexico, 1993). The maquiladora industry has given rise to a great deal of study. Some examples include: M. P. Fernández-Kelly, *For we are sold, I and my people: women and industry in Mexico's frontier* (Albany, 1983), M. Martínez, *Inovación tecnologica y clase obrera: estudio de caso de la industria maquiladora electronica R.C.A., Ciudad Juárez, Chihuahua* (Iztapalapa, 1994) and L. Sklair, *Assembling for Development*.

economy by regionalists such as Bell and Smallwood or Irigoyen give a very local perspective.⁶³ Nevertheless, as will be explained in the following chapter, the trade relationship has been based on differing points of emphasis, particularly in terms of resources. Extra layers of complexity have been added as trade studies using a regional political delineation have increased. For example, Tuirán and Margulis have attempted to examine aspects of the economic and demographic growth of border cities.⁶⁴ However, this type of conceptualisation lacks a proper framework within which to view economic growth and development across the Mexico-U.S. borderlands. The fact that over time, these studies have increasingly taken a multi-disciplinary approach, points to the need for a more robust means of conceptualising the region beyond the nation-state for economic studies.

Geographical treatments of the Mexico-U.S. borderlands have been more willing to view the region as a whole because in the strictest sense, they are one.⁶⁵ However, the analysis of the geographical characteristics inevitably involves the distribution and use of natural resources such as water, and it is within this context that sub-disciplines such as political geography, urban geography and environmental studies begin to reflect a diminished sense of coherence. House's work is the standard in terms of (political) geography. He uses, '...an applied political geography, focussing on spatial and structural differentiation,' along but not across the border.⁶⁶ The obvious limitation of this approach is its reliance on

⁶³ S. Weintraub, *Free Trade between Mexico and the United States* (Washington, D.C. 1984) and *Mexican Trade Policy and the North American Community* (Washington, D.C. 1988). U. Irigoyen, *El Problema Económica de las Ciudades Fronterizas, Tres monografías Zona Libre, Puertos Libres and Perímetros Libres* (Mexico, 1935). Also published as U. Irigoyen, 'El Problema Económica de las Ciudades Fronterizas,' *El Boletín del la Sociedad Chihuahuenses de Estudios Históricos*, (Tomo 4, No. 2), (Tomo 4, no. 3). S.E. Bell and J.M. Smallwoods, *The Zona Libre, 1858 - 1905* (El Paso, 1982).

⁶⁴ M. Margulis and R. Tuirán, *Desarrollo y población en la frontera norte: el caso de Reynosa* (Mexico, 1986). Short essays and monographs have attempted to raise the level of discourse on the existence of a Mexico-U.S. borderlands economy. Examples include: O.J. Martinez, 'The Foreign Orientation of the Mexican Border Economy,' *Border Perspectives*, Center for Inter-American and Border Studies, University of Texas-El Paso, 2 (1983), J. Peach and K. Nowotny, 'Economic Development in Border Areas, The Case of New Mexico and Chihuahua,' *Journal of Economic Issues* 16 (1981), F.G. Hill, 'An Analysis of Regional Economic Development; The Case of California,' *Land Economics*, 31 (1956) and C.D. Dillman, 'Urban Growth Along Mexico's Northern Border and the Mexican National Border Program,' *Journal of Development Studies*, 4 (1970) 4.

⁶⁵ This is elaborated upon in Chapter 4.

⁶⁶ J. House, *Frontier on the Rio Grande: A Political Geography of Development and Deprivation* (Oxford, 1982), p. 5. A good example of general texts on borders is D. Rumley and J. Minghi, *The Geography of Border Landscapes* (London, 1991).

the nation-state as the basic unit of study. In order to accommodate this dissonance, geographers have also employed a multi-disciplinary approach. A salient example is Herzog's landscape analysis, in *Where North Meets South*. As the title suggests, for Herzog, the Mexico-U.S. frontier is where, 'the North-South dialogue takes on a geographical form as does interdependence between the two countries.'⁶⁷ The language of Herzog suggests a Marxist tendency, although in reality the study remains mainstream in its treatment of border urbanisation. Interestingly, he ventures into economics and politics as well as urban geography in this study, implying that relying exclusively on geography as an analytical tool is limiting. In a similar study, Arreola and Curtis compare select elements of border city urban geography across a hierarchy of places and over time in an attempt to explain why Mexican border cities are fundamentally Mexican.⁶⁸ Environmental issues have also received more attention in recent years. However, environmental studies have almost exclusively been the purview of political science studies. More often than not, many of the debates on resource utilisation have arisen out of political frictions on matters such as access to the waters of the Rio Grande and ambient air quality. Therefore, it has been the exigencies of the political relationship and not geography that have given rise to environmental studies.⁶⁹

Historians have been the most prolific writers on the Mexico-U.S. borderlands. They, more than any other group, have also tended to view Northern Mexico and the Southwestern U.S. as an historical unit. Without a doubt the works of Bancroft, Bannon, Barker and Bolton on the history of the North Mexican States and Texas have served as a model for later works such as those by McWilliams, Weber, or Horgan, in which the coherence of the region

⁶⁷ See L. Herzog, *Where North Meets South*, p. 10. Herzog has also edited a study of boundaries throughout Latin America entitled *Changing Boundaries in the Americas* (San Diego, 1992).

⁶⁸ D.D. Arreola and J.R. Curtis, *The Mexican Border Cities, Landscape Anatomy and Place Personality* (Tucson, 1993), p. 3. Another important text is D. Meinig, *Southwest: Three Peoples in Geographical Change, 1560-1970* (New York, 1971).

⁶⁹ Studies that are representative of the broad spectrum of environmental issues include *Air Pollution along the United States-Mexico Border*, eds. H. G. Applegate and C. R. Bath (El Paso, 1974), S. Mumme, *Apportioning Groundwater Beneath the U.S.-Mexico Border*, Research Report Series, No. 45, Center for U.S.-Mexican Studies, University of California - San Diego (La Jolla, 1988), C. Sepúlveda and A. E. Utton eds., *The U.S.-Mexico Border Region: Anticipating Resource needs and Issues to the Year 2000* (El Paso, 1984). An example of a more focussed study is C.G. Metzner, *Water Quality Issues of the San Diego-Tijuana Border Region* San Diego Institute for Regional Studies of the Californias, San Diego State University (San Diego, 1974).

is a central theme.⁷⁰ Topical or regional studies such as those on the borderlands states (nine in total) and bordercommunities as 'micro' histories increasingly diverge from the coherence expressed in the broader research.⁷¹ Given the nature of historical research, conspicuously absent from all of these texts is a strict methodological framework except perhaps for the chronological ordering of events. These studies are not without their Marxists tendencies. For example, Ruiz maintains that without attempting to apply a specific theoretical methodology to his work, his historical account of the politics of the state of Sonora, Mexico, inadvertently proved that only through dependency theory and '...a little Marxist wisdom...' could one understand the economy of the U.S.-Mexico border.⁷² The applicability of this methodological characterisation must be questioned because the interaction between border communities goes beyond mere dependency, not to mention the fact that this theoretical perspective has long been discredited (discussed in the next chapter). Furthermore, as in the case of Fernández' study, the applicability of a peasant-landlord model is limited.

The discipline of political science also has been a popular a framework for analysing the issues important to the region. Labour, and migrant labourers in particular, have received a great deal of attention. The subject of the historical role of labour and its utilisation in the borderlands is founded on works by authors such as Gamio and Cardoso.⁷³ However, here

⁷⁰ H.H. Bancroft, *History of North Mexico*, J.F. Barmon, and E.C. Barker eds., *The Spanish Borderlands, Mexico and Texas*. Complete citations are give in Footnote 7. C. McWilliams, *North from Mexico: The Spanish-Speaking People of the United States, updated material by Matt S. Meier* (New York, 1990), D.J. Weber, *The Spanish Frontier in North America* (New Haven, 1992) and P. Horgan, *Great River, The Rio Grande in North American History* (Hanover, 1984). See also D.J. Weber, *The Mexican Frontier, 1821-1846: The American Southwest Under Mexico* (Albuquerque, 1982), L.C. Metz, *Border, The U.S.-Mexico Line* (El Paso, 1989) and R. Flores Caballero, *La Frontera entre México y Estados Unidos, Desarrollo histórico* (Monterrey, 1976).

⁷¹ Several titles relevant to this dissertation include: F. Almada, *Resumen Histórico del estado de Chihuahua* (Mexico, 1955). F. Almada, *Diccionario de História Geográfica y Biográfica Chihuahuense* (Chihuahua, 1979), G. Altamirano and G. Villa eds., *Chihuahua: Textos de su Historia, 1824-1921* (Chihuahua, 1988), D. Montejano, *Anglos and Mexicans in the Making of Texas, 1836-1986* (Austin, 1987). A.B. Chávez M., *História de Ciudad Juárez, Chihuahua* (Juarez, 1970). A.B. Chávez M., *Síntesis Gráfica de la História de Ciudad Juárez: Tricentenario de su fundación, 1659-1959* (Chihuahua, 1959). A.B. Chávez M., *La Villa de Paso del Norte de 1527 a 1700* (C. Juárez, 1948). T.E. Chávez, *Manuel Álvarez, 1794-1856: A Southwest Biography* (Niwot, 1990). C.L. Sonnichsen, *Pass of the North, Four Centuries on the Rio Grande, El Paso*, Vols. I and II (El Paso, 1968).

⁷² See R.E. Ruiz, *The People of Sonora and Yankee Capitalism* (Tucson, 1988), p. 6.

⁷³ M. Gamio, *Mexican Immigration to the United States* (New York, 1969) and L. Cardoso, *Mexican Emigration to the United States* (Tucson, 1980). The study of illegal migration and labour has been a focus of many scholars. See P.G. Brown and H. Shue eds., *The Border That Joins: Mexican*

the cohesiveness of the Mexico-U.S. borderlands has been increasingly undermined by the reliance on political constructions such as political frontiers. The contrasting nature of the Mexican and U.S. political systems has necessarily implied that there must be some divergence. In a historical context, Wasserman, Saragoza and Voss have certainly enriched the existing literature with their works on political elites in the late nineteenth century.⁷⁴ In these cases the discussions have centred mainly on the rise to political power of regional Mexican oligarchies and their relation with Mexico City during the nineteenth century. Unfortunately, these studies touch only briefly on the economic structures already in existence, created, and left in place by political elites. Their weakness is a failure to make the connection between regional elites and their impact on the growth of Mexican border communities and the political and economic relations they may have with their counterpart American communities. There is little, if any discussion of the nature of U.S. economic structures except in terms of 'foreign' capital investments in extractive and transportation industries.

Only a handful of political science texts have actually attempted to frame the interactions of border cities in a more robust (cross-border) setting in order to overcome the unitary constraints. One such work is by Martínez, which is perhaps more a history than

Immigrants and U.S. Responsibility (Totowa, 1983), A.F. Corwin ed., *Immigrants and immigrants: Perspectives on Mexican Labour to the United States* (Westport, 1978), J.A. Bustamante, *Mexican Migration to the United States* (San Diego, 1989), M. García y Griego, *Mexico and the United States: Migration, History and the Idea of Sovereignty*, Center for Inter-American and Border Studies, University of Texas-El Paso No. 4 (1983), M. Gastélum Gaxiola, *Migración de trabajadores mexicanos indocumentados a los Estados Unidos* (Mexico, 1991), D.H. Heer, *Undocumented Mexicans in the U.S.* (Cambridge, 1990) A. Monto, *The Roots of Mexican Labor Migrations* (Westport, 1994), P. Morales, *Indocumentados Mexicanos, causas y razones de la migración laboral* (Mexico, 1989).

⁷⁴ M. Wasserman, *Capitalists, Caciques, and Revolution: The Native Elite and Foreign Enterprise in Chihuahua, Mexico 1854-1911* (Chapel Hill, 1984), A. Saragoza, *The Monterrey Elite and the Mexican State, 1880-1940* (Austin, 1988) and S. Voss, *On The Periphery of Nineteenth Century Mexico, Sonora and Sinaloa, 1810-1877* (Tucson, 1982). Wasserman has been particularly prolific publishing additional titles such as M. Wasserman, *Persistent Oligarchs: Elites and Politics in Chihuahua, Mexico, 1910-1940* (Durham, 1993), 'La inversión extranjera en México, 1876-1910: Un estudio de caso del papel de las élites regionales,' in E. Cárdenas ed., *Historia Económica de México* (Mexico, 1992) and 'Chihuahua; Family Power, Foreign Enterprise and National Control,' in T. Benjamin and W. McNellie ed., *Other Mexicos: Essays on Regional Mexican History* (Albuquerque, 1984).

political science text.⁷⁵ By including El Paso, Texas in a study of C. Juárez, Martínez has drawn attention to the importance of cross-border interactions, although he stopped well short of characterising the relationship as a single market, preferring to label it as one of dependence or inter-dependence. Here again, the terminology of Marxist theory appears to have offered a solution when the existing theoretical framework did not permit one. Unfortunately, Martínez did not discuss at length the structure and nature of economic growth and development. Despite these shortcomings Martínez' work has served as a quasi-model for some of this study. In recent years, he has ventured into the realm of theoretical modelling by attempting to develop a new paradigm for Boundary Studies. Martínez has been searching for labels and definitions for boundary residents based on the scope of their activities.⁷⁶ However, his concepts are not fully developed and lack any great depth or explanatory power.

As the above disciplines have developed and themes and sub-themes have emerged, bibliographical surveys and studies have come to constitute a separate field. Here researchers have sought to catalogue the literature of the region. The most important among them is without a doubt by Stoddard because of the brief summaries of the many issues discussed above accompanied by bibliographical essays.⁷⁷ Works edited by Reich and Lorey, respectively, have begun to collate statistical data sets particular on the region by attempting to gathering historical information on population, trade and other activities⁷⁸ However,

⁷⁵ O.J. Martínez, *Border Boom Town, C. Juárez since 1848* (Austin, 1975). He has also gone on in his writings to further elaborate on the nature of borders in books such as *Troublesome Border* (Tucson, 1988).

⁷⁶ See O.J. Martinez in C.Schofield ed. *World boundaries*, Vol 1.

⁷⁷ *Borderlands Sourcebook: A Guide to Literature on Northern Mexico and the Southwest*, ed. E. Stoddard. (Norman, 1983). See also E. Stoddard, 'U.S. Mexico Border As Research Laboratory,' *Journal of Inter-American Affairs*, 11 (1969) 3. Other general surveys and guides include *Borderline: A Bibliography of the United States-Mexico Borderlands*, by B. G. Valk, et. al. (Los Angeles, 1988), J. Bustamante, *México-Estados Unidos: bibliografia general sobre estudios fronterizos* by (Mexico, 1980) and C. Cumberland, *The United States-Mexico Border: A Selective Guide to the Literature of the Region*, J. Frank Dobie, *Guide to Life and Literature of the Southwest*, (Dallas, 1958), H.P. Beers, *Spanish and Mexican Records of the American Southwest: A Bibliographical Guide to Archive and Manuscript Sources* (Tucson, 1979), M.C. Meyer, 'The Borderlands: An Historical Survey for the Non-Historian,' *Journal of Borderlands Studies*, 1 (1986) 1. See also G.E. Poyo and G.M. Hinajosa, 'Spanish Texas and Borderlands Historiography in Transition: Implications for United States History,' *Journal of American History*, 72 (1988) 2.

⁷⁸ D. Lorey ed. , *United States-Mexico Statistics Since 1900* (Los Angeles, 1990) and P.L. Reich ed., *Statistical Abstract of the United States-Mexico Borderlands* (Los Angeles, c1984).

despite their best efforts, pre-1940 data are piecemeal. In this regard, the present study will contribute to the compilation of historical databases, as some of the statistical material presented in later chapters represents original research collated to better suite the study of the Mexico-U.S. borderlands.

To summarise, the literature on the Mexico-U.S. borderlands has drawn from five main fields and given rise to a sixth. Out of these, topics such as labour migration and cultural and social continuity have generated the greatest interest. Most of the historiography recognises the problems posed by present theoretical methodologies as well as the limitations of quantitative analysis of boundary studies. Very little, however, emphasises the importance of an understanding and not a mere retelling of the history of that particular region when examining the functioning of border regions. Political boundaries are for the most part rigid, and for this reason other means must be found by the communities to accommodate the changes that take place through time. As Anderson points out, 'The legacy of the past...gives a distinctive appearance to urban, industrial and commercial development as a result of economic and social realities.'⁷⁹ Each of the theoretical perspectives by itself is limited in its ability to study a border region within its various contexts sub-national, national and supra-national because the basic unit of analysis is normally the nation-state. The reality of international boundary communities is bi-national and bi-cultural, if not larger. As Hansen observed in his study of the U.S. border economy (markets), regional theory, or any theory by itself, cannot provide an adequate basis for analysing the economics of border regions, in part, because of the unitary constraint.⁸⁰

IV

The following study on Mexico-U.S. cross-border relations is firmly entrenched in the broader search for an understanding of borderlands in general. And as stated above, although much of the research in Boundary Studies is part-and-parcel of political considerations and conflict resolution, this study on the formation of a cross-border market at C. Juárez-El Paso will focus on co-operation at a local level, re-naming it integration. Furthermore, this study focusses on the economic aspects of the cross- border relationship, allowing for assertions to be made about the process of integration between Mexico and the

⁷⁹ M. Anderson ed., *Frontier Regions*, p. 14.

⁸⁰ N. Hansen, *Border Economy*, p. 61.

U.S. Without being a study in diplomacy or sovereignty, it focusses on what Boundary Studies would term a functionalist approach, here considered a more appropriate focus, given that the nation-state in its policy-making function has not always had the best interest of the border in mind. More importantly, because of the period under study, official guidelines for dissolving the Mexico-U.S. boundary and theoretical frameworks for cross-border co-operation are difficult to apply. Thus, this study takes the perspective that the international boundary between Mexico and the U.S. during the period under study is relatively unenforced in sovereignty terms, thereby relegating politics and international relations to a back seat, while the economic machinations of the region are explored.

CHAPTER TWO

ECONOMIC THEORY AND THESIS METHODOLOGY

There are a number of economic theoretical constructs that may be applied to the subject of the development of a C. Juárez-El Paso cross-border market. They are generally found in theories of (international) development and regional growth. In this chapter, section one looks at the alternative ways of studying the C. Juárez-El Paso case in terms of development theories. The second section applies the same approach to regional economic theories. Section three explains the methodology of this study economic integration theory including definitions and assumptions. This methodology was previously mentioned as part of the growing body of literature in Boundary Studies in the previous chapter, and while including some of the orthodox views in the economic literature, the theory also allows for a more multifaceted approach to the subject. It is important to state from the outset that economic integration theory by itself is an insufficient analytical tool with which to study the C. Juárez-El Paso case. However, as this is an investigation into the internal cohesion of the C. Juárez-El Paso border region in economic terms and its place within the larger bi-national context, economic integration theory forms the largest part of the analytical foundation, although aspects of the alternatives theories and methodologies will be incorporated.

I

The first set of theories theories of development apply more to the international arena. They ask the question, why did some countries develop and others not? The theories fall into five main groupings: linear stages, structural change, dependency, neoclassical growth theory

and new growth theory.¹ Of these bodies of theory, Dependency Theory is often cited as the most appropriate for Mexico-U.S. economic relations. This position is challenged below. However, it is important to mention the other main theories before turning to Dependency Theory.

Linear stages of development theories are associated with the work of Rostow who proposed a typical sequence through which regions must pass in the course of their development.² In the first stage the traditional society production is limited and a society devotes a high proportion of its resources to agriculture. In the second stage, these societies 'embrace a process of transition' in which the 'preconditions for take-off' are developed. New types of entrepreneurs emerge who are willing to take more risks. Banks and other financial institutions mobilise capital, investment increases and the scope of commerce widens as modern manufacturing begins. The 'take-off' stage is the interval when the old blocks and resistance to steady growth are finally overcome and growth becomes the normal condition. Investment and savings give rise to new industries, leading to a chain of events, including demand for more workers, services to support them and other manufactured goods. Further expansion of urban areas, new techniques in agriculture, and commercialization of agriculture take place along with the revolutionary changes in agriculture. The fourth stage is the 'drive to maturity', a long interval of sustained, if fluctuating, progress in which the make up of the economy changes unceasingly as techniques improve and new industries accelerate while older industries level-off. 'High mass-consumption' characterises the last stage in which leading sectors shift toward durable consumer goods and services; social welfare and security become important concerns as the society ceases to focus on further extension of modern technology.

Rostow's stages thesis presents a very appealing method of analysis. However, some of the main criticisms of this theory revolve around why countries had to follow the same stages. In the case of Latin America, it was argued by Frank that the traditional society stage

¹ For general readings on development see works such as M.P. Todaro, *Economic development in The Third World: An introduction to problems and policies in a global perspective* (Harlow, 2nd, 1982) or *Economic Development* (Reading, 7th ed., 1999), M. Gersovitz, et.al., *The Theory and Experience of Economic Development* (London, 1982) and J.N. Bhagwati ed., *International trade: selected readings* (Cambridge, 1987).

² These five stages of development are summarised on pp. 4-11 of *The Stages of Economic Growth: A Non-Communist Manifesto* (Cambridge, 2nd, 1971). The Harrod-Domar Growth Model elaborates on the connection between investment and growth.

did not exist or was destroyed by Europeans.³ Another problem was the fact that state help was not taken into consideration, despite the fact that government policy had played an increasing role in change. Thus, while the stages theory offered a tempting means of viewing development, it had its shortcomings. In terms of this study, the stages thesis will not be utilised given that it assumes a process not seen in the C. Juárez-El Paso case. This is elaborated upon below within the context of Regional Economics, which also offers a linear stages model in respect of regional development theories.

Chenery and Lewis are the main proponents of structural change theory, which focusses on the mechanism by which underdeveloped economies transform their domestic economic structures. The theory employs the tenets of neoclassical price and re-allocation theory. In the case of Lewis, the transformation of a primarily subsistence economy to an industrially diverse and service economy (e.g. domestic structural change), is accomplished by labour transfers and the growth of output employment in the modern sector. The basic assumptions of the model are that labour transfer and employment creation in the modern sector of the national economy are proportional to the rate of modern sector capital accumulation. Additionally, there are the assumptions that there exists a labour surplus in the rural sector and constant real wages in urban areas.⁴ The shortcomings of this type of analysis appeared when the basic assumptions of the model proved to be incorrect when applied to some of the Third World countries. For example, labour surpluses did not necessarily characterise the rural sector of many Latin American countries. Additionally, urban wages were not necessarily constant. It was found that often times urban wages were rising in developing countries. The existence of a labour surplus in rural Mexico is an element of the development of a labour market in the C. Juárez-El Paso area during the nineteenth century. However, the transient nature of labour and the upward pressure on wages it created makes this type of analysis difficult to undertake in this particular case. Furthermore, as this is an analysis of the development of a cross-border market, the emphasis is not the transformation of either Mexico's or the U.S.'s domestic economic structure, but rather on the emergence of a market structure that transcends the international boundary, and its resilience over a specific period of time, given a certain context.

³ A.G. Frank, *Capitalism and Underdevelopment in Latin America* (New York, 1967).

⁴ See W.A. Lewis, *Theory of Economic Growth* (London, 1955) or *The Evolution of the International Economic Order* (Princeton, 1970).

Cheney proposed a patterns-of-development model much like the stages model in that it suggested a sequence through which economic, industrial and institutional structures must pass. In contrast to the Lewis model, savings and investment were only part of the picture; changes in the economic structure of the country were also required. Cheney emphasised that there existed both international and domestic constraints to the process.⁵ In respect of this study, while a pattern for the development of the C. Juárez-El Paso region emerges in the analysis, in applying the Cheney model to the cross-border region, two overlapping patterns must exist, making it difficult to discern which pattern is driving the changes. Additionally, Cheney's focus was on underdeveloped countries. Mexico may be considered an underdeveloped country, but the U.S. certainly is not. As stated above in the case of Rostow, a stages of development model proves untenable for a number of reasons. Therefore, it is not truly applicable to this study.

Continued dissatisfaction with existing models and their failure upon implementation led to the emergence of supply-side economics and privatisation in the late 1980s and early 1990s. According to this school, underdevelopment resulted from poor resource allocation, incorrect pricing policies and too much state intervention. Economists such as Krueger are closely associated with this stance.⁶ The basic argument was that Third World underdevelopment was not due to the predatory actions of the First World, but rather because of the 'heavy hand' of the state. According to these economists, freer markets were needed. However, upon implementation in the Third World, there came the quick realisation that domestic institutional and political structures or appropriate pricing policies were difficult to achieve. In respect of the present study, the 'heavy-hand' of the state does not guide the formation of the C. Juárez-El Paso cross-border market, although state policies may be seen to influence its development. Therefore, a methodology that focusses primarily on re-directing government policy to stimulate growth in a historical setting is not appropriate.

New growth theories re-cast the neoclassical models in terms of endogenous growth as a means of explaining long-run growth rate differentials across countries. These theories discard the assumptions of diminishing marginal returns to capital investments and permit

⁵ H.B. Cheney and M. Syrqui, *Patterns of Development, 1950-1970* (London, 1975) or H. Cheney and T.N. Srinivasan ed., *Handbook of development economics* (Amsterdam, 1989).

⁶ See A.O. Kruegered. *Development with trade : LDCs and the internationaleconomy* (San Francisco, 1988) or *Perspectives on trade and development* (Hemel Hempstead, 1989). Other writers of the same ilk include B. Balassa and J. Bhagwati referenced elsewhere in this study.

increasing returns to scale in aggregate production and focus on the rate of externalities in determining the rate of investment. Additionally, technology is not necessary to explain long-run growth. New growth theory re-emphasises savings and helps explain anomalous internal flows of capital that exacerbate disparities in wealth, but it still remains dependent on neo-classical assumptions. One the greatest limiting factors of this C. Juárez-El Paso case study is the lack of data on investment and output for the region. Therefore, models based on regional savings rates as well as internal capital flows are difficult to undertake. Furthermore, growth is often impeded by poor infrastructure, inadequate institutions and imperfect capital markets, all of which are overlooked by endogenous growth models. While institutions are considered important factors in the growth of both countries, as will be explained in the next chapter, their focus is not necessarily the development of a transboundary relationship.

Dependency Theory is given more consideration herein because it is often cited as a viable perspective from which to view Mexico-U.S. relations. As a rejection of the application of classical and neoclassical theories to the case of Latin America, the central argument of Dependency Theory maintained that growth theories elaborated for the developed world could not be applied to the region, and the assumptions that the gains of trade would even out did not always apply.⁷ The purpose of the following discussion is to outline the main tenets of the theory, and not a detailed analysis of Dependency Theory, as this is not the focus of this thesis.

The role of the international economy in Latin American development has been one of the fundamental components of Dependency Theory.⁸ The underlying position was that Latin America functioned as a supplier of primary/raw materials to the world economy both during the colonial period and the post-colonial period. Consequently, the internal dynamic of Latin American society and its underdevelopment were conditioned primarily by the position of Latin America in the international economy. Proponents of dependency further posited that this positioning also conditioned the resulting links between internal and external

⁷ S. Haber ed., *How Latin America Fell Behind* (Stanford, 1997), p. 7.

⁸ See O. Sunkel, *Past, present and future of the process of Latin-American underdevelopment* (Budapest, 1973) and A.G Frank, *Capitalism and underdevelopment in Latin America; historical studies of Chile and Brazil* (New York 1967), or *On capitalist underdevelopment* (New York, 1975).

structures.⁹ Thus, structure also played a central role in a region's development; institutional problems underlay structural ones. Class analysis formed a third important component of dependency theory. Though not necessarily Marxist in its foundations, Dependency Theory was linked to Marxism with the modes of production model responding to Rostow's stages of development construct on the way that human societies organise their productive activities. The five modes – subsistence, slavery, feudalism, capitalism and socialism – were differentiated from each other in the relations between the factors of production (land, labour, capital and entrepreneurship).

Dependency Theory stems from the work of Prebisch, who in 1949 employed a 'terms of trade' analysis to set the basis for modernisation in Latin America. Prebisch focussed on the change from agriculture to industry by the adoption of techniques and modernisation.¹⁰ He held that, exporting commodities with low income elasticities of demand and importing goods with high elasticities, coupled with the structure of developed countries (labour unions and oligopolistic markets), meant that the benefits that were supposed to accrue to a country from the classical theory of international trade did not accrue to the developing country. The key policy initiatives to evolve from his work were: import substitution industrialisation through protective measures; economic integration among the developing countries to capture the gains from trade; reciprocity for transferring resources to the developing country; and raw commodity controls in order to reduce price fluctuations. Foreign investment and foreign aid were not rejected, although Prebisch was concerned about their application in developing countries.¹¹ While he recognised the importance of the international economy in the development of Latin American economies, underdevelopment was not wholly attributed to the likes of the U.S.

⁹ P. O'Brien, 'A Critique of Latin American Theories of Dependency,' in I. Oxall, T. Barnett and D. Booth eds., *Beyond the Sociology of Development: Economy and Society in Latin America and Africa* (London, 1975), p. 13.

¹⁰ See R. Prebisch, 'The Economic Development of Latin America and its Principal Problems' in *Economic Bulletin for Latin America*, 7 (1962) 1, or *Towards a Dynamic Development Policy for Latin America* (New York, 1973).

¹¹ A. Pinto and M. Wionczek further elaborated on Prebisch's thesis. Pinto described a phenomenon of marginalisation of Latin America by analysing the flows of international trade and investment. Wionczek believed that Latin America as a block was open to foreign investment without direction. This meant there was an incompatibility with longer-term sustainable growth objectives. A. Pinto and J. Knakal, *América Latina y el cambio en la economía mundial* (Lima, 1973) and M. Wionczek, *Studies in Comparative International Development* 5 (1970) 2.

In the writings of Furtado,¹² Sunkel¹³ and Dos Santos¹⁴, the degree of blame for the lack of internal development of these countries was more clearly placed at the door step of external factors. In examining Chile, Sunkel saw international affairs as shaping but not dominating internal affairs. Furtado also recognised internal structural obstacles to development, but Dos Santos carried the argument further, maintaining that international affairs conditioned the internal process. All three placed importance on the role of the multinational corporation (MNC) as the successor to colonial and financial forms of domination. However, in contrast to Prebisch, foreign aid, foreign investment and trade negotiations were all used by the developed countries to exploit developing countries. In this regard, the U.S. was seen as the greatest exploiter of the markets. Import substitution industrialisation and a common market were supported to differing degrees by Furtado, Sunkel and Dos Santos as a solution to Latin America's problems. Social class was not a key element of these positions, although all viewed the imposition of the new structures as arising from outside, thereby creating a class consciousness in the internal markets of Latin America.¹⁵

Frank led a different group of theorists who saw the interests of countries such as the U.S. as directly in conflict with the interests of developing countries. For Frank, the backward institutions found in the developing world were not feudal because they were due to involvement with capitalism. A region was more likely to be backward the greater contact it had with capitalist institutions. Dependent relations not only shaped internal structures, they determined them. Foreign aid and foreign investment were seen as undesirable. Historical analysis was used by this school, more so than Furtado, Sunkel, and Dos Santos, to support the case. Class consciousness and conflict were given greater attention and more

¹² C. Furtado, *Development and Underdevelopment* (Berkeley, 1964) and *Obstacles to Development in Latin America* (New York, 1970).

¹³ See, O. Sunkel, *Past, present*.

¹⁴ T. Dos Santos, 'La crisis internacional del capitalismo y los nuevos modelos para el desarrollo', translated by O. Castillo (Buenos Aires, 1987) or *Dependencia y cambio social* (Caracas, 1974).

¹⁵ See C.R. Bath and D.D. James, 'Dependency Analysis of Latin America: Some Criticisms, Some Suggestions,' *Latin American Research Review*, 11 (1976) 3.

fully integrated into the theory of underdevelopment. These theorists favoured social revolution as the means to end dependency.¹⁶

These dependency positions have been critiqued in a number of ways, mainly that they refused to acknowledge other well-conceived contrary views or utilise well-founded scientific methods of analysis.¹⁷ That is, they obviated the tools of neoclassical theories as a means of analysing the growth of Latin American economies. A more rigorous analysis of the terms of trade, the impact of foreign investment and foreign aid, the role of population growth and the function of multinational corporations were but a few examples of these shortcomings. Additionally, the analysis of structures of existing domestic markets was lacking and when undertaken appeared to contradict the fundamentals of Dependency Theory. For example, in discrediting the arguments of dependency theory, Platt maintains that in colonial Latin American, silver and gold and their export, once established after the conquest, were simply parts of an overall economy that was orientated to internal functions. The theory gave such importance to the international market that the importance of the internal market was obviated. It was easy to assume that, because foreign financing built the railways, these railways served only that purpose, but this was not necessarily the case. The first railways were built to service the domestic market.¹⁸ Additionally, Platt maintains that the characteristics of Latin American economies were the result not so much of the importance of distant metropolises, but of the inadequacies of the internal markets and structures. The development of the internal market was responsible for attracting foreign investment.¹⁹

Dependency theorists did try to remedy these shortcomings. One response was to modify dependency into dependent development where development could only take place in a dependent environment with underdevelopment as a product of dependency.²⁰ This

¹⁶ See A.G. Frank, *Capitalism and Underdevelopment*.

¹⁷ C.R. Bath and D.D. James, 'Dependency Analysis,' p. 26.

¹⁸ D.C.M. Platt, 'Objeciones de un historiador a la teoría de la dependencia en América Latina en el Siglo XIX,' *Desarrollo Económico*, 76 (1980)19, p. 444. This point is also raised by S. Haber in his introduction of *How Latin America Fell Behind*.

¹⁹ D.C.M. Platt, *Ibid.*

²⁰ See P. Evans, *Dependent Development* (Princeton, 1979) or C. Cardoso and E. Faletto, *Dependency and Development in Latin America* (Berkeley, 1979).

modified version of dependency, according to Haber, employed a circular reasoning in which, whenever a variable within the argument changed, it automatically reinforced the idea of dependency. Another response was to attempt to reform Dependency Theory from within. In order to accomplish this, a shift in analysis to focus on institutions was attempted, but without a solid theoretical basis within Dependency Theory to pursue the analysis, this change was difficult to apply. Additionally, in so doing, reformers would have to reject Dependency Theory altogether. Reformers returned to dependent development, and social and political studies became the focus.²¹

How does Dependency Theory apply to the study of the internal cohesion of the C. Juárez-El Paso cross-border market? Although modes of production and class conflict have been mentioned in the literature survey in the previous chapter, they have proved inadequate vehicles of analysis because of the lack of clearly defined relationships. Originally, as a sparsely populated region, the landlord-peasant model has little applicability in the Mexico-U.S. borderlands, in general. This area constituted a frontier region where integration took place on a less clearly drawn map of developed versus underdeveloped worlds. In fact, during the period under study, C. Juárez and El Paso, as well as the Mexico-U.S. borderlands, were marginalised from the main centres of population and economic activity. They were rarely taken into consideration in any sphere of policy and market-making, at least not until the late nineteenth century when they had already developed a hybrid existence of their own. It is the purpose of this study to show this process through the development of a cross-border market at C. Juárez-El Paso with internal market structures that transcend the division of countries based on the Mexico (underdeveloped) *versus* U.S. (developed) model. Another key issue is investment which, although primarily from outside the region, is believed not to alter significantly the pattern of development already in place. As the historical context presented in the next chapter will show, Northern Mexico was a special case in the development of the country. For example, production in Northern Mexico was not simply export-orientated. Therefore, assuming a complete dependency position is incorrect. The dependency of Mexico on the U.S., and therefore C. Juárez on El Paso, is rejected because as this study will show, along its southern border, the U.S. was also dependent on Mexico.

Theories of development on an international level have attempted to take the experiences of the developed countries and apply them to the underdeveloped world. For one

²¹ See D.C.M Platt, 'Objections' and S. Haber, 'Introduction,' pp. 8-15.

reason or another, these theories have been unable to redress the issues of the underdeveloped countries. Dependency Theory was a response from within Latin America to alter the way in which development in these countries was viewed. However, a poorly developed theoretical framework, as well as a complete overlooking of pre-existing conditions and the strength of the domestic markets, have served to discredit the position. These general theories have proved inadequate tools for the present study because of their predisposition to portray Mexico and the U.S. as conflicting economic interests. This position undermines the theme of integration underlying the C. Juárez-El Paso case.

II

Regional economics is another type of analysis applicable to the study of the economic development of the C. Juárez-El Paso area. In this case, economic processes are given a spatial setting, something overlooked by traditional theory because of the assumption that no distance, transportation costs or other frictions exist. These studies are geared more toward: a) analysing the spatial distribution of and interaction of factors and their influences on industrial location; b) the functioning of regions as spatial subsystems of the national economy, including how to delimit a region and what type of accounting systems should be employed; c) optimising an economic system in a spatial setting; and d) setting policies.²²

Regional studies have focussed on: (1) case studies of individual industries; (2) in-depth examinations of one or two regions; and (3) macro-regional studies, emphasising linkages and interdependence in an interregional system. The fundamental unit of analysis has been the nation-state. Therefore, as a general statement, regions, as subsystems, are not capable of stimulating their own growth (endogenous growth), neither are they able to shield themselves effectively from expansionary and contractionary growth trends in other regions (exogenous growth).²³ These studies have tended to focus on why some regions have benefited more than others, and the answers have been sought by looking at industrial structure. The position that regions are incapable of experiencing endogenous growth stands in contrast to the possibility of such growth as mentioned in the previous chapter with respect to the work of Newman on the Green Line in Palestine. This is a salient difference between

²² H. Siebert, *Regional Economic Growth: Theory and Policy* (1969), pp. 1-2. See also L. Lefebvre, *Allocation in Space: Production, Transport and Industrial Location* (Amsterdam, 1958). For theories on location see W. Isard, *Location and Space* (Cambridge, 1956) or M. Hoover, *The Location of Economic Activity* (New York 1956).

²³ G.J.D. Hewings, *Regional Industrial Analysis and Development* (London, 1977), pp. 3-6.

Boundary Studies and Regional Economics. In certain aspects of the latter, local initiative is seen as equally as important as political or economic events from the outside and above.

The definition of a region has been an important starting point for any regional analysis, just as in Boundary Studies. However, there is no unique definition of a region that is universally applicable, and the final definition depends on the objective of the analysis. Still, many regional theorists use the concept of homogeneity as a means of conceptualising a region. In this case, a region is assumed to grow and decline as a whole rather than because of separate influences or different industries located at separate cities within a region.²⁴ An alternative means of defining the region is nodality. This term describes what happens within a region and treats the spatial dimension as important. Nodes of different sizes may exist simultaneously within a region and may be linked through the flow of people, factors, goods and communications.²⁵ For the purposes of this study, functional and nodal definitions are difficult to apply because this study focusses on the formation of a cross-border market, a precursor to the formation of a definitive region under either definition. The mobility of the neoclassical factors of production across an international political boundary, but within a metropolitan area that possesses a vast hinterlands that varies in size depending on the factor in question, is the focal point of this study. And while other cities may exist in these hinterlands, they are not rank-ordered in respect of C. Juárez-El Paso. Therefore, neither homogeneity nor nodality is embraced as a definition.

A large body of regional theory comprised of neoclassical, behavioural or structural perspectives has emerged over the years. Particular emphasis is placed herein on the neoclassical approaches because of their relevance to economic integration theory, the

²⁴ H. Richardson, *Regional Economics* (Urbana, 1979), p. 20.

²⁵ In the case of nodality, the degree of association between nodes is measured by the magnitude of trade flows. A nodal region is seen as a special case of a functional region, which has a single focal point, allowing for the introduction of dominance or ordering. A functional region does not emphasise the role of each location within a region, but rather emphasises interaction within the group, which is greater than between groups. K. Fox developed the concept of a Functional Economic Area (FEA) in which the delimiting factor as a community area. See K. Fox and Kumar, 'The functional economic areas: delineation and implications for economic analysis and policy,' *Papers and Proceedings, Regional Science Association*, 15 (1965), pp. 57-85. See also L.A. Brown and J. Holmes, 'The Delimiting of Functional Regions, Nodal Regions and Hierarchies by Function Distance Approaches,' *Journal of Regional Science*, 2 (1971)1, pp. 58-58. The concept of region may also be extended to mean blocks of contiguous nations in the international economy. This also implies a hierarchy of units from the world economy down to the village and requires a neutral type of spatial analysis. See L.B. Minnes, J. Tinbergen, J.L. Waarburg, *The Element of Space in Development Planning* (Amsterdam, 1969).

methodology employed by this study.²⁶ Notwithstanding, a brief mention of the fundamental tenets of the other two approaches is appropriate. In behavioural approaches, the individual is the main motive force in economic affairs. Unlike neoclassical models that suffered from unrealistic assumptions, this school is based on what actually occurs. These studies encompass a greater number of variables including motives, values preferences and opinions. One prominent example of this approach is Game Theory.²⁷ For the structuralists, space is what the economy makes of it, and the economic landscape is a product of the overall structure of the economic system in which the individual operates. Structuralists adopt a much wider approach than behaviouralists by including social political and economic processes.²⁸ Both of these perspectives have resonance with the following study. However, because of the assumption that the C. Juárez-El Paso case is a spaceless economy (e.g. not clearly constrained within a specific national boundary) and because the motivations, opinions and values of the individual actors are far removed in time, neither have been adopted as the fundamental theoretical perspective. This is not to suggest that neither method may be used, but rather that their application would be problematic given the two nation-states involved and the nature of this particular study.

The neoclassical school bases itself on the assumptions that there is an identifiable order; people are rational, have complete knowledge and seek to maximise economic activity in a freely competitive environment. Four main neoclassical models may be identified as possibly being applicable to this study: (1) Stages of Development; (2) Export-Based²⁹; (3)

²⁶ The main neoclassical theorists are: von Thünen, who developed his model based on agriculture; Weber who focused on industry; and Christaller, whose Central Place Theory focused on settlement patterns and services. All employed the basic assumptions of neoclassical theory of perfect knowledge, perfect competition, and rational decision-making. See A. Weber, *Alfred Weber's Theory of the location of industries* (Chicago, 1929), W. Christaller, *Central Places in Southern Germany* (New Jersey, 1966).

²⁷ See A. Pred, *Behaviour and location: foundations for geographic and dynamic location theory*, Lund Studies in Geography, Nos. 27 and 29 (Lund 1967 and 1969), D.J. Walsley and G.J. Lewis, *Human geography: behavioural approaches* (London, 1984) and M.A. and R.W. Dimand, *A history of game theory* (London, 1996) for more detailed references on the subject.

²⁸ See M.J. Boddy, 'Structural approaches to industrial location,' in W.F. Lever ed., *Industrial Change in the United Kingdom* (London, 1987); D. Massey and R. Meegan eds. *Politics and method: contrasting studies in industrial geography* (London, 1985), or M.J. Healy and B.W. Ilbery, *Location and Change: Perspectives on Economic Geography* (Oxford, 1990).

²⁹ See G. Myrdal, *Rich lands and poor* (New York 1957) and A. Hirschman, *The strategy of economic development* (New Haven, 1958).

Growth Pole, and (4) Centre (Core)-Periphery.³⁰ The Stages theory of Regional Growth proposed by Hoover and Fisher is an attempt at setting the regional question in a long-term perspective.³¹ The principal advantage of this theory is that it provides a framework for considering long-run regional economic development, and it is one of the few frameworks that can combine three important aspects of regional growth: export base, import substitution and supply-side growth. Much attention is focussed on a single region, and such approaches do not involve multi-regional perspectives. Thus, these models do not consider the question of interregional equilibrium.³²

The Stages of Development theory is demand-driven and growth is conditioned by changes in the predominance of labour in the primary, secondary and tertiary sectors.³³ It is an application of Rostow's linear stages theory, mentioned above, to the regional cases. The first stage is characterised by a self sufficient subsistence economy, in which there is little investment or trade and population is located according to the distribution of natural resources. In the second stage, as transport linkages evolve in the region, some trade and local specialisation occurs and another level of population comes into being that carries on simple village industries for the farmers. The next stage sees increased interregional trade, and a transition through a succession of agricultural crops from extensive grazing to cereal production to fruit-growing, dairy farming and truck gardening. In stage four, with increased population and diminishing returns in agriculture and other extractive industries, the region is forced to industrialise and secondary industries such as mining and manufacturing on a considerable scale emerge. This early stage of industrialisation is based on the products of

³⁰ P. Know and J. Agnew, *The Geography of the World Economy* (1989), pp. 76-79.

³¹ Thus, it is able to deal explicitly with the size, spacing and frequency of urban centres. However, the shortcomings of central place theory are that it deals with the conditions of spatial equilibrium at a specific point in time. E.M. Hoover and J. Fischer, 'Research in Regional Economic Growth,' in *Problems in the Study of Economic Growth* (New York, 1949). See also E.M. Hoover, *An Introduction to Regional Economics* (New York, 1971).

³² Purely macro-economic models of regional growth such as those suggested by Borts and Stein, Richardson's adaptation of the Harrod-Domar model and Siebert have all explicitly treated the multi-regional question. See G.H. Borts and J.L. Stein, *Economic Growth in a Free Market* (New York, 1964), H. Richardson, *Regional Economics* (New York, 1969), H. Siebert, *Regional Economic Growth*. See also G. Myrdal and his circular and cumulative causation and Hirschman on the interregional spread of economic growth. G. Myrdal, *Economic Theory and Underdeveloped Regions* (London, 1957) and A. O Hirschman, *The Strategy*.

³³ G.D.J. Hewings, *Regional Industrial Analysis*, p. 68. See for example, S. Kuznets *Modern Economic Growth Rate, Structure and Spread* (New Haven, 1966)

agriculture and forestry and includes activities such as the processing of food, manufacture of wood products and the preparation of textile fibres. If industrialisation is to continue, mineral and energy resources become critical. In the final stage of growth, a region specialises in tertiary industries producing for export. Such a region exports to less advanced regions capital, skilled personnel and special services. Throughout the stages of growth, transportation has been critical.³⁴

In applying the model to the North American experience, North discredited the linear progression through these stages as a means of explaining regional growth. According to North, if a subsistence economy existed in the U.S., it was strictly because of a lack of transportation a condition swiftly remedied by the settlers. This did not mean that the settlements were not maintained by subsistence activities, but rather that subsistence did not shape the economic development of the region.³⁵ The important observation was that subsistence was not because of nonmarket orientation, but because of a lack of transport, which was a frontier condition. As soon as transportation was available, regions developed markets that were far away, therefore there was no gradual transition. Another shortcoming identified by North was that in stage three, a shift from extensive to intensive farming was supposed to occur. He asked, is this due to changes in the export base, or is it some other reason? Furthermore, a shift from agriculture to industrialisation may not be necessary. In the final stage, a mature economy exporting capital, skills and specialised services to less-well developed regions emerges. North again asked, is this the final stage for all regions? An even bigger question was; is growth necessarily equated with industrialisation? An agriculturally-based region may support a substantial service sector.³⁶ As a regionalised

³⁴ D.C. North, 'Location Theory and Regional Economic Growth,' *Journal of Political Economy* (July 1938), pp. 244-45. Per Isard, reduced transportation costs have tended to transform a scattered, ubiquitous pattern of production into an increasingly concentrated one and to effect progressive differentiation and selection between sites with superior and inferior resource and trade. W. Isard, 'Distance Inputs and the Space Economy. Part I, The Conceptual Framework,' *Quarterly Journal of Economics*, 55 (1951), pp 188-98, E.M. Hoover, 'Shoe and Leather Industries', pp. 284-85, and *Location of Economic Activity*, pp 187-88. See also A. Losch, 'The nature of Economic Regions,' *Southern Economic Journal*, 5 (July) 1938.

³⁵ North uses the American Pacific Northwest as a case in point. He states that the markets for the products of the region, namely furs were very distant and companies such as the Hudson Bay Company exploited the region for that purpose. As the fur trade declined, and the coming of wheat, flour and lumber were quickly developed as exportable commodities. This was as a consequence of the California gold Rush of the late 1840s. The same history is found in the lumber industry. D.C. North, 'Location Theory', p. 246.

³⁶ G. J. D. Hewings, *Regional Industrial Analysis*, pp. 68-70.

version of Rostow's larger model, these criticisms echo those made in the previous section on international theories of development. And as above, a linear stages approach is limited because, as will be seen, C. Juárez-El Paso responded to transportation in the way that North described for parts of the U.S. and regional development did not follow the stages. Furthermore, as the regional economy developed, it did not necessarily become fully industrialised to the stage of high mass consumption. This means that a progression through the successive stages of development described by the theory was not the process followed in the C. Juárez-El Paso case.

In Export Base theory (Staple Theory) growth is dependent upon a clearly defined export base, which is divided into those activities that produce for the export market and those that produce for the local market. From here a ratio of exports to resident activities is made and measured by income and employment. This ratio is used as a multiplier leading to some conclusions or planning goals. Therefore, the income of a region is tied to its exports, and the development of the community depends on the ability to export, making external demand or exogenous changes in other regions more critical than the ability to supply capital and labour. The impact of changes in the export sector and their affects on the rest of the community depends on the nature of linkages between the export and non-export sectors. The distribution of income from the export sector, and ownership of resources used in it, assist in translating export sector changes into economic development.³⁷ Income and employment changes are assumed to be due entirely to exports and no other stimulus for change. The extra capital and labour required to expand production is also assumed to be available immediately and without any increase in wages or profits. Additionally, an equivalence of earnings in all sections and no importation of local consumption goods and services is assumed. Finally, the creation of a new export sector can be caused by government investments and new technology.³⁸

³⁷ R. Shaffer, *Community Economics: Economic Structure and Change in Smaller Communities* (Ames, 1989), p. 29.

³⁸ Another take on the export-base model was developed by H.A. Innis in his studies of the growth of the Canadian economy. After looking at the historical development of the Canadian economy, he became convinced of the crucial importance of the export staple in shaping new economies. This became the basis for understanding the economic character of the country's economic development. The term staple refers to the chief commodity produced by a region, traditionally thought of as describing products of extractive industries. Works by Innis include, *Essays in Canadian Economic History* (Toronto, 1956) and *Problems of staple production in Canada* (Toronto, 1933). See also W.A. Mckintosh, 'Innis on Canadian Economic Development,' *Journal of Political Economy*, June (1953).

Export Base Theory is useful if the region is simple or possesses a relatively simple inter-sectoral structure, but for long-run regional growth and larger regions, the export base becomes increasingly less valid and needs to be supplemented by a framework capable of taking into account growth within the region.³⁹ The preoccupation with the influence of demand and neglect of the importance of the supply-side of growth are the main criticisms of the theory. The introduction of supply considerations draws attention to the importance of regional resource endowments and regional competitive advantage *vis a vis* other regions. Other weak points of the theory are that development can occur despite a decline in the export sector. Therefore, Export Base theory is only a partial theory and does not account for structural changes; a community's development may not always depend on exports. Growth can come from the non-export sector, and there is no reason why a region must industrialise in order to continue to grow. In fact, secondary and tertiary development may arise automatically either because of location advantages of material-orientated industry or as a passive reflection of growing income in the region resulting from the success of its exportable commodities. Additionally, the size of a region could determine income but this may explain only part of the success of exports. Increased outside investment or internal trade may also be influencing factors. Business investments and government spending also contribute to growth, and a region at two different periods in time may show a change in the volume of exports and income, or growth may occur with exports remaining constant, if the internal activities are on the rise.

Defining a region around its export base is useful, but as boundaries are not clear, particularly in a neoclassical treatment where spacelessness is important in supporting the underlying assumptions, the problem becomes: where does one draw the line between one region and another?⁴⁰ Strictly speaking, in regional theory C. Juárez and El Paso should be considered two regions, as they pertain to separate nation-states. When viewed this way, they possess two separate and competing or complementary export-bases. This position undermines the very essence of this study, which is that the two communities exhibit an internal cohesion and, in fact, form a single cross-border region. Therefore, on this basis

³⁹ See D.C. North, 'Location Theory and Regional Economic Growth,' *Journal of Political Economy*, 63 (1955) and J.C. Stabler, 'Exports and Evolution: the Process of Regional Change,' *Land Economics*, 44 (1968).

⁴⁰ Despite the efforts of theorists such as Losch to define them as in the case of his production-orientated spatial system. See A. Losch, *The Economics of Location* (New Haven, 1954).

alone a study grounded in Export Theory must be rejected. Furthermore, while Export Base theory may be helpful in explaining regional economic growth, it obviates residential activities in determining the factor costs of the export base, or the very development of a cross-border whole. Residential activities in the form of entrepreneurial activities are a key component of this study. Additionally, Export Base Theory requires a greater wealth of trade data on productivity and export relationships in order to define the C. Juárez-El Paso region around an export base and then use the evolution of this base to assess growth and development over the long term. The lack of data is a fundamental obstacle to this approach in this case, and it is for this reason that the region is defined around a base of productive activities instead.

Growth Pole theory suggests that a lead sector in an economy through its dynamism and its extensive linkages, pulls the rest of the region. When applied to a spatial model, the growth pole becomes a geographical place.⁴¹ Growth and development is centred and spreading out to other areas over time and space, and development is led by a growth pole industry or sector. The growth pole's characteristics would be its dynamism through constantly new technology; its rapid growth as an industry and its wide linkages both horizontally to other industries and vertically to suppliers of raw materials, and to markets for its products. A corollary is Growth Centre Theory in which a growth centre is a complex consisting of one or more communities or places which, when taken together provide or are likely to provide a range of cultural, social, employment, trade and service functions for itself and its associated hinterlands. The growth area is an extension of the centre benefiting from growth. The hinterlands are the surrounding rural areas that rely on the centre and growth area.⁴² Growth pole theory has thus far been concerned primarily with the internal workings of the pole and has tended to avoid explicit consideration of external relationships, other than

⁴¹ French economist F. Perroux's conception was that leading industries and propulsive firms would act as growth poles, which through a multiplier process would stimulate other industries and businesses. Newness, high technology and strong linkages with other sectors are the characteristics of growth poles. A. Morris, *Geography and Development* (London, 1998), p. 22. See B. Higgins and D. Savoie ed., *Regional economic development: essays in honour of François Perroux* (Boston, 1988) for additional readings.

⁴² G. Hewings, *Regional Industrial Analysis*, pp. 120-21.

those of the general pole-hinterland type.⁴³ This study will employ some of the language of growth pole theory. However, as will be shown below, the community does not function as a true Growth Pole. Furthermore, external relationships cannot be ignored in this bi-national setting.

The Core-Periphery model was suggested by Friedmann and Williamson.⁴⁴ The key emphasis of the analysis is the view of the national economic space as a series of dominant and persistent patterns of non-reciprocal exchange among cities and regions. Core regions have control over their destinies while peripheral regions are controlled by core regions. The core region is a major centre of innovation and peripheral regions are sub-systems and their development path is determined chiefly by core region institutions. According to Richardson, Core-Periphery is tended to be more of a paradigm than a rigid theory.⁴⁵ The language has much resonance with development (dependency) theories (discussed above). Friedmann's model predicts that the Core-Periphery relationship eventually will break down as changes are introduced as a result of policy, investment, migration and modernisation. Peripheral cities may become more favoured locations as they obtain a degree of autonomy and begin to exploit the rest of the periphery, but as Richardson maintains, this scenario, unfortunately does not seem to take place in the Third World. Furthermore, if there is a breakdown of the

⁴³ J. Parr, 'Growth Poles and Regional Development,' in *Regional Policy and Regional Integration*, ed. N. Hanson, *et.al.* (Cheltenham, 1996) pp. 22-26. Central Place theory does highlight the fact that individual centres exist as entities in a wider system, which is characterised by complex interdependencies. One of the basic tenets of Central Place Theory is that the size of a centre is some positive function of the population of the hinterland or market areas of the centre. Therefore, growth in the hinterland might be associated with growth in the centre. It is known from static central place theory that the centre will be linked to its hinterland in terms of supply of goods and services these would include higher order consumer service, as well as functions involving transport, banking, distribution, wholesaling and communications. If much of the intra-regional multiplier effect of growth in the internal occurs at the regional metropolitan centre, this will be referred to as nodal response. Its applicability is to a specific range of economic activities of a market-orientated or market sensitive nature. It is again demand-driven and not supply sensitive. The focus is on the patterns of output distribution and supply areas. Central Place Theory posits that major cities tend to dominate regions that are in turn sub-regionalised by successively smaller centres at progressively lower levels of the hierarchy. P. Know and J. Agnew, *World Economy*, p. 57. See W. Christaller, *Central Places in Southern Germany* (Englewood Cliffs, 1966) and A. Losch, 'The Nature of Economic Regions,' *Southern Economic Journal*, 29 (1938) and *The Economics of Location* (New Haven, 1954).

⁴⁴ See J. Friedmann, *Regional Development policy: A case study of Venezuela* (Cambridge, 1966) and J.G. Williamson, 'Regional inequality and the process of national development: a description of the patterns, *Economic Development and Culture*, 13 (1965).

⁴⁵ H. Richardson, *Regional Economics*, p. 152.

Core-Periphery model, it is more a result of liberalism than fact.⁴⁶ As with the other models, the cross-border focus of this thesis makes it difficult to apply any model that emphasises antagonism between the relevant regions of Mexico and the U.S. Is C. Juárez, because of its relations with the U.S., part of the Core or the Periphery? Likewise, is El Paso part of the Core or the Periphery? Co-operation and not exploitation is the focus of this study.

In the case of Regional Economics, several concepts are useful for this study. For example, an export base as key to regional develop is useful, although not embraced whole-heartedly because Export Base Theory obviates residential activities, placing primacy on export-lead growth. This position negates the importance of intra-regional trade to the development of C. Juárez-El Paso. As subsequent chapters will demonstrate, the formation of cross-border relationships is key to regional development. Therefore, it is the position of this study that it is more logical to assert that the internal dynamic of the region underpinned cross-border economic growth.

III

This section explains economic integration theory, the general theoretical approach utilised to frame this study of the C. Juárez-El Paso cross-border market. Important concepts are introduced and refined to fit the research requirement. Finally, a general overview of the research strategy is presented.

As stated in Chapter 1, the main hypothesis to be tested is: C. Juárez-El Paso form of a cross-border market, the origin of which dates back to the nineteenth century. A sub-hypothesis is that the existence of this C. Juárez-El Paso cross-border market, by extension means that integration between Mexico and the U.S. also has its origins in the nineteenth century. The main contribution to the greater body of literature is the conceptualisation of the C. Juárez-El Paso as a cross-border market with historical roots. This is an innovative approach because it is a new way of framing the subject. As was seen in the literature surveys presented in Chapter 1, integration of markets is noticeably absent from many analyses of early C. Juárez-El Paso, and Mexico-U.S., relations. Additionally, in respect of the larger body of Boundary Studies literature, this represents a new avenue of inquiry into boundary development often left aside because of the difficulty in finding comparable data sets. The systematic search through the primary sources to construct pre-1900 data sets presented herein is also a significant contribution. Again, as the previous literature surveys

⁴⁶ *Ibid.* p. 164.

on Mexico-U.S. borderlands demonstrated, a lack of historical data sets has hindered similar studies. A third contribution relates to the larger bi-national relationship and the implications of the dating of the beginnings of the process of integration between Mexico and the U.S. Since integration in this case is generally considered to be a post-WWII phenomenon, as was demonstrated in the previous literature surveys and will be discussed below, the present study will break new ground in terms of the chronological conceptualisation of integration between the two countries.

Just as the contributions of this work have been highlighted, the limitations must also be underscored. The larger bi-national relationship consists of many layers of complexity and disaggregation. Therefore, it is important to emphasise that this study is not an inquiry into the broader process of integration between Mexico and the U.S., although it will permit some linkage to the larger context. Additionally, this is not a study of the Mexico-U.S. borderlands as a whole, given the great territorial expanse and divergent local experiences, elaborated upon below. What emerges as pertinent to the case of C. Juárez-El Paso may not have the same importance elsewhere along the border. Therefore, some limits must be placed on the scope of the study in the regional context. Finally, while enormous effort has gone into collating data, there still remain great gaps in the information, making it difficult to probe deeper into the process of cross-border market formation. Again, these constraints will be elaborated upon below within the context of sources utilised in the present study.

The focus of this study is the assertion that C. Juárez-El Paso form a cross border market. Therefore, the first important definition is the meaning of a cross-border market. A cross-border market results from the integration of two or more previously separate markets. It is a product of a process that requires the elimination of demarcations across which the mobility of goods, services and factors is prohibited or hindered.⁴⁷ Balassa writes that in the economic literature, the term economic integration is not necessarily so clear-cut. The meaning ranges from social integration, subsuming of different forms of international co-operation, or the mere fact that trade relations between two independent national

⁴⁷ This definition is adapted from M. N. Jovani, *International Economic Integrations* (London, 1992), p. 5. Similar definitions may be found in R.W. Vickerman, *The Single European Market: Prospects for Economic Integration* (New York, 1992), B. Balassa, *Economic Theory of Economic Integration* (Homewood, 1961), and M. Molle, *The Economics of European Integration: Theory, Practice, Policy* (Aldershot, 2nd edition, 1992).

economies is a sign of integration.⁴⁸ For the purposes of this study on the C. Juárez-El Paso cross-border market, integration means the extent to which the factors of production (land, labour, capital and entrepreneurs) were able to undertake their respective activities despite the presence of an international boundary. This definition does not flow directly from that given above because the formation of a C. Juárez-El Paso cross-border market is not considered to be two separate economic markets joined as a consequence of the international boundary, but rather as one pre-existing market that had an international boundary imposed upon it.

This process of cross-border market formation is specifically addressed within the confines of the theory of economic integration. In a general sense, the theory of economic integration can be regarded as a part of international economics. Additionally, it may also enlarge the field of international trade theory, exploring the impact of a fusion of national markets on growth and examining the need for the co-ordination of economic policies in an economic union. The theory of economic integration also incorporates elements of location theory as integration of adjacent countries through national frontiers and the ensuing relocation of production and regional agglomerative and deglomerative tendencies cannot be adequately discussed without making use of the tools of locational analysis.⁴⁹ This explains the relative applicability of economic integration theory to the C. Juárez-El Paso case. Additionally, the reviews of other methodologies and their shortcomings earlier in this chapter also add credence as to why this particular theory underpins this study.

Why is the dating of the formation of the C. Juárez-El Paso cross-border market significant? Economic integration is generally considered a post-WWII phenomenon, although the German Zollverein of the nineteenth century stands out as an early attempt at integration. Notwithstanding, Balassa writes that in the 20th century, no significant customs unions were formed until the end of the WWII.⁵⁰ The Benelux customs union established in 1945 is considered the first step toward European economic integration in the post-War era. Subsequent European integration efforts have included the European Coal and Steel Community (1953), the European Economic Community (1958), and the European Free

⁴⁸ *The Theory of Economic Integration*, B. Balassa (Homewood, 1961), p.1.

⁴⁹ *Ibid*, p. 3.

⁵⁰ B. Balassa, *Economic Theory*, p. 3.

Trade Association (1960).⁵¹ Examples of similar attempts at integration in other parts of the world include the Latin American Free Trade Association (1960), the Central American Common Market (1960), and the East African Economic Community (1967).⁵² NAFTA is amongst the most recent of these movements.⁵³ Apart from the German experience, this list of integration projects, albeit incomplete, implies that economic integration as a formal process is mainly a post-WWII phenomenon. This may stem from the reconstruction needs of Europe (the Marshall Plan) and perceived security threats in different regions of the world during the Cold War.

In the case of North America, or at least the Mexico-U.S. relationship, as the previous literature survey demonstrated, many studies have fallen short of characterising the historical interaction of the two countries as integration. In fact, the historical case has been characterised as the period in which the 'antecedents' to a more formal process were visible within the context of intensified industrialization and foreign capital investments. Furthermore, this process was then twice interrupted and reshaped by WWI, the Crash and WWII, respectively. Therefore, it was only during the post-WWII period that the process has led to the present phase enshrined in NAFTA.⁵⁴ This position that Mexico-U.S. integration is a post-WWII is legitimated in the writings of Thorup on Mexico-U.S. relations in regard to NAFTA. Thorup explains that most academics and policy-makers assumed for many years that the Mexican government would be the main stumbling block to integration between the two countries, suggesting that without a policy change within the Mexican government, integration would not occur.⁵⁵ Likewise, Tamayo maintains that it was not until the early 1980s that Mexico's long-standing inward-looking development strategy began to be dramatically reversed and far-reaching changes in the trade program began to be

⁵¹ W. Molle, *European Integration*, p. 3.

⁵² *Ibid.*

⁵³ As was mentioned in the previous section, the agreement went into effect on 1 January 1994.

⁵⁴ Interestingly the periodisation of the process of forming antecedents is driven by Mexican political rhythms: the Porfiriato (1876-1910) contains the antecedents. See H. W. Konrad, 'North American Continental Relationships; Historical Trends and Antecedents,' in S.J. Randall and H.V. Konrad eds., *Nafta in Transition* (Calgary, 1995).

⁵⁵ Thorup was writing at the time as Director of Studies and Programs at the Centre for U.S.-Mexico Studies, University of California- San Diego. C.L. Thorup, 'The Politics of Free Trade and the Dynamics of Cross-border Coalitions in U.S. Mexican Relations', *Columbia Journal of World Business*, 26 (1991) 2, p.17.

implemented, including a substantial reduction in import tariffs.⁵⁶ This, then, prepared the ground for integration between the two countries. When coupled with the history of conflict and lack of trust that characterised Mexico-U.S. relations since the mid nineteenth and early twentieth century, as was summarised in Chapter 1 and will be elaborated upon in Chapter 3, it is not surprising that increased co-operation and integration are seen as products of the post- WWII era.⁵⁷ To put this long digression back into perspective, conventional wisdom is that integration requires a concerted effort by nation-states to eliminate economic frontiers between them. For all intents and purposes, the general consensus has been that economic co-operation between Mexico and the U.S. was not achieved until after WWII.. However, by re-framing the discussion, this thesis will prove otherwise.

There are two key elements to economic integration theory: (1) the integration of markets – goods and services and production factors; and (2) policy coordination. In market integration studies, the stimuli may include technical progress or mechanization and automation, energy technology, improved transportation facilities as well as the general exchange of technology and capital.⁵⁸ The degree of integration is then measured by observing the extent to which factor prices equalise and the exchange of goods intensifies due to the reduction or elimination of import duties and quantitative restrictions. In a modified form, this will be the main emphasis of this study. However, the integration of markets, according to the theory, requires a ‘framework’ for integration. The theory assumes that the impetus for integration is an agreement in the form of a free trade area (FTA), a customs union (CU), common market (CM), or economic union (EU). Total economic integration culminates in the unification of economic policies, and the establishment of a supra-national authority whose decisions are binding for the member states.⁵⁹ The function of the theory is to identify the successes and failures of the integration process within the given integration framework, offer solutions to the problems encountered, and point to future policy initiatives.

⁵⁶ R. Tamayo Flores, ‘Mexico in the Context of the North American Integration; major Regional Trends and Performance of Backward Regions’, *Journal of Latin American Studies*, 33 (2001) 2, pp. 377.

⁵⁷ *North American Economic Integration, : Theory and Practice*, N.C. Clement, *et. al.*, eds. (Northampton, 1999), p. 12.

⁵⁸ R.W. Vickerman, *Prospects for Integration* (New York, 1992, p. 18, and R.Z. Lawrence, *Regionalism, Multilateralism and Deeper Integration* (Washington, D.C., 1996), introduction.

⁵⁹ Molle provides a good overview of the process. W. Molle, *European Integration*, pp. 29-39. See also S. Pollard, *Peaceful Conquest: The Industrialization of Europe 1760-1970* (Oxford, 1981).

This is one of the major shortcomings of applying economic integration theory to the case of C. Juárez-El Paso. As is elaborated upon below, an instrument of integration did not exist between Mexico and the U.S. in the nineteenth century. Notwithstanding, the concept of an integrated market affords a means of linking the region to the respective national contexts, thereby allowing this study to proceed along the lines of the formation of a cross-border market, and permitting statements on the longer integration of the two economies.

The other key element of economic integration theory is the need for policy coordination to guide the process of integration. This is included given that government, be it local, state or national, frequently adopt policies to pursue political objectives and these affect the functioning of the respective economy.⁶⁰ Therefore, some consideration of political factors, which are of great consequence to the integration process, must be included. Depending on the theoretical perspective, they may be regarded as the primary objectives of the integration process, relegating economic aspects to second place. However, marrying the political with the economic and quantifying the former independent of the later is difficult, as they are inextricably linked, particularly when looking at an international border. Political motives may prompt the first step in economic integration, but economic integration also reacts to the political sphere. Similarly, if the initial motives for economic integration are economic, the need for political unity can arise at a later stage.⁶¹ In general, studies from the economic perspective, do not focus on whether economic or political considerations gave the first impetus to the integration movement, but what the economic effects of integration are likely to be. The policy aspects of the theory are generally framed in terms of a common heritage or goal and institutional development at the level of the nation-state, where economic policy is established and around which the usual defensive wall of tariffs and non-tariff barriers are constructed. These economic frontiers may be differentiated by type as: physical barriers (customs controls and associated paperwork); technical barriers (product standards and conflicting business laws); and fiscal barriers (value added taxes and excise duties). The impact of these barriers depends on the affected sector.⁶² Therefore, the degree to which the policies governing the mobility of goods, services and production factors ‘converge’ is key

⁶⁰ W. Molle, *European Integration*, pp. 129 - 32.

⁶¹ B. Balassa, *Economic Theory*, pp. 6-7.

⁶² P. Cecchini, M. Catinat and A. Jacquemin, *The European Challenge: 1992, The Benefits of a Single Market* (Hants, 1988), pp. 4-8.

to any analysis incorporating the political economy. How does policy co-ordination figure in the context of the present study? As the following chapter will demonstrate, Mexico and the U.S. did not pursue a common trade policy for the period covered by this study (from Mexican independence until after the Mexican Revolution), although there was some discussion of doing so in the 1880s. Any integration that took place was at least as much a *de facto* as a *de jure* process. Explicit bi-national institutional arrangements (be they laws, policies or informal agreements) to achieve integration did not form part of government policy on either side of the border between 1850 and 1920, however individual policy efforts resulted in institutional reforms that perhaps reinforced and strengthened the C. Juárez-El Paso cross-border market. These efforts will be elaborated upon in the next chapter. Here it useful to mention as examples Mexico's free trade zone, and tariff and customs reforms on both sides of the border to facilitate trade (even while raising tariffs on certain items), and the U.S.'s immigration policies. It is also important to add that both governments and investors stood to gain from increased trade and investment, and interests on both sides of the border lobbied to raise the profile of the C. Juárez-El Paso *vis a vis* national policy. However, integration was not the main objective. This is a key point made by this thesis and a theme that will be reiterated through the following chapters. The conclusion here is that, while this study does not focus on institutions *per se*, it is inescapable that the international boundary is itself an institution and that particular policies such as those mentioned above were influencing factors on C. Juárez-El Paso. However, these institutions did not determine the formation of the cross-border market, and hence bi-national integration, over the short and medium term.⁶³

In this study, the main hypothesis is tested using the activities of the factors of production. The C. Juárez-El Paso cross-border market emerges and develops as a result of the movement of goods (local and national demand), the exchange of technology (entrepreneurial efforts and capital investments), employment activities (labour mobility) and improvements in infrastructure. Although a neoclassical factor, land is not included as a factor because it is immobile. However, output from land-based pursuits are important and

⁶³ I am grateful of Dr. Edward Beatty, University of Notre Dame, for helping me frame this discussion on the role of the political economy in Mexico-U.S. borderlands relations. His own recent work on institutions in Mexico's further developments the concept in respect of Mexican economic development. See E. Beatty, *Institutions and Investments: The Political Basis of Industrialization in Mexico before 1911* (Stanford, 2001).

are used as proxies for measuring the movement of goods through C. Juárez-El Paso; they are considered an extension of land. A by-product of integration is specialization, which may take place at the micro level, such as specialization at the level of the entrepreneur or enterprise, which translates into maximizing scale economies. Another form of specialization is geographic in character and involves the increasing localization of industry and the creation of a local infrastructure, which lowers unit costs and also accounts for urbanization.⁶⁴ In this study specialization, entrepreneurial and geographic, will be examined as well as specialization in labour market and productive activities.

In strict economic terms, factor price equalisation, or convergence, would be the measure of integration between C. Juárez and El Paso if they were to be studied as two separate communities. The convergence theory was originally conceived by the Dutch economist J. Tinbergen as a means of explaining the harmonising of opposing economic systems (planned and market economies).⁶⁵ Tinbergen's students, van den Doel in particular, further refined the theory leading to the conclusions that two economic systems were bound to move closer together, but important differences would persist as long as the objectives of the two systems were different. This conclusion gave rise to a theory of partial convergence (allowing for the possibility of divergences).⁶⁶ Tinbergen's partial or full convergence is concerned with the general direction of movement of two or more national economies, rather than with the current status or statistics-based measures. This position is conveniently vague enough to be useful to this study.⁶⁷ However, in practice the concept of the international process is not applicable to the present study, as it is not the main focus. Richardson, in writing about convergence in respect of Regional Economics, explains that there are three meanings to convergence: (1) that growth rates are the same between regions and therefore

⁶⁴ R.W. Vickerman, *Prospects for Integration*, p. 18.

⁶⁵ See J. Tinbergen, *International economic integration* (Amsterdam, 2nd, 1965).

⁶⁶ M. Ellman, *Collectivism, Convergence and Capitalism: Political Economy in a Divided World* (London, 1984) p. 297. See also C. Kerr, *The Future of Industrial Societies, Convergence or Diversity?* (Cambridge 1983).

⁶⁷ C. Kerr, *Industrial Societies*, p. 34. Defined by Anderton, *et. al.* as the narrowing of international differences in the development of certain economic variables. See B. Anderton, R. Barrell, and J. Willem Veld, 'Forward Looking Wages and the Analysis of Monetary Union,' in R. Barrell, *Economic Convergence and Monetary Union in Europe* (London, 1992) or J.O. Simms, *Convergence, endogenous growth and development in the regions of Europe*, unpublished PhD thesis, (University of London, 1995).

do not induce factor movements; (2) that homogenous factor returns between regions also do not induce factor movements; and similarly (3) that per capita incomes lead to equilibrium and therefore there exists no need for factor movements. However, he also points out that inter-regional factor mobility neither ensures full convergence of per capita incomes nor is it the only possible source of convergence.⁶⁸ Richardson's approach is based on the nation-state and regions as subsystems of the national economy. This position limits the applicability of his definitions to a cross-border setting such as C. Juárez-El Paso because his focus is not the internal cohesion of the market formed by the two cities, but rather the comparison of that part of the market based in Mexico (C. Juárez) with that part found in the U.S. (El Paso).

How is the internal cohesion of the C. Juárez-El Paso market substantiated, given that convergence is not the main focus? Without a more appropriate framework, factor price homogeneity within the cross-border market must be the measure. This is established by looking at the wages paid to labour on either side of the border. Other measures, mainly qualitative in nature, must be adopted and applied to the other factors, primarily because of the period under study. As has been mentioned and will be further explained below, a lack of data presents the greatest obstacle to applying more rigorous (econometric) tests of equalisation. Apart from economic integration theory, the language of Export Base Theory in terms of export-orientated activities as well as the works of Krugman and Pollard have also been utilised to further develop the notion of a cross-border market.⁶⁹ Both have offered a contextual frame of reference from which to view the C. Juárez-El Paso region.

Several other terms must be refined or clarified. Chapter 1 presented a general overview of the formation of the Mexico-U.S. borderlands and their paradoxical nature. Subsequently, this chapter has explained the difficulties associated with defining a border region and a region in general. As Momoh explains, borderlands are zones bordering an international political frontier. The smallest conceptualisation of a borderland is a non-existent borderlands where there is no contact between opposing sides. Another type of borderlands is a minimal borderland, which is considered to be a band of two to five

⁶⁸ H. Richardson, *Regional Economics* (1967), p. 347. Richardson also notes that Myrdal found convergence a very abstract, and almost crude and usually unrealistic theoretical assumption. *Ibid*, p. 349.

⁶⁹ See S. Pollard, 'Regional Markets and national Development,' in M. Berg ed., *Markets and manufacturing in early industrial Europe* (London, 1990).

kilometres in width. The maximal borderlands is a third 'definition', which depends on the area occupied by residents.⁷⁰ Each of these concepts is vague and can change with the ebb and flow of population. Some refinement is required to put this case study in the proper regional context. The Mexico-U.S. borderlands are understood to be the zones immediately adjacent to the political frontier and their associated polities. Their physical extent is not herein delineated, except East to West as a transcontinental boundary and North to South as state divisions to the extent possible.

The main hypothesis concerning the formation of a C. Juárez-El Paso cross border market has been further deconstructed into four parts grounded on two assumptions, which are elaborated upon in the next section. The parts represent the factors of production (entrepreneurship, capital, and labour) and the exchange of goods. Again, land is not explicitly treated as a factor because it is immobile. The format is a case study of the C. Juárez, Chihuahua-El Paso, Texas border area, which is particularly useful because the Mexico-U.S. borderlands extend East to West some 1,800 miles (2,880 kilometres); a region far beyond the scope of this investigation. Why C. Juárez-El Paso? Prior to 1848, only a handful of communities existed along the Rio Grande, the present frontier Matamoros (1700); Mier (1753); and Paso del Norte (1595). The imposition of the international boundary in 1848 without regard for preserving communities gave rise to a number of 'twin cities.' For example, Nuevo Laredo, Mexico founded in 1848 resulted from the partitioning of Laredo, Texas when the Rio Grande was established as the official frontier between Mexico and the U.S. Likewise, El Paso, Texas arose from the same event, having previously been a ranch that pertained to the greater C. Juárez, Chihuahua urban area. Tijuana, Baja California resulted from the division of a ranching community located on the Tía Juana river in southern California.⁷¹ Other cities have emerged over time and have come to function as 'twin cities' by virtue of their existence along the border (see **Figure 1.1**).⁷² By focussing on C. Juárez-El Paso, this study will concentrate on two cities that have played an important as well as continuous role in the Mexico-U.S. borderlands. Arguably, many of the border communities have played a

⁷⁰ See C.S. Momoh, 'Critique of Borderlands Theories,' in A.I. Asiwaju and P.O. Adenyi eds., *Borderlands in Africa* (Lagos, 1989).

⁷¹ D.D. Arreola and J.R. Curtis, *Mexican Border Cities*, p. 15.

⁷² L. Herzog, *Where North Meets South*, p. 61.

continuous role in the region, but not all have manifested the importance as well as existed prior to 1848. El Paso, Texas and C. Juárez, Chihuahua are unique in this respect. This is the basis for selecting these two for a case study.

The temporal context begins in the early nineteenth century, although 1848 serves as a watershed because it is the year in which the international boundary between Mexico and the U.S. was established. This provides an opportunity to assess the impact of external shocks on market formation. This is a point of divergence from the normal conceptualisation. The imposition of the international boundary is not an interruption, but rather a shock to be taken into consideration in the long term trajectory of growth. The closing date for the study is in the early 1920s, which is significant because it marks the end of a decade characterised by additional external shocks. In Mexico, the Revolution 'officially' comes to an end with the signing of the Constitution of 1917, although violent conflict would continue throughout the 1920s and the formation of the *Partido Revolucionario Institucional* (PRI) in the late 1930s could be argued as the 'real' end of the Revolution. Nevertheless, the last years of the 1910s are generally accepted as the end of an era and the beginning of a new one in Mexico. Coincidentally, the end of World War I in 1917 signalled a shift in economic fortunes as the U.S. (and Japan) emerged as global producers of manufactures, and Latin America and the British dominions as suppliers of primary materials.⁷³ These historic watersheds supply a temporal context within which to study the process of the formation of a cross border market by C. Juárez-El Paso, and to a lesser extent early economic integration between the U.S. and Mexico. Furthermore, they provide an opportunity to assess whether or not the process was interrupted by external shocks.

IV

The purpose of this section is to prime the reader with details about the following analysis. The key elements of each chapter are set out, and important definitions or theoretical points are highlighted. Additionally, the sources utilised to construct specific arguments are discussed.

Chapter 3 provides a brief discussion of the national historical settings. This is important given the earlier discussion of the role of institutions on the formation of the C. Juárez-El Paso cross border market. Additionally, this provides an opportunity to link the

⁷³ S. Pollard, *Peaceful Conquest*, pp. 278 - 281.

local experience to the broader regional and national contexts. Mexican economic history is generally couched in terms different from those emphasised in U.S. economic history. It is generally accepted that Mexico endured a lack of economic growth throughout much of the nineteenth century attributed to three factors: the lingering effects of colonial rule; political turmoil after independence; and the lack of growth-promoting institutions throughout most of the period. In the case of the U.S., long-term economic growth is shown to be associated with very different factors: increasing natural, labour and capital resources. Despite these contrasting histories, the intent of the chapter is to highlight the similarities in the development of the larger regional context of Northern Mexico and the U.S. Southwest that give the C. Juárez-El Paso their uniqueness and coherence. The extensive body of secondary literature is the main source of information for this chapter.

Chapter 4 explains the two key assumption to this study by arguing that the C. Juárez-El Paso area possesses a common transportation infrastructure and resource base and, therefore, constitutes an integrated region. The work of Pollard on proto-industrialisation in Europe, which focusses on explaining why industry concentrates in a given area is utilised to underpin the discussion. He suggests that in the early stages, industrialisation was fundamentally a regional phenomenon and that the agglomeration of industry was the outcome of well-defined geographical concentrations that employed available populations.⁷⁴ Another important theoretical position is that of Krugman. In his explanation of the rise and persistence of the U.S. manufacturing belt, Krugman suggests that the relationship between the geographical structure of production, industrialization and transportation services were important in the nineteenth century development of this region. While this condition may have changed over time, Krugman maintains that history matters in regional development.⁷⁵ The concentration of economic activity stems from several factors: the availability of resources and the role of the state, which both figure prominently early on. These give rise to subsequent development that may rely on the existence of one or more base industries or exports that permit specialization.⁷⁶ Both positions are very much in keeping with the language of export base theory adopted herein. Therefore, the historical development of the

⁷⁴ S. Pollard, 'Regional Markets and National Development,' in M. Berg ed. *Markets and manufacturing*, pp. 30-31

⁷⁵ P. Krugman, *Geography and Trade* (Cambridge, 1991) pp 24 -29.

⁷⁶ *Ibid*, p. 35.

regional transportation system and the location of resources and population are brought together in this chapter. The geology and topography of the region, the similarities of the climatic characteristics, the major population centres important to the case study, and the resource base relative to the C. Juárez-El Paso area are identified and described. Finally, the chapter explains the evolution of the transportation infrastructure, thereby linking its design to the resource base and pattern of settlement. The railways were important for the development of the western U.S. and Northern Mexico where the network of navigable waterways was limited. It is essential to review the development of the respective national railways as a background for further discussion and as a justification of the assumption that the C. Juárez-El Paso area shared a common transportation infrastructure. The entire discussion of the assumptions sets the stage for a more detailed look at the way in which the resource base and transportation infrastructure were utilised by the factors of production in the cross-border economy.

The sources consulted to develop the arguments in this chapter include the records of the public notaries of C. Juárez, a rarely used source in border research possibly because these documents have yet to be indexed into an easily accessible manner. U.S. Consular reports held both in Washington, D.C. and Fort Worth, Texas also contained references to the region and the railways. However, in using these sources, it was always important to bear in mind the perspective of the consular official whose views were often expressed as opinions. The travel diaries of various entrepreneurs and personal testaments, and records of the El Paso Chamber of Commerce, who actively promoted the development C. Juárez-El Paso as a single unit were also important primary sources. However, again it was important to cross-references these sources with the others, as the promotional interests of the sources could have affected the representation of the area in the marketing material. Notwithstanding, it is clear that Northern Mexico and the U.S. Southwest were considered to be a geographic and economic whole. The railway histories have been well developed in both cases, therefore, the secondary literature, specifically Coatsworth in the case of Mexico and Fogel and Fisher, in the case of the U.S., are used to underpin this analysis.

Having explained the assumptions of the study, the tenets of economic integration theory (free movement of resources) are applied to the factors of production. This is accomplished in three separate chapters. Did entrepreneurs move freely throughout the region and in so doing contribute to the formation of a C. Juárez-El Paso cross-border

market? This is the subject of Chapter 5. In order to develop this discussion, it is important to define the meaning of entrepreneurship and entrepreneurs. The work of Casson, Corely, Brown and Rose, are utilised to underpin the discussion. According to Brown and Rose, entrepreneurship consists of a number of activities including the adjustment of factors of production to market conditions, the making of judgmental decisions, the creation rather than the acceptance of circumstances, and the anticipation of future changes in market and other conditions. Additionally, the manifestations of these activities may be found in the organizational structure of the business firm (sole proprietorship, partnership and corporation).⁷⁷ Thus, as Corley explains, the entrepreneur may be considered as the person who takes judgmental decisions about the co-ordination of scarce resources in the most appropriate way to achieve profit maximization or some alternative goal.⁷⁸ This definition is a descriptive one, identifying the entrepreneur based on what he does and not his function, as is usually the case.⁷⁹ The latter is more appropriate given the nature of the period under study and the lack of robust primary data on the profitability of firms in the cross-border region.

Traditional theory has attributed the failure and success of an entrepreneur to material factors such as availability of resources. The discussion in this chapter will show that, early on, cross-border entrepreneurs suffered because of their material (mainly geographical) circumstances. However, as Casson argues, the success of entrepreneurs in a historical context also depended on the personal quality, which enabled certain individuals to make decisions with far-reaching consequences.⁸⁰ This caveat conjures up the image of the 'heroic' entrepreneur, who is clearly present in the region. Certainly, at the micro level, such as this case study, the early entrepreneur was an important figure in the foundation and development of firms, thereby setting the cornerstones for future development and successes. The mobility and profitability of entrepreneurial activities is inferred from the formation of cross-border partnerships and the increasing scope and scale of businesses in the regional setting.

⁷⁷ J. Brown and M.B. Rose, 'Introduction' in J. Brown and M.B. Rose eds., *Entrepreneurship, networks and modern business*, (Manchester, 1993), pp. 3-4.

⁷⁸ T.A.B. Corely, 'The entrepreneur: the central issue in business history?' in J. Brown and M.B. Rose eds., *Entrepreneurship*, p.11. In the same text Casson further elaborates on the role and function of entrepreneurs. See M. Casson, 'Entrepreneurship and business culture.'

⁷⁹ M. Casson, *The Entrepreneur: An Economic Theory* (Oxford, 1982), p. 11.

⁸⁰ *Ibid*, p. 22.

The analysis of entrepreneurs and enterprises is subdivided into areas of market activities, the organizational structure of these activities and their evolution over time, and the impact of the obstacles encountered by the entrepreneur and enterprise. Earlier observations on the geographic concentration of industry are again here applied specifically to the mix of base activities particular to the cross-border market. Additionally, the work of Chandler and Tedlow on the evolution of urban markets is particularly useful in analysing the structure of cross-border economic activities.⁸¹ The terms, scale and scope, are utilised frequently in the discussion of the development of the market over time. In a geographical sense, the market grew dramatically once the railways permitted the opening up of new agricultural and mining lands. For entrepreneurs who operated in the C. Juarez-El Paso area, this presented an opportunity to expand their own businesses, adding new business units to their existing ones in order to carry out different functions or produce and distribute new or more products. As Chandler points out, this occurred because some firms in some industries found that adding new units allowed the original company to maintain a long-term rate of return on investment by reducing overall costs of production and distribution. As the discussion will reveal, economies of scale, meaning that increased size reduced the unit cost of production or distribution, as well as economies of scope, meaning the use of more than one process within a single unit to produce or distribute more than one product, were important in three key activities.⁸² This led firms to act in a way that was much in keeping with Chandler's description of the nature of firms in the U.S., Great Britain and Germany. Finally, Casson's work on the way in which entrepreneurs cope with obstacles is also utilised.

The sources consulted to develop the arguments in this chapter include the travel diaries of early entrepreneurs, government documents city, county and state and a very limited number of secondary sources that contained references to entrepreneurial activities. The records of the U.S. Congress provided some insight into the functions of merchant networks particularly with reference to tariff considerations. Notwithstanding, it was

⁸¹ A.D. Chandler and S. Tedlow, *The coming of managerial capitalism: A casebook on the history of American economic institutions* (Homewood, 1985), p. 312. See also, A.D. Chandler, 'The Coming of Big Business,' pp. 269-279 and A. W. Shaw, 'Scientific Management in Business,' pp 279-285, in A.D. Chandler, S. Bruchey, and L. Galambos eds., *The Changing Economic Order: Readings in American business and economic history* (New York, 1968) and A.D. Chandler, 'The Emergence of Managerial Capitalism,' *Business History Review* 58 (1984) 4.

⁸² Chandler explains that economies of scope are also known as economies of joint production and distribution. A.D. Chandler, *Scale and Scope: The dynamics of Industrial Capitalism* (Cambridge, 1990), p. 15 -17.

contemporary accounts, however biased, that provided the most information. The major shortcoming of these materials was two-fold. Firstly, there was a clear self interest in the writings of early entrepreneurs and advocates for the development of C. Juárez-El Paso as a key regional economic centre. This same observation was made above in the discussion of the primary sources utilised to support the assumptions of the study. Secondly, there was a clear lack of information on Mexican entrepreneurs except for the case of the Terrazas-Creel family, whose economic domain has been well documented and is synonymous with the economic development of the State of Chihuahua.⁸³ It was difficult, if not impossible to find business records from which an idea of the profitability of early activities could be determined, because of the time period under study. Nevertheless, fragmentary data were gleaned from the municipal archives of C. Juárez and are presented in the chapter. City directories were also consulted in the hope of identifying key figures in the entrepreneurial sector. However, without additional support material, they proved difficult to incorporate into this study. This was particularly true in the case of C. Juárez, where local records were more scarce than on the U.S. side. Some of the large corporate interests that were formed at the end of the nineteenth century, and continue to function in the region today, were unwilling to open their business archives for fear of being the target of negative criticism. Access to this information would have provided a more complete picture of entrepreneurs and enterprises in the cross-border market.⁸⁴

The formation of a cross-border labour market is the subject of Chapter 6. For the purposes of this thesis, the term labour refers to low wage, low skill workers. The relevant question is: Did labour move freely across the international boundary, and if so is there evidence of homogeneity in the wages paid to labour in the cross-border market? The migration of labour is in essence a reallocation of this resource. The movement of peasants from central and south-east Mexico to the North may be partially understood within this context, as can the movement of the U.S. population westward. The chapter is subdivided into a survey of the pattern of economic activity arising from the market endeavours

⁸³ See Chapter 3 for citations.

⁸⁴ The legal counsel for the American Smelting and Refining Company (ASARCO) was contacted and provided no response. The corporate headquarters of the Zork Company were also approached. Again, no reply was given. The records of the Popular Dry Goods, a locally-owned interest became available to the researcher at the time of writing. However, access was limited by the trustees of the estate and involved a lengthy review process. I'd like to thank Dr. John Hart of the University of Houston for his suggestions on how to access these and other materials.

described in Chapter 5. In identifying a pattern of development, statements about the labour requirements may be made about the larger region of which the C. Juárez-El Paso cross-border market formed a part. Next, the discussion moves on to an assessment of labour mobility in a spatial context and an examination of the occupational structure of the C. Juárez-El Paso cross-border market resulting from labour mobility. The movement of labour in this case is international in character, although the region is considered a whole. What is unique about the period under study is the fact that restrictions on Mexican and U.S. labour movement were for all intents and purposes non-existent. In fact, as will be seen, low-skilled wage labour was actively recruited into the region. Furthermore, the self-employed were relatively free to settle in the region and exercise their profession or activity. In the language of economic integration theory, this resulted in the creation of a free labour movement area.⁸⁵ The wages paid to labour are the subject of the last section of the chapter. It is important to note that wage differentials existed within the larger Mexico-U.S. borderlands market for a number of reasons: industrial structure, productivity and supply factors, ethnicity and attitudes toward trade unions, further elaborated upon in the chapter. However, this thesis is neither concerned with the relative differences nor any changes over time in the larger Mexico-U.S. borderlands setting. The focus is on the homogeneity of wages within the C. Juárez-El Paso cross-border market. Here the definition of equalisation or convergence given in the previous section must always be borne in mind. The most important contribution of this aspect of the study is evidence that across-border wage rate existed for certain activities. The sources for this chapter include the reports of the U.S. Consuls to Chihuahua and C. Juárez, which contained rare, but useful comments about wages and the structure of the labour market as did the records of the municipal government of C. Juárez. The single most valuable source of information on the labour market was the report issued by the U.S. Bureau of Labour in 1908, which detailed numerous aspects of the role of Mexican immigrant labour in the Mexico-U.S. borderlands, singling out areas such as C. Juárez-El Paso as labour pooling sites.⁸⁶ Additionally, the U.S. census documents contained some useful information on the nature of the local labour market, including its ethnic makeup. On the Mexican side, population statistics have yet to be indexed in an accessible manner in the national archives

⁸⁵ M. Molle, *European Integration*, p. 188.

⁸⁶ Victor S. Clark, 'Mexican labour in the United States,' *Bulletin of the United States Labour Department* (September, 1908)

and records at the local level were destroyed by fire in the early 1990s. Thus, the secondary literature, specifically the works by Gamio and Cardoso provided vital information.⁸⁷

Chapter 7 examines two topics: the formation of cross-border financial networks and the exchange of goods through C. Juárez-El Paso. The first specific question asked is: Did financial arrangements transcend the frontier? The formation of financial networks is taken in this study to imply the means by which capital could be accessed as well as rationed. Additionally, the formation of cross-border financial networks implies a certain level of internal cohesion, and therefore some similarities in banking practises. The financial aspects of entrepreneurial activities are here used as a proxy for capital movements because of the lack of banking records relating to loans, collateral and interests rates. The work of Davis and Marichal were utilised to underscore the nature of capital accumulation in this credit-scarce region.⁸⁸ In the first instance, Davis writes that increasing industrialization in the U.S. was underwritten by increasing access to capital.⁸⁹ This very general take on his work provides a theoretical underpinning for the growth in the volume of financial resources in the C. Juárez-El Paso area. This is further supported by the inferences in Marichal's work that Northern Mexico was an exceptional case in terms of the history of the development of capital markets of Mexico. In this case, regional growth in the face of an underdeveloped and often inaccessible domestic market pushed regional actors to establish themselves in the U.S.

Financial markets in general are very neglected in C. Juárez-El Paso and Mexico-U.S. borderlands study. It is often difficult to find primary resources enough to sustain a detailed analysis of the markets. In this study of cross-border financial markets, primary data was gleaned from a very limited number of sources, including the notarial records for C. Juárez, City and County Deed books for El Paso, and secondary sources on entrepreneurial activities. All of these sources were assumed to be reliable accounts of business transactions. Attempts were made to approach several of the financial institutions that were established in the late nineteenth century. However, the archives of these institutions were not available. Additionally, state banking regulatory agencies were also contacted. Here again, there was

⁸⁷ See M. Gamio, *Mexican Immigration* and L. Cardoso, *Mexican Emigration*.

⁸⁸ See. L. Davis, *et.al.*

⁸⁹ See 'Capital Mobilisation,' in *American Economic Growth; An Economic History of the United States*, ed. L. Davis, *et.al.* (New York, 1972).

an unfortunate lack of primary data.⁹⁰ Nevertheless, sources such as the notarial records of C. Juárez found in Chihuahua, coupled with information contained in secondary sources, such as the work of León and Leach, allowed for the elaboration of a schematic model of the cross-border financial network.

The final aspect of the study relates to the exchange of goods. Was there an increase in trade in the C. Juárez-El Paso area? How did this reflect in the broader context of the Mexico-U.S. borderlands and Mexico-U.S. trade relations? The intent of this section is to build on the previous chapters, where the focus has been on the formation of a cross-border market. In the absence of business records on productive activities and the distribution of these goods, the only measure of internal exchange is Mexico-U.S. trade through C. Juárez-El Paso. This makes it difficult for readers who might confuse internal cohesion with general Mexico-U.S. trade. This is a subtle, but very important distinction that must be made. As a bi-national economy, the exchange of goods through C. Juárez-El Paso may be partially measured by import/export data. This means that goods that passed through C. Juárez-El Paso would have been recorded as international trade imports or exports. However, this dogmatic interpretation of the international trade statistics obviates the fundamental point of this study, that trade through C. Juárez-El Paso was, to a large extent consumed locally. Hence, these international trade statistics are in fact an indicator of the internal cohesion of the cross-border market and should be treated as intra-regional exchange statistics.

The collation of trade data for C. Juárez-El Paso was accomplished through a number of means. For the period prior to 1893, data was gathered from various primary sources such as consular reports, travel diaries and local government documents. These proved to be very inconsistent in their quantification of trade, mainly because official sources were scant, forcing a reliance on anecdotal commentaries. The most important of these was the travel diary of Josiah Gregg, which although clearly optimistic, was useful in the construction an early trade table. After that time, the primary source of information was U.S. import and export data in *The Foreign Commerce and Navigation of the United States* prepared by the U.S. Department of Commerce, Bureau of Statistics. However credible this source may be,

⁹⁰ The Texas Banking Association was established in 1885. According to the association's operating regulations all banks in Texas were supposed to file annual reports of their banking activities. The El Paso banks are conspicuously absent from the archives. Although a Federal Reserve Bank was not established in El Paso until 1918, the Banks research division regularly undertakes research to fill in the historical data of the Texas banking system. The Bank was unable to provide any insight into the banking practices of El Paso banks prior to 1918.

even these trade tables proved difficult for a number of reasons. The first problem was that it was not until 1893 that the U.S. government stipulated that U.S. exports carried by land vehicles should be recorded, shortening the number of years available for study. Another problem was in the geographical definitions of land-based customs districts. The Mexico border customs districts were redrawn several times during the period, making it difficult to accurately determine the value of trade through C. Juárez-El Paso. At one point the Paso del Norte Custom's district (as the El Paso customs region was known) stretched as far East as San Antonio and as far West as Arizona. This was important when looking at regional trade figures, because they were not as accurate as would have been desired. For analytical purposes, a uniform system of industrial classification to apply to early trade statistics would have been helpful. However, discontinuities in the statistical series were evident in all the early volumes. When coupled with the fact that U.S. tariff laws often included re-organisation or re-structuring of the trade categories, such problems posed a serious obstacle to compiling uniform exchange tables. It was not until the 1900 Census that the U.S. developed a system of classifying all the industries involved in the exchange of goods and services into broad groups. This general grouping became, with subsequent detailed modifications, the basis of the modern classification of industry.⁹¹ Finally, from 1910 to 1920 the trade statistics in respect of Mexico, although available, contained many provisos, warnings, notices and other clarifications rendering these data questionable as a source for a detailed analysis of the composition of trade. With a large number of problems inherent in the data and a shrinking time series, a more detailed look at the composition of trade and its behaviour over time proved inappropriate to this study. However, some means of linking this case study with the larger Mexico-U.S. borderlands picture and bi-national context had to be incorporated. This was accomplished by constructing comparative trade tables for each of these contexts, supplementing them with details drawn from the general histories presented in Chapter 3, and augmenting the larger picture with a brief look at the comparative GDPs and other international trade data on Mexico (and Canada) and the U.S. for the period. In this instance, the works of Maddison and Mitchell were consulted. As explained above, explicit conditions on the accuracy of these comparative tables had to be imposed. More comments on the primary sources and their suitability will be presented in the chapter.

⁹¹ *Standard Industrial Classifications applied to Historical Data: The 1871 Industrial Census*, G.T. Bloomfield and E. Bloomfield (Guelph, 1989), p. 17.

Chapter 8 contains conclusions about the foregoing analysis presented thematically. Firstly, the chapter will summarise the findings of the study utilising the questions into which the main hypothesis was divided as a guide: (1) Did an integrated market for entrepreneurial talents and activities exist?; (2) What evidence is there that a cross-border labour market existed?; (3) Did financial resources move freely throughout the region?; and (4) Was there an increased exchange in goods through C. Juárez-El Paso? The chapter then turns to the contributions of this study to the greater body of literature, suitability of economic integration theory as a methodology, and the suitability of the sources used. Finally, the chapter offers suggestions as to a possible future research agenda for continuing the study of the C. Juárez-El Paso cross-border market and broadening its scope to include the Mexico-U.S. borderlands, and the long-term economic integration between Mexico and the U.S.

CHAPTER THREE

HISTORICAL CONTEXTS

This case study is an abstraction from the larger reality of Mexico-U.S. economic relations. Therefore, it is instructive to outline the more important themes in the respective economic histories, including a brief look at the respective national institutional frameworks, in order to locate the development of the C. Juárez-El Paso cross-border market in its proper context. As such, this chapter is divided into three sections. The first deals with Mexican economic history, which is cast as centring on little or no growth during the better part of the nineteenth century due to the lingering effects of colonial rule; a prolonged period of political upheaval following independence; and the absence of growth-promoting institutions until the later part of the nineteenth century. In the second section, the trajectory of U.S. economic history is generally associated with increases in natural and labour resources, and the mobilization of capital markets. In contrast to the Mexican case, long term growth takes place against a back-drop of growth-promoting institutions. The final section brings together these stories to lay the ground work for the study of the formation of a C. Juárez-El Paso cross-border market.

I

Much of the discussion surrounding Mexico's economic history has centred on its sluggish development throughout most of the nineteenth century. As Cárdenas points out, it was not until the last 50 years of the century that Mexico demonstrated a slow growth that accelerated after 1880, driven by the export sector.¹ The explanations for the late development of the Mexican economy have centred on three themes: the colonial legacy, political instability after independence, and a persistently inadequate transportation and

¹ E. Cárdenas gives a good summary of the economic development of Mexico in his article entitled 'Macroeconomic Interpretation of Nineteenth-Century Mexico' in S. Haber ed., *How Latin America Fell Behind* (Stanford, 1997).

institutional infrastructure.² Once these were redressed, Mexico experienced heightened growth and intensified economic relations with the U.S.

During the colonial period, Mexico was a highly centralised society. Intensive agricultural production, large cities and a complex culture already existed in the centre and south of the country.³ The South-East was particularly isolated at the time of the arrival of the Spanish because no mines were found. This contrasts with the North, where the mines of the region linked it more directly to the centre, although population was scarce. Notwithstanding, the Spanish were never really successful at populating the region because of the ongoing problems with nomadic and hostile tribes such as the Apaches.⁴ Towards the end of the colonial period, Mexico was by far the richest of Spain's colonial possessions. Agriculture and livestock employed the vast majority of the labour force while mining output accounted for almost 40 percent of national produce.⁵ This pre-eminence was achieved despite the fact that the Spanish imposed many constraints on international trade and utilised royal monopolies on items such as tobacco, gunpowder, mercury, official paper and other vital commodities to generate revenues. This rigid system was accompanied by an equally rigid internal social and administrative structure that tended to alienate the vast majority of the population; approximately 82 per cent of the population was segregated from the privileged classes by formal legislation and custom as well as economic opportunity.⁶ The

² Coatsworth argues that Latin America as a whole needed new governments, founded on bourgeois principles of equal legal rights, a modern regime of bourgeois property rights, juridical system with enforcement powers and policy making institutions of the order seen in the British colonies. In short, it was institutional progress that permitted the U.S. to grow more rapidly than its Latin American counterparts. See J.H. Coatsworth, 'Notes on the Comparative Economic History of Latin America and the U.S.A.' in W.L. Bernecker and H.W. Tobler eds., *Development and Underdevelopment in America* (New York, 1993), p. 18. Others have expounded this position including D. North and R. P. Thomas in *Rise of the Western World, A New Economic History* (Cambridge, 1973).

³ See M. Meyers and W.L Sherman eds., *The Course of Mexican History* (New York, 5th edition, 1979) and L. Bethell ed., *Colonial Mexico*

⁴ See D.J. Weber, *The Spanish Frontier in Northern Mexico* (New Haven, 1992).

⁵ T. Anaya, 'Independence of Mexico,' in L. Bethell ed., *The Cambridge History of Latin America* (hereafter *CHLA*), vol. 3 (Cambridge, 1985), p. 51. G.P.C. Thomson states that, 'Mexico enjoyed a period of prosperity unmatched elsewhere in Spanish America.' See G.P.C. Thomson, 'Protectionism and Industrialization in Mexico, 1821-1854: The Case of Puebla,' in C. Abel and C. Lewis eds., *Latin America, Economic Imperialism and the State* (London, 1985), p. 127, M.C. Meyers and W.L. Sherman, *The Course*, pp. 168-183. See also D. A. Brading, *Miners and Merchants in Bourbon Mexico, 1763-1810* (Cambridge, 1971).

⁶ T. Anaya, 'Independence of Mexico,' p. 52.

ethnic distinctions of Spanish Law were the major source of not only lower-class unrest, but also economic inefficiency and underdevelopment.⁷ By the end of the Bourbon era, the economy was already showing signs of decline.⁸

Along the northern periphery of Mexico these dispositions translated into a reliance on the caravan system for the provisioning of settlements in the region, which tended to be mission settlements modified to fit the environment. Each pueblo had a church, but the integrity of the indigenous communities were maintained in that villages were left intact with the padres serving as essentially parish priests or curates.⁹ Apart from this, soldier-settlers were given a small land grant in payment for their services in manning an isolated outpost against native depredations. Many of the mountain villages were based on community or family grants, and it was not uncommon for irrigable lands to be granted in individual ownership with the grazing lands and wooded portions being held in common.¹⁰ This gave rise to an 'island' pattern of settlement. For all intents and purposes, the economy of the northern periphery (New Mexico in particular) was a barter economy. Annual fairs at Taos saw the exchange of horses, mules, knives, hatchets, and trinkets with residents and indigenous populations for the skins of deer and buffalo. Of particular significance was sheep raising, which allowed livestock to gradually become a commodity used to acquire other commodities. As time passed, sheep raising came to be concentrated in the hands of relatively few interrelated families and large sheep owners became rancher-merchants, developing a trade with Chihuahua.¹¹

⁷ T. Anaya, *Ibid*, p. 52, J. Bazant, *Concise History of Mexico from Hidalgo to Cardenas, 1805-1940* (Cambridge, 1977), pp. 3-29. For general reading see F. Chevalier, *Land and Society in Colonial Mexico: The Great Hacienda* (Berkeley, 1963).

⁸ See E. Cárdenas, 'Macroeconomic Interpretation,' and R.L. Garner, *Economic Growth and Change in Bourbon Mexico*, with S. E. Stefanou (Gainesville, 1993).

⁹ C. McWilliams, *North from Mexico: The Spanish-Speaking Peoples of the United States* (New York, 1990), p. 73.

¹⁰ M. Moorehead, *New Mexico's Royal Road: Trade and Travel on the Chihuahua Trail* (Norman, 1958), p. 35, M. Simmons, *Spanish Government in New Mexico* (Albuquerque, 1990), pp. 112-156, and C. McWilliams, *North from Mexico*, p. 73.

¹¹ Sheep essentially functioned as capital to be lent at interest. The owner of the sheep turned over a certain number of ewes to the *partidario* who agreed to make set annual payments of wool and lambs, usually 20 percent of the original head count. Eventually, the contracts specified responsibility in the case of losses to disease, lightning, and Indian raids. C.A. Milner, C.A. O'Connor and M.A. Sandweiss eds., *The Oxford History of the American West* (Oxford, 1996), pp. 241-43. See also C. McWilliams, *North from Mexico* p. 72, D.J. Weber, *The Spanish Frontier* and M. Moorehead, *New*

The colonial legacy bequeathed an economic heritage of dependence on production for export of a limited array of products and a rigid social and administrative structure that did not encourage the development of an integrated economy or society. Furthermore, the system concentrated wealth and power in a few hands. The island pattern of settlement beyond the central plateau, coupled with the barter economy and caravan trading system, further reinforced the structure of isolation in Northern Mexico.

A great deal of political instability plagued Mexico between 1810 and 1876, and again after 1910. Although Mexico declared its independence from Spain in 1810, the latter's unwillingness to relinquish control, meant that this status was not consolidated until 1821 under the Plan de Iguala. The plan was a political compromise that seemingly appeased the objections of both old-time rebels and elite supporters of the royal regime by guaranteeing economic and political stability, a constitutional monarchy and preservation of elite privileges.¹² Independence, therefore, did not translate into changes in the social or economic structure of the country.¹³ The monarchy was abolished in 1823 and a federal republic was established under which Mexico abandoned centralism and established states rights and regional self-government.¹⁴ The new government sought to support itself using import taxes, sales taxes and, ironically, new government monopolies. However, the revenues generated from these measures proved insufficient to pay debts despite loans (from England) and by 1827 another round of turmoil set in.¹⁵ Between 1833 and 1855 Mexico suffered a period of

Mexico's Royal Road.

¹² T. Anaya, 'Independence of Mexico,' pp. 52 and 87-88, and D.G. López-Rosado, *Curso de História Económica de México* (Mexico, 1963), p. 159, and J. Bazant, *Concise History*, pp. 5-29.

¹³ J.H. Coatsworth, 'Características Generales de la economía mexicana en el siglo XIX,' in E. Cárdenas ed., *Historia Económica de México* (Mexico, 1992), p. 13.

¹⁴ T. Anaya, 'Independence of Mexico,' p. 93. See also J. Bazant, 'Mexico from Independence to 1867', *CHLA*, vol. 3 (also published as 'From Independence to the Liberal Republic, 1821 to 1867,' in L. Bethell ed., *Mexico Since Independence* (Cambridge, 1991)) or *Concise History*, and M.C. Meyers and W.L. Sherman, *Course*.

¹⁵ The most outstanding accomplishment of the new government was abolition of slavery in 1829. Mexico also expelled the Spanish in the face of an attempted reconquest. M.C. Meyers and W.L. Sherman, *Course*, pp. 319-20, D.C.M. Platt, 'Finanzas Británicas en México, 1821-1867,' in C. Marichal Salinas ed., *La Economía Mexicana: Siglos XIX y XX* (Mexico, 1992), pp. 1-36 and J. Bazant, 'Origen de la Duda Externa' in E. Cárdenas ed., *Historia Económica de México*, pp. 255-276. See also J. Bazant, *Historia de la Deuda Exterior de México (1823-1946)* (Mexico, 1968), R. Potash, 'La fundación del Banco de Avio' in C. Marichal Salinas ed., *La Economía Mexicana*, and B. Tenenbaum, 'El poder de la finanzas y las finanzas del poder en México,' *Siglo XIX* 3 (1988) 5, pp. 197-217, S. Green, *The Mexican Republic: The First Decade, 1821-1832* (Pittsburgh, 1987), and H.D.

repeated political upheaval. During this time the presidency changed hands 36 times with Santa Ana occupying the position eleven times.¹⁶ The Conservatives' tenure at the helm of Mexico in the mid 1830s led to attempts to centralise power that precipitated problems in Texas. The major grievance of residents in the area derived from the fact that the new constitution merged Texas with Coahuila thereby diluting the political voice of Texans. This led to the independence movement of the province and the formation of the Republic of Texas.¹⁷ During this period the French also blockaded Mexican ports in an effort to collect debts.¹⁸

Mexico's relationship with the U.S. became an increasingly important political consideration during the 1840s that culminated in military conflict. Although the Mexico-U.S. War lasted only two years, military skirmishes between the two countries dated back to 1842. The outcome – the loss of half of Mexico's territory – had little impact on the Mexican economy at that time.¹⁹ Only approximately two percent of the country's population was found in the land ceded to the U.S., and the extent of the wealth of natural resources in places such as California were not discovered until after 1848.

In the 1850s, the Revolution of Ayutla returned the Liberals to power marking the beginning of the period known as the Reforma in Mexico; a brief period of relative peace and liberal reforms designed to modernise the economy.²⁰ Needless to say, the Liberal

Sims, *The Expulsion of Mexico Spaniards, 1821-1836* (Pittsburgh, 1990).

¹⁶ M.C. Meyers and W.L. Sherman, *Course*, p. 324.

¹⁷ This is an over-simplification of the problems confronted in Texas, but it is considered a very important issue in Texas-Mexico relations. See E.C. Barker, *Texas and Mexico*, R. Griswold del Castillo, 'The Mexican War: A Study in Causation', *Pacific Historical Review*, 49 (1980), D.M. Pletcher, *The Diplomacy of Annexation*, J. Vásquez, 'The Texas Question in Mexican Politics, 1836-1845', *Southwestern Historical Quarterly*, 89 (1986), as well as J. Bazant, 'Mexico From Independence', *CHLA*, vol 3., pp. 437-438 and M. Meyers and W.L. Sherman, *Course*, pp. 327-328 and pp. 336-338. See also D.J. Weber, *The Mexican Frontier, 1821-1846: The American Southwest Under Mexico* (Albuquerque, 1982).

¹⁸ See W.S. Robertson, 'The French Intervention in Mexico in 1838,' *Hispanic American Historical Review*, 24 (1944), pp. 222-52, and B. Tenenbaum, *The Politics of Penury: Debts and Taxes in Mexico, 1821-1856* (Albuquerque, 1986).

¹⁹ This is a position asserted by J. Bazant in 'From independence to Liberal Republic' in L. Bethell ed., *Mexico Since Independence*, p. 22.

²⁰ See D.C. Olioff, *Reforma Mexico and the United States: A Search for Alternatives, 1854-1861* (Birmingham, 1981), J. Bazant, 'From Independence to the Liberal Republic,' in L. Bethell ed., *Mexico Since Independence* (Cambridge, 1991) or *Concise History*, R.N. Sinkin, *The Mexican Reform, 1855-1876. A study in liberal nation-building* (Austin, 1979).

reforms initiated under the government of Benito Juárez led to another period of fighting between opposing camps now known as the War of the Reform (1858-1861).²¹ As the government attempted to revive the economy, pressure from European creditors for repayment of loans and claims mitigated any advances, and Juárez was forced to declare a two year moratorium on debt payments in the hope of achieving internal stability. Unfortunately, this provoked Spain, Great Britain and France into signing the Convention of London calling for joint occupation of Mexican customs houses to collect their claims. Eventually, Spain and Great Britain retired from the alliance, while the French remained in Mexico and marched on the capital. In May 1863, President Juárez evacuated Mexico City allowing the French to assume control of the country.²² His flight from the capital took him to the northern most extreme of the country, C. Juárez, where he stayed for several years. In fact, he utilised the city as his *de facto* capital.²³ French occupation lasted until 1867 when Juárez resumed control of government, signalling the beginning of the *República Restaurada* (1867-1876), during which time the Liberals renewed their effort to set a proper ground work for future modernization.²⁴

In 1876 Porfirio Díaz assumed control of Mexico, bringing an end to several years of internal struggle within the Liberal camp after the death of Benito Juárez in 1872. In 1880 he relinquished his position to Manuel González for four years, during which time Díaz

²¹ M.C. Meyers and W.L. Sherman, *Course*, pp. 390-397 and J. Bazant, *Concise History*, pp. 80-94.

²² See J.A. Dabbs, *The French Army in Mexico 1861-1867, a study in Military Government* (The Hague, 1963), W.S. Robertson, 'The French Intervention,' as well as J. Bazant, *Concise History or Deuda Exterior*, and M.C. Meyers and W.L. Sherman, *Course*.

²³ The objective of Spain and Great Britain was clear. France, however, had other plans; Louis Napoleon Bonaparte had designs on an empire. Accompanying Juárez was the Governor of Chihuahua, L. Terrazas. According to R.R. Miller, Juárez had numerous agents in the U.S. whose task it was to secure financial and military support. Examples of arms smugglers/agents include Placido Vega who operated out of San Francisco, and Gaspar Sánchez Ochoa who operated both sides of the Pacific. R.R. Miller, 'Arms Across the Border; U.S. Aid to Juárez During the French Intervention in Mexico,' *Transactions of the American Philosophical Society* 63 (1973) 6, pp. 11-12 and p. 30. See also M.C. Meyers and W.L. Sherman, *Course*, pp. 390-397, J. Bazant, *Concise History*, pp. 84-94 and J. Bazant, *Deuda Exterior*, pp. 84-104, J.D. Cockcroft, *Mexico: Class Formation, Capital Accumulation, and the State* (New York, 1983), p. 77, J. M. Ponce de León, *Reseñas Históricas del Estado de Chihuahua* (Chihuahua, 1905), p. 139. I. Esparza Marín, *Monografía Histórica de C. Juárez* (C. Juárez, 1975), vol. 2, p. 15.

²⁴ For additional readings on the French Intervention see, M. C. Meyers and W.L. Sherman, *Course*, pp. 385-402, M. Carmagnani, 'El Liberalism, Los impuestos Internos y El Estado Federal Mexicano, 1857-1911,' in C. Marichal Salinas ed., *La Economía Mexicana*, pp. 110-135 and R.N. Sinkin, *The Mexican Reform*, W.V. Scholes, *Mexican Politics During the Juárez Regime, 1855-1872* (Columbia, 1957).

fomented regional ties that allowed him to resume control of the country in 1884, which he retained until 1911.²⁵ The last years of Juárez' rule coupled with the 27 years of the Porfiriato are associated with an acceleration in Mexico's economic performance; the political stability achieved by Díaz led to the economic development of the country.²⁶ However, the Díaz programme of political centralization alienated regional elements of the country and by 1900, resentment against Díaz was growing.²⁷ By 1911, Mexico was engulfed in a Revolution that would last most of the decade.

Mexico suffered a great deal of political instability for most of the nineteenth century. The period between 1810 and 1876 was characterised by a struggle between Liberal and Conservative camps. Even during the latter years of the Restored Republic, a period considered to be the beginning of stability, there were internal struggles. It was not until 1876 that the country experienced political stability in the form of a dictatorship. However, the Porfiriato tended to centralise power, and this resulted in renewed political instability after 1910 as Mexico entered into a period of revolutionary conflict.

The transportation and institutional infrastructures suffered greatly during the long period of political instability in Mexico. The alternating Liberal and Conservative regimes had differing priorities, and the frequency with which government changed hands made the development of growth-promoting institutions virtually untenable. However, this time was not without moments in which attempts were made to redress these issues. The formation

²⁵ J.D. Cockcroft, *Mexico, Class Formation*, pp. 85-86, J. Bazant, *Concise History*, pp. 95-102, F. Katz, 'The Liberal Republic and the Porfiriato, 1867-1910' in L. Bethell ed., *Mexico Since Independence* (or *CHLA*, vol. 3), pp. 60-65, D. G. López Rosado, J. Álvarez ed., *Curso Histórica Económica*, p. 271 and *Enciclopedia de México* (Mexico, 1987) p. 1697.

²⁶ F. Katz, 'Liberal Republic,' p. 81.

²⁷ According to La France, this was one of the contributing factors to the Madero revolution of 1911. The other cause being increasing capitalist penetration of the Mexican economy. D. La France, 'Many Causes, Movements and Failures, 1910-113; the Regional Nature of Maderismo,' in T. Benjamin and M. Wasserman eds., *Provinces of the Revolution: Essays on Regional Mexican History, 1910-1929* (Albuquerque, 1990), p. 19, and J. Vasconcelos, *Breve Historia*, pp. 423-439. See also P. Calvert, *The Mexican Revolution, 1910-1914: The Diplomacy of Anglo-American Conflict* (Cambridge, 1968), C.C. Cumberland, *Mexican Revolution: Genesis under Madero* (Austin, 1952), J.C. Cockcroft, *Mexico: Class Formation*, pp. 99-114, J. Womack, 'The Mexican Revolution, 1910-1920,' in *Mexico Since Independence*, pp. 125-200, and J. Bazant, *Concise History*, pp. 125-155. See also, B. Ulloa, 'La lucha armada,' in *Histórica General de México*, (Mexico, 2nd, edition, 1977), vol. 4, A. Knight *The Mexican Revolution* (London, 1986), F. Katz, *The Secret War in Mexico: Europe, The United States and the Mexican Revolution* (Chicago, 1981).

of the Banco de Avío in 1830 is an early example of Conservative institution-building.²⁸ During the Liberal reforms of the 1850s, several pieces of legislation were introduced in an effort to modernise the institutional framework of the economy. For example, the Ley Juárez abolished *fueros* (exemption from prosecution for civil crimes) for military and ecclesiastical personnel. Another law, the Ley Lerdo, prohibited ecclesiastical and civil institutions from owning or administering real property not directly used in their day-to-day operations. (In other words, divestiture of urban and rural property not directly related with the work of the church or the military.) More importantly the law's emphasis on corporate holdings applied not only to the Church, but also to peasant lands. This permitted ranchers, merchants and other interests to acquire vast amounts of native lands thereby beginning a process of dislocation of peasants, and setting in motion the forces that would lead to the creation of a larger, landless labour pool.²⁹ However, as the greatest concentration of population was found in the central plateau of Mexico, these changes held little significance in the extreme north. Therefore, institutional change at the centre did not translate into the same type of institutional change in the periphery. Finally, the Ley Iglesias prohibited the church from charging fees for administering sacraments.³⁰ During the period of the República Restaurada (1867-1876), the Liberals also were able to push through important changes in the institutional economic environment, including a change in tariff laws that had hampered commerce.³¹ Additionally, steps were taken to redress the inadequacy of the transportation infrastructure, and the railway between Mexico and Veracruz was completed in 1873, thereby

²⁸ See R. Potash, *Banco de Avío de Mexico, El fomento de la industria, 1830-1846* (Mexico, 1959).

²⁹ See J.D. Cockcroft, *Mexico, Class formation*, E. Cárdenas ed., *Historia Económica de México*, or C. Cardoso ed., *Mexico Siglo XIX, Historia económica y de la estructura social* (Mexico, 9th edition, 1990).

³⁰ C. Cardoso, 'Las industrias de transformación (1821-1880)', in C. Cardoso ed., *Mexico Siglo XIX*, p. 151, M.C. Meyers and W.L. Sherman, *Course*, pp. 373-390 and J. Bazant, *Concise History*, pp. 60 -77. and T. King, *Mexico: Industrialization and Trade Policies Since 1940* (London, 1970), p. 3, I. Herrera Canales, *El Comercio Exterior de México* (Mexico, 1975), p. 52 and D.A. Brading, 'Liberal Patriotism and the Mexican Reforma,' *Journal of Latin American Studies*, 20 (1988), pp. 27-48. The document established a unicameral national legislature, incorporated the three laws described above and reaffirmed the abolition of slavery, while conspicuously failing to establish Roman Catholicism as the state church. See also D. Cosío Villegas, *La Constitución de 1857 y sus críticos* (Mexico, 1957) and D.C. Olliff, *Reforma Mexico*.

³¹ J.H. Coatsworth, 'Características Generales,' p. 24.

forging a very important economic link.³² During the Porfiriato reforms of the fiscal system saw a new commercial code in 1884, and a new mining code in 1887.³³ These changes permitted the development of a national capital market which, according to Marichal, contributed to the process of growth experienced in the latter part of the nineteenth century, not unlike the experience in the U.S.³⁴

The modernization of the transportation system in Mexico was perhaps the single most important innovation during the Porfiriato. This stands in contrast to the debate in the U.S. economic history as to the importance of the railways in the overall development of the country. Here is it useful to set out in brief the arguments in favour of the function of railways in Mexico. According to Coatsworth, the railways had a unique and pioneering role in stimulating foreign investment in Mexico. Coatsworth estimated that the railways were likely to have accounted for up to one-half of the economic growth during the Porfiriato.³⁵ (It is important to note that it was not until 1880 that the government succeeded in attracting enough foreign investment to launch a major programme.) Summerhill, further elaborating on Coatsworth's work, explained that as the railway networks expanded, cheap transportation became available on an increasingly greater scale and the railroads themselves became more efficient over time. The machinations of this process repeated themselves and were extended with each new section of railroad track opened. Hence, the gains to the national economy were felt in increasing market integration and regional specialisation.³⁶ This, presumably, was facilitated by increased foreign investment. Commenting on Coatsworth's work on calculating the social savings of the railways in Mexico against the next alternative (wagons)

³² J.H. Coatsworth, 'Características Generales,' pp. 23- 25, D.M. Pletcher, 'La construcción del Ferrocarril Mexicano,' in C. Marichal Salinas ed., *La Economía Mexicana*, p. 219 and D. G. López Rosado, *Curso Historia Económica*, p. 197, and I. Herrera Canales, 'La circulación: transporte y comercio,' in C. Cardoso ed., *Méjico Siglo XIX*, p. 198.

³³ J.H. Coatsworth, 'Características Generales,' p. 26, and S. Haber, *Industry and Development, The Industrialization of Mexico, 1890-1940* (Stanford, 1989), p. 3.

³⁴ See. C. Marichal Salinas, 'Obstacles to the Development of Capital Markets in Nineteenth-Century Mexico,' in S. Haber ed., *How Latin America fell Behind*.

³⁵ J.H. Coatsworth, 'Indispensable Railroads in a Backward Economy; The Case of Mexico' *Journal of Economic History* 39 (1979) 4, pp. 951-53. See also J.H. Coatsworth, *Growth Against Development: The Economic Impact of the Railroads in Porfirian Mexico* (Dekalb, 1981) or 'Obstacles to Economic growth in Nineteenth-Century Mexico,' *American Historical Review* 83 (1978) 1.

³⁶ W. Summerhill, 'Transport Improvements in Growth in Brazil and Mexico,' in S. Haber ed., *How Latin America Fell Behind*, p. 104

Summerhill concluded that, had the country been denied railways, the economic loss would have been enormous. The railroads allowed large pools of mainly indigenous labour to migrate throughout the country and fomented the development of capital markets.³⁷ However, unlike in the case of the U.S. described below, Mexico did not attract large waves of immigrants from Europe, mainly because salaries were too low. This was despite the fact that Mexico tried to lure immigrants from Europe by promulgating relatively liberal immigration laws for entrepreneurs and skilled labourers. Still, some foreign immigration did occur, and in the northern states where population increased on the order of 227 percent, foreign immigrants could be found.³⁸ Thus, in a sense there was a similarity with the western U.S., which also attracted a great influx of population and resulted in urbanisation in various locations such as C. Juárez-El Paso.

In the years between 1880 and 1884, 3,125 miles (5,000 kilometres) of rail were laid.³⁹ By 1910 Mexico possessed over 12,500 miles (20,000 kilometres) of track.⁴⁰ Thus, the greatest push in railway development occurred in the later part of the nineteenth and early twentieth centuries. These new avenues allowed communication between local intermediaries and further extended markets.⁴¹ The railways were an important modernizing agent in the Mexican economy because they unified the national market, moved merchandise and machines, facilitated the movement of cheap labour and removed local commercial barriers. Still, limitations to this development that emerged as the process of moved forward. The railways were narrow in their scope and tended to run from the centre of the country to the ports (Gulf) and the northern frontier. They were, in fact, almost linear in their configuration. This was particularly true along the northern periphery. (As will be discussed in Chapter 4.) This meant that large portions of the country remained at the margin of

³⁷ *Ibid*, p. 102.

³⁸ F. Katz, 'Liberal Republic,' p. 74.

³⁹ J.H. Coatsworth, 'Características Generales,' p. 25, T. King, *Mexico: Industrialization*, p. 4, and J. Bazant, *Concise History*, p. 111.

⁴⁰ W. Summerhill, 'Transportation Improvements in Brazil and Mexico,' in *How Latin American Fell Behind*, p. 102.

⁴¹ M. Bernstein, 'La modernización de la economía minera' in *Historia Económica de México*, ed. E. Cárdenas, p. 237 and F. Rosensweig, 'El Desarrollo económico de México de 1877 a 1911,' *El Trimestre Económico*, 32 (1965) 3, pp. 413-414.

national integration.⁴² In the case of Mexico, while the railroads were a modernising force, they were also a means by which portions of the country were excluded from the development process. The explanations for this outcome are three: limited resources; political objectives; and/or a combination of both. As was mentioned above, foreign investment played a very important part in financing the construction of the railways. The concessions that were given were often times linked to political interests.⁴³ Finally, in many states both economics and politics played an important part in the development of the railways. Some of these issues will be touched upon in the chapters to follow.

The pace of institutional changes increased after the establishment of relative political stability associated with the Restored Republic and the dictatorship of Porfirio Díaz. However, as these policies were designed to centralise power. The potential of these changes was limited and, in fact, distorted growth. The distortions manifested themselves in the nature of Mexico's internal and external relations.

The regional landscape of Mexico varied considerably. Agricultural production predominated in the South. The South-East, in particular, became a one or two export crop region with very little agricultural diversification and even less industry. The Yucatan Peninsula, where sisal (henequen) was important, was a prime example.⁴⁴ This product was important in cordage and paper. Early on, Mexican-owned haciendas produced henequen, but as the century progressed, the buyers and sellers of this product came to be dominated by foreign interests, mainly the International Harvester Company – a Chicago-based interest. In other states, single exports and the foreign owner played a larger role such as in Tabasco and Chiapas, home to numerous rubber estates. The point here is that the regional economy was based on a single or few exports managed by foreign or national monopolies.⁴⁵

In the North, although it too underwent a significant transformation during the

⁴² F. Katz, 'Liberal Republic,' pp. 88-89.

⁴³ See J. Coatsworth, 'Indispensable Railroads' or *Growth Against Development*.

⁴⁴ For a more detailed analysis of the regional economy see J.T. Brannon and G. M. Joseph eds., *Land, labor & capital in modern Yucatan: essays in regional history and political economy* (Tuscaloosa, 1991) or G.M. Joseph, *Revolution from without: Yucatan, Mexico, and the United States, 1880-1924* (New York, 1982).

⁴⁵ F. Katz, 'The Liberal Republic', pp. 79-81.

Porfiriato, the region was diversified and linked to the world economy.⁴⁶ Large amounts of copper, tin and silver, as well as cattle and lumber were exported. However, unlike the South and South-East above, a much larger segment of the regional economy was geared toward domestic production, this was certainly the case in irrigated cotton fields of Coahuila and Durango.⁴⁷ In fact, in relation to the rest of the economy, industrial development was more important in the North than in most other parts of Mexico. The steel industry that developed in Monterrey, Nuevo Leon was both Mexican and American owned.⁴⁸ Large agricultural estates gave rise to food-processing industries, that appeared in both Mexican and U.S. border communities. While foreign investment was more important in the region, Mexican capital also played an significant role in the development of new industries. Elsewhere along the frontier in the North-West for example, a generally agricultural, ranching and fishing region emerged. Irrigated lands produced commercially for the national market as well as for export. In Sonora and Sinaloa, cattle ranching for the export market was a primary function.⁴⁹ Along the North-Eastern frontier, commercial agriculture of a tropical nature and metallurgy became important, as did gas extraction and petroleum at the end of the nineteenth, and certainly in the twentieth century.⁵⁰

The least changes took place in the central part of Mexico where the large corn and wheat-producing estates seemed static. They experienced a very slow development in contrast to the rapid industrialisation in the North, or when compared to the valley of Mexico

⁴⁶ See F. and R. Lister, *Chihuahua: Storehouse of Storms* (New Mexico, 1966) M. Wasserman, *Capitalist, Caciques and Revolution: The Native Elite and Foreign Enterprise in Chihuahua* (Chapel Hill, 1984). J. Lloyd, *El Proceso de Modernización Capitalista en el Noroeste de Chihuahua* (Mexico, 1995)

⁴⁷ See M. Machado Jr., *The North Mexican Cattle Industry, 1910-1950: Ideology, Conflict and Change* (College Station, 1981), or M. Wasserman, *Capitalists, Caciques and Revolution*.

⁴⁸ See A. Saragoza, *Monterrey Elites and the Mexican State* (Austin, 1988) or S. Haber, *Industry and Underdevelopment: The industrialization of Mexico, 1890-1919* (Stanford, 1989).

⁴⁹ See S. Voss, *On the Periphery of Nineteenth Century Mexico: Sonora and Sinaloa, 1810-1877* (Tucson, 1982)

⁵⁰ F. Katz, 'Liberal Republic', pp. 79-81, J. Delgadillo and F. Torres, *Geografía regional*, p. 36. See also L. Meyer, *Mexico and the United States in the oil controversy 1917-1942* (Austin, 1977) or L.B. Hall, *Oil, banks, and politics: the United States and postrevolutionary Mexico, 1917-1924* (Austin, 1995).

and its surroundings, including the industrial centres in Puebla and Veracruz.⁵¹ In the Centre-West seasonal agricultural production, and gold and silver in Guanajuato and Jalisco predominated. In the Centre-East, a large part of the country's industrial base developed in the Federal District and the State of Mexico. Seasonal agricultural production and silver, gold, copper, zinc and lead were important in Hidalgo.⁵² Later, in the East, oil and petrochemicals emerged along with agriculture, ranching, and seasonal and tropical products, and fishing.

In its external (trade) relations, Mexico imposed progressively more restrictive controls on imports during the nineteenth century in the form of duties in order to raise operating revenues, and these forced the country to remain relatively protectionist 1838 to 1856 was the most protectionist. In fact, income from these measures produced 64 per cent of total federal receipts.⁵³ There were periods of liberalisation, but this did not constitute a overwhelming support for free trade. Protectionism became more pronounced during the Porfiriato. Although tariff levels changed, they did not undergo a wholesale change of great magnitude, with a few notable exceptions for particular items, the schedule was increasingly honed to accomplish three aims: 1) protection of new industries such as iron steel, boot and shoe, manufacturing utilizing natural fibres, cement, and petroleum extraction; 2) a balance between the needs of different sectors at different stages of industrial production; and 3) facilitation of foreign trade.⁵⁴ Duties on trade constituted a large, if decreasing, portion of

⁵¹ See G.P.C. Thomson, *Puebla de Los Angeles: Industry and Society in A Mexican Town* (Boulder, 1989) or 'Protectionism and Industrialization in Mexico, 1821-1854: The Case of Puebla,' in *Latin America: Economic Imperialism and the State*, ed. C. Able and C.M. Lewis' (London, 1985).

⁵² See C. Cardoso and C. Reyna, 'Las industrias de transformacion (1880-1910)', in C. Cardoso ed. *Mexico en el siglo XIX* or *Historia Economic de Mexico*, El Porfiriato: La vida economica.

⁵³ T. Beatty, 'The Structure of Protection in Mexico, 1890-1911: Import Tariffs and Domestic Industry,' paper presented at All-U.C. Group in Economic History Conference, Stanford University, November, 1996, pp. 1. Cited by permission of the author. I. Herrera Canales, *El Comercio Exterior*, pp. 51-52, G.P.C. Thomson, 'Protectionism', pp. 133-143, D. Cosío Villegas, *Historia Moderna de Mexico*, 'La Republica Restaurada,' pp. 103-105,. See *La cuestión arancelaria en Mexico III: Historia de la politica aduanal* (Mexico 1932), p. 20. and R. Potash, *Banco de Avio* for discussion from 1820s to 1840s. and J. R. Alvarez ed., *Enciclopedia de México*, p. 1698.

⁵⁴ T. Beatty, 'The Structure', p. 2 and I. Herrera Canales, 'La circulación,' in C. Cardoso ed. *Mexico Siglo XIX*, pp. 449-451

total federal revenue; both the level and balance of high and low tariffs across the schedule were designed to foster domestic production.⁵⁵

The largest industries during the Porfiriato were textiles, mining and metallurgy, traditional industries (textiles, tobacco and basic food stuffs) and new industries (paper, soap, dynamite, rubber products and bottled beer).⁵⁶ Raw materials were virtually duty free, while intermediate inputs generally paid duties at lower rates than finished products. Items such as raw cotton, steel bars, raw fibres, candles and intermediate soap inputs all paid duties nominally at lower rates than the finished products for which they were inputs. Capital imports such as machinery were one of the most prominent of the finished products that were admitted into the country without any or with relatively low duties. This policy ensured that Mexico developed a mechanical backbone for its emerging industries. The products most favoured by high tariffs included those that were within reach of domestic manufacturing capabilities.⁵⁷ Between 1891 and 1905 the ratio of total duties collected on imported items to the total value of these imports fell. Although the nominal tariff rates in Porfirian Mexico were high by world standards, the nominal tariffs that Mexico imposed did not greatly exceed the rates levied in the U.S. at various periods in the nineteenth century. In fact, as discussed below, the U.S. operated under one of the highest levels of protection among the industrialising North Atlantic countries, maintaining an average tariff level of roughly 40 percent from 1875 to 1913. In other industrialising countries such as Russia and Brasil, the rates exceeded 50 percent, while in others, 100 percent tariffs were not uncommon.⁵⁸

Mexican tariffs played a significant role in stimulating industrial growth in Mexico between 1890 and 1910. The beer, leather products, natural fibres, chemicals, iron and steel

⁵⁵ I. Herrera Canales, *Ibid.*

⁵⁶ The benchmark study of Mexican tariffs was produced by D. Cosio Villegas, *La cuestión arancelaria III: Historia de la política* (Mexico, 1931), p. 9. Mexican tariffs schedules were published yearly in several places such as the *Ordenanzas Generales de Aduanas Marítimas y Fronterizas* from the Bulletin of the Ministerio de Hacienda. Beatty points out that in his attempts to construct a price schedule for Mexican products, he was forced to use the U.S. Treasury and Commerce Department data - *Foreign Commerce and Navigation of the U.S.* and *Historical Statistics of the U.S.* See T. Beatty, 'The Structure of Protection in Mexico'.

⁵⁷ T. Beatty, 'The Structure', pp. 21-22. See also F. Rosensweig, 'El comercio exterior', in *Historia moderna de Mexico, El porfiriato: Vida Económica* (Mexico, 1965) or I. Herrera Canales, 'La circulación,' in C. Cardoso ed., *Mexico Siglo XIX*.

⁵⁸ T. Beatty, 'The Structure', pp. 21-22. A comparison of tariff schedules may be found in B.V. Yarbrough and R.M. Yarbrough, *The World Economy: Trade and Finance*, Table 6-1, p. 177

sectors all flourished.⁵⁹ In the case of leather products, for at least the second half of the period, Mexico was a net exporter of cattle hides with the volume of trade increasing from roughly 19 million pounds in 1904 to 24 million in 1906.⁶⁰ The cattle business itself needed little protection in Mexico, were conditions in the North provided a substantial comparative advantage for the expanding industry. As mentioned above, the capital equipment needs of Mexico's growing industrial sectors of the 1890s necessitated zero or low tariffs on machinery, engines, tools and parts. Machinery, agricultural equipment and parts entered Mexico free until 1897, when a very low duty of \$MN 0.01 per kilo was levied. This was later revised to \$MN 0.165 in 1905 and \$MN 0.015 in 1909.⁶¹

There is one aspect of Mexico's tariff policy that must be highlighted, as it applied primarily to the northern frontier and links the impact of national institutions on the development of the C. Juárez-El Paso cross-border market. As will be explained, the promulgation of a *Zona Libre* for Mexico's northern boundary states was designed to promote development in these regions.⁶² It was, of course, also used as a means of keeping the communities within the national fold. The policy established a 20 kilometre-wide zone into which imports from the U.S. could enter at significantly reduced tariff rates. However, if the goods were destined for the interior of the country, then the full tariffs applied. While foreign ownership of property or interests was prohibited in the zone, the restriction was easily skirted by the formation of cross-border partnerships or by simply taking up residence in the area. This is important as this study turns to the movement of entrepreneurs in the cross-border setting. More will be said about this policy in subsequent chapters. Here it is instructive to point out the 'special' character of Northern frontier in terms of its orientation and relations with Mexico in general.

Mexico's tariff policy both protected domestic industries thought to be capable of competing in the global market and opened up to country's markets to foreign interests. Through changes in trade policy, parts of the country were able to develop an industrial sector. Additionally, non-tariff barriers were reduced to help facilitate trade. The

⁵⁹ See S. Haber, *Industry and Underdevelopment*.

⁶⁰ See M. Machado, Jr., *The North Mexican Cattle Industry*.

⁶¹ T. Beatty, 'The Structure', p. 34.

⁶² The *Zona Libre* is discussed in the chapters on entrepreneurs and trade, respectively.

combination of these policy changes fostered Mexico's internal development as well as increased its linkages with the U.S., although other countries such as England remained an important source of imports.

The principal suppliers of manufactured goods to Mexico between 1830 and 1860 were the English, followed by the French and Germans, but by 1860 the Americans were already showing growth in this sector.⁶³ The railways led to an intensified commercial relationship between Mexico and the U.S., and between 1900-1920, Mexico purchased some 50-60 per cent of its imports from the U.S.⁶⁴ In general terms, between 1821 and 1875 imports tended to be finished consumer goods, with textiles comprising between 52 and 64 per cent of the total.⁶⁵ However, over the last twenty years of the period, Mexico began to import durable goods including machines and hardware. Mexico's typical exports from independence to 1876, included metals (silver), other minerals, agricultural products, vegetable dyes and fibres.⁶⁶ In 1856 mineral and metal exports accounted for 92 percent of total exports, falling by 1872 and 1875 to represent 74 to 80 percent, respectively.⁶⁷ The political instability described above contributed to the decline of the mining sector. Between 1867 and 1876 the exploitation of minerals and other industrial pursuits were greatly diminished.⁶⁸ The country was plagued by mining crises in 1869, 1872, and 1873-1876.⁶⁹ Of course, during the Profiriato, this sector was rejuvenated, and the principal exports of

⁶³ J.A. Bátiz Vásquez, 'Aspectos financieros y monetarios (1821-1880)' in C. Cardoso ed., *México Siglo XIX*, p. 169, *Enciclopedia de México*, p. 1697. I. Herrera Canales, *Comercio Exterior*, p. 81. D. Cosío Villegas, *Historia Moderna*, p. 192. See also J. Espinosa de los Reyes, *Relaciones económicas entre México y Estados Unidos, 1870-1910* (Mexico, 1951).

⁶⁴ R. Flores Caballero, *La Frontera entre México y Estados Unidos: Desarrollo histórico* (Monterrey, 1976), p. 38 and J. Womack, 'La economía en la revolución (1910-1920)' in E. Cárdenas ed., *Historia económica de México*, p. 409.

⁶⁵ I. Herrera Canales, 'La Composición de las importaciones y exportaciones,' in E. Cárdenas ed., *Historia Económica*, p. 25.

⁶⁶ I. Herrera Canales, *Ibid.*, p. 171, D. Cosío Villegas, *Historia Moderna*, 'República Restaurada,' p. 187.

⁶⁷ M. C. Urrutia de Stebelski and G. Nava Otero, 'La minería (1821-1880)' in C. Cardoso ed., *México en el siglo XIX*, p. 139 and I. Herrera Canales, 'La Composición,' pp. 203-06 and *Enciclopedia de México*, p. 1697.

⁶⁸ S. Haber, *Industry and Development*, p. 17 and M. C. Urrutia de Stebelski and G. Nava Otero, 'La minería,' p. 129 and p. 133.

⁶⁹ M. C. Urrutia de Stebelski and G. Nava Otero, *Ibid.*

gold and silver represented some 65 percent the total per annum. Agricultural commodities such as coffee, fibres, woods, tobacco and vanilla were also important items of export, accounting for 20 percent of total exports. Animal products constituted a small part of the overall export picture because it was precisely during this time that the cattle ranching industry was established and developed. The total value of animal products exports never reached more than 10 percent of the overall value of exports.⁷⁰ However, the same cannot be said about this trade at C. Juárez-El Paso. As explained above and as this study will show, cattle ranching was important in Northern Mexico, in general.

Overall, the export sector played a major role in the economic growth of Mexico from the 1870s until the end of the Porfiriato. According to E. Cárdenas, the annual average rate of growth in the export sector between 1875 and 1895 was 3.9 percent. This accelerated to 6.9 percent between 1895 and 1910.⁷¹ By contrast, in the case of the U.S., the rate of growth of exports was quite volatile. Between 1870 and 1880 exports grew at a rate of 10.4 percent. However, between 1880 and 1900 the figure dropped to 1.4 percent, only to rebound to 6.1 percent over the next ten years. The overall growth rate for the U.S. was 4.9 percent between 1870 and 1913.⁷² This was lower than that experienced in Mexico. However, the significant growth in the export sector did not alter the basic composition of goods traded between Mexico and the U.S. By the turn of the century, the characteristics of the imports from the U.S. remained very much the same. The basic component manufactures persisted.⁷³ This will be an important consideration in the discussion on cross-border trade.

Mexican imports did not increase on the same order as exports. Again according to Cárdenas, the capacity to import increased 4.4 percent from 1875-1895.⁷⁴ While Mexico was increasing its trade with other countries, namely the U.S., imports did not figure as much in the greater trade equation as exports. Apart from the explanations given above about the

⁷⁰ J. Espinoza de los Reyes, *Relaciones Económicas entre Mexico y Los Estados Unidos* (Mexico, 1951) p. 50-52. See also D. Cosio Villegas, *Historia Moderna de Mexico*, Vol 7, El Porfiriato Vida Económica (Mexico, 1965), pp. 635-710.

⁷¹ E. Cárdenas, 'Macroeconomic Interpretation,' in S. Haber ed., *How Latin American Fell Behind*, p. 82.

⁷² A.E. Eckes, Jr., *Opening America's Market: U.S. Foreign Trade Policy since 1776* (Chapel Hill, 1995), p. 51.

⁷³ J. Espinoza de los Reyes, *Relaciones Económicas*, pp. 63-67.

⁷⁴ *Ibid*, p. 82.

orientation of international exchange, namely that it was designed to centralise power, which translated into economic centralisation, the ability to import was also linked to the decline of the Mexican peso. This is also elaborated upon in Chapter 7.

This section has shown how Mexican economic history is couched in terms of three main issues: the colonial legacy, political strife and the lack of an adequate physical infrastructure and growth-promoting institutions. The acceleration of growth is more closely associated with the dictatorship of Porfirio Díaz, during which time most of these issues were partially redressed. In regional terms, the North became more industrialised and experienced greater urbanisation than the rest of Mexico, although this was conditioned to some extent by foreign interests. During this time, Mexico and the U.S. became more closely linked, and the latter became Mexico's largest trading partner with the exchanges consisting of primary products for manufactured goods.

II

The U.S. experienced sustained growth throughout most of the nineteenth century. Although the country was not without its share of political turmoil, these episodes did not impact negatively on the economy, unlike in the case of Mexico. This long term economic growth has been attributed to two main factors: an increasing supply of resources and the development of mechanisms for capital formation and financing.⁷⁵ Subsumed in these is a transportation and institutional framework, including a tariff regime, that facilitated exploitation and accumulation.

The U.S. experienced both external and internal political conflicts during the nineteenth century. For example, in 1813 the U.S. found itself at war with Great Britain. But instead of stifling economic activity, this war stimulated manufactures and fostered westward expansion.⁷⁶ The Mexico-U.S. War (1846-1848) was also important because of

⁷⁵ A. Atack and P. Passell, *A New Economic View of American Economic History* (New York, 2nd edition, 1987), pp. 360-373 and p. 473, W. Licht, *Industrializing America in the Nineteenth Century* (Baltimore, 1995), p. 97, A. W. Neimi ed., *U.S. Economic History* (New York, 1980), p. 197, *American Economic Growth: An Economist's History of the United States*, ed. L. Davis, et. al. (New York, 1972), pp. 2-7 and Part II, 'Resources, Natural and Human,' and P. Brogan ed., *The Penguin History of the United States of America* (London, 1990), pp. 356-384.

⁷⁶ M.A. Jones, 'American Wars' in D. Welland ed., *The United States: A Companion to American Studies* (London, 2nd edition, 1969), pp. 193-225 and M.A. Jones, *The Limits of Liberty: American History 1607-1992*, (Oxford, 2nd edition, 1995), pp. 93-97.

its place within Manifest Destiny and the need for more resources.⁷⁷ Perhaps the most significant internal struggle was the U.S. Civil War, which drew off hundreds of thousands of men into battle and required the diversion of resources into the manufacture of military goods. Despite these conflicts, no grand shifts or transformations in the economic activity of the U.S. appear to have occurred.⁷⁸ According to Coatsworth, the evolution of the country was remarkably resilient and marched forward producing institutions necessary to promote growth.⁷⁹ Thus, in contrast to the Mexican case, political upheavals did not result in prolonged economic instability.

In terms of the increasing inputs for economic growth, the acquisition of territory served as a primary means of adding to the nation's stock of natural resources. At the beginning of the nineteenth century, both the major resource and population centres were located along the Atlantic seaboard at places such as Philadelphia, New York and Baltimore. The western edge of the U.S. extended to the Mississippi River with the Appalachian Mountains forming a formidable barrier between the two extremes. The emerging industrial U.S. economy centred on the Atlantic North-East required supplies of raw materials to fuel growth, food for the expanding urban population and investment opportunities for surplus capital. Over the course of the century a series of land acquisitions helped enlarge the territorial expanse and natural resource base of the nation including: the Louisiana Purchase in 1803, which almost doubled the size of the country, adding the land between the Mississippi River and the Rocky Mountains; the Adams-Oñis Treaty in 1819, which added Florida and part of the Pacific coast north of California; and the annexation of Texas in 1845. By the middle of the century, the remaining land to the west had been obtained either from Britain or Mexico, thereby taking the territorial limits of the U.S. to the Pacific coast.⁸⁰

⁷⁷ See K.J. Bauer, *The Mexican War* (New York, 1974) and D.F. Trask, *The War with Spain in 1898*, (New York, 1981).

⁷⁸ See T. Cochran, 'Did the Civil War Retard Industrialization?' in A.W. Coats and R.M. Robertson eds., *Essays in American Economic History* (London, 1969), pp. 140-149, S.L. Engerman, 'The Economic Impact of the Civil War' in R.W. Fogel and S.L. Engerman eds., *The Reinterpretation of American Economic History* (New York, 1971), pp. 369-379, A. Attack and P. Passell, *A New Economic View*, pp. 360-373, W. Licht, *Industrializing America*, p. 97, A. W. Neimi ed. *U.S. Economic History*, p. 197, and *The Penguin History*, pp. 356-384.

⁷⁹ J.H. Coatsworth, 'Comparative Economic History,' p. 27.

⁸⁰ See Chapter 1 and C.E. Milner, *et. al.* eds., *Oxford History*, pp. 142-147 and pp. 155-192. See also D.M. Smith, 'Geographical Basis,' in T. H. Williams, R.N. Current and F. Freidel eds., *A History of the United States to 1877* (New York, 1969), J. Attack and P. Passell, *New Economic View*, P. N.

The territory West of the Mississippi river is particularly relevant to this case study. The Rockies and the ranges to the West yielded a variety of non-ferrous minerals – silver and gold, copper and lead, potash and sulphur – materials for smelting and other industrial activities locally or in cities back East. The wealth of the mountains also included vast forests, building stone and rivers and streams that could be harnessed to drive water wheels and later generate electricity.⁸¹ Mining played a particularly important role in development, placing settlements where none had been before and drawing merchandising and farming in its wake.⁸² By WWI, the region produced the bulk of the nation's copper, gold and silver; copper was vital to the expanding electrical and telephone industries after the 1880s.⁸³ Along with mining, agriculture was also important. However, the greatest obstacle to western development was that much of the terrain received far too little rain or snow to permit successful farming. This problem would be addressed with the reclamation projects described below.

The mobilization of labour resources resulted from the dual processes of territorial expansion and internal and external migration. The addition of new territories and the resources they contained provided a significant pull factor. For example, just nine days before the end of the Mexico-U.S. War, gold was found at Sutter's Mill in California, and this precipitated a great westward migration. This was followed by subsequent strikes in other parts of the West such as Colorado and Nevada.⁸⁴ Other factors such as opportunity for self-employment, coupled with the added possibilities of speculative profits from land ownership

Limerick, *The Legacy of the Conquest: The Unbroken Past of the American West* (New York, 1987), and F. Merck, *History of the Westward Movement* (New York, 1978).

⁸¹ D.M. Smith, 'Geographical Basis,' pp. 15-16, *Oxford History*, pp. 195-232 and M.P. Malone and R.W. Etulian, *American West, A Twentieth Century History*, (Lincoln, 1989), p. 11. See also R.V. Hine, *The American West: An Interpretive History*, (Baltimore, 2nd edition, 1984).

⁸² P. Limerick, *Legacy*, pp. 99-100.

⁸³ *Oxford History*, p. 434.

⁸⁴ G. M. Walton and H. Rockoff, *History of the American Economy* (Fort Worth, 7th Edition, 1994), pp. 173-174 and p. 195. See also R.V. Hine, *The American West and Interpretive History* (Baltimore, 2nd edition, 1984), F. Merck, *History of Westward Movement* (New York, 1978), D.C. North, *The Economic Growth of the United States 1790-1860* (New Jersey, 1961); R.E. Reigel and R.G. Athearn, *America Moves West* (New York, 1964), and F.J. Turner *The Frontier in American History* (New York, 1921).

rather than wage-employment, made the eastern wage earner migrate.⁸⁵ The railways also needed settlers to purchase land and to serve as future freight customers. In the U.S. and Europe, railway advertising promised emigrants the finest of opportunities – fertile land, guaranteed access to markets, amenities of nearby towns, and the security of one's own home and farm. As competition between railroads picked up, the fervour of the promotion increased proportionately, supplemented by the state boards of emigration.⁸⁶ External migration was very important as a source of labour. From 1820-1930, Europe was the largest sending area, with over 32,000,000 Europeans migrating to the U.S.⁸⁷ The largest sending countries were Germany, Ireland and Italy. The Americas constituted another important sending area, but this was never on the order of the waves of immigrants arriving from Europe.⁸⁸ Notwithstanding, Mexican migration was very important as will be explained below and in Chapter 6. Furthermore, proximity made this migration temporary. With territorial expansion and the waves of migrations, the urbanization of the West saw cities such as San Francisco, Los Angeles, Seattle, Denver or El Paso juxtaposed with vast and sparsely populated hinterlands. However, natural resource exploitation fluctuated as new agricultural lands and timber and mining camps opened and then closed when resources were exhausted. This gave rise to a large pool of migrant labour. As late as 1914, the average duration of employment along the West coast was 15-30 days in lumber camps, 60 days in mining, 10 days in construction, and only seven in harvesting.⁸⁹

Mexican and Mexican-Americans constituted the largest racial or ethnic minority among the workers of the West, although at various times Asians – Chinese, Japanese and Filipinos – were numerous in certain industries. The proximity of the border to California's agricultural fields, Arizona's copper mines, and Texas's orchards was of crucial importance. The Revolution that kept Mexico in turmoil between 1910 and 1920, together with

⁸⁵ C. H. Danhoff, 'Economic Validity of the Safety-value doctrine' in A.W. Coats and R.M. Roberton eds., *Essay*, pp. 219-227. See also A.G. Bogue and M.G. Bogue, "'Profits' and the Frontier Land Speculator,' in A.W. Coats and R.M. Roberton eds., *Essays*.

⁸⁶ P. Limerick, *Legacy*, p. 125 and R.A. Easterlin, 'Influences in European Overseas Emigration Before WWI,' in R. W. Fogel and S. Engerman eds., *Re-interpretation*, pp. 384-395.

⁸⁷ C. Cook and D.W. Aller, *The Longman Handbook of Modern American History, 1763-1996* (London, 1998), p. 184.

⁸⁸ J. Atack and P. Passell, *New Economic View*, pp. 237-245.

⁸⁹ *Oxford History*, pp. 439-440.

completion of the railway lines North to the border, encouraged thousands of Mexicans to flee to the U.S. In time, the area of Hispanic concentration formed a rough triangle with its base extending along the Mexican border from San Diego to San Antonio and its apex at Denver.⁹⁰

The U.S. obtained additional natural resources primarily through the acquisition of territories west of the Mississippi. The abundance of land, minerals and woodlands drew labour into the region, and the railways facilitated this migration. However, as an island pattern of settlement characterised the region, labour had to be mobile. Mexican labour figured predominantly in the Southwestern United States, as the proximity of Mexico facilitated mobility.

Capital formation and financing are also considered key to U.S. development in the nineteenth century. In industries such as mineral extraction and processing, enormous sums of capital were required to undertake the various aspects of work. But capital was difficult to raise in economically underdeveloped and lightly settled parts of the U.S. such as the West. Davis explains that in the early stages of development, there was often no single capital market. Instead there existed a number of local markets based perhaps on geography or industrial groupings.⁹¹ Prior to the U.S. Civil War, the existence of formal credit institutions were largely determined by the initiative and decision of individual bankers and state regulations. Currency with which to transact was limited and only those notes that were easily convertible into specie circulated.⁹² Whatever the arrangement, the uncertainty and costs were relatively high. As the country became more integrated, larger capital markets along with the institutions capable of reducing risks made it possible for large amounts of

⁹⁰ Outside California, Texas and the Southwest, Mexican labour remained relatively limited until the labour shortage created by WWII, which gave rise to the emergency Farm Labour Program (Bracero Program) that dispatched Mexican labourers to work as far north as the fields of Idaho, Oregon and Washington. Perhaps because of ethnic diversity, labour unions found organization difficult, and they never attracted a majority of the region's wage workers even in Washington and Colorado. *Oxford History*, pp. 441-2. See also C. McWilliams, *North from Mexico*, L. Cardoso, 'Vamos al Norte: Causes of Mass Mexican Migration to the United States' in A.F. Corwin eds., *Immigrants-and immigrants: Perspectives on Mexican Labour Migration to the United States* (Westport, 1978), pp. 39-65 and G. Nash, *The American West in the Twentieth Century* (Englewood Cliffs, 1973).

⁹¹ See L. Davis, *et. al.* eds., *An Economist's History*, Chapter 10, 'Banks and their Economic Effects.'

⁹² A.W. Niemi, *Economic History*, p. 190. See also D.J. Weber, *Taos Fur Trappers* and J.J. Web, *Adventures in the Santa Fe Trade*.

capital to flow between markets.⁹³ In the West, this process was initiated with the extension of the national/international overland transportation linkages and represented by interests such as Wells Fargo, Butterfield, and Adams and Company, who offered 'banking' services such as accepting deposits of merchandise and issuing receipts.⁹⁴ The National Bank Act of 1863 precipitated the development of formal banks and the US\$ 50,000 minimum capital requirement also promoted private banking.⁹⁵ However, the inherent instability of the banking system that emerged after 1864 led to The Federal Reserve Act of 1913, designed to strengthen the banking system.⁹⁶ In short, despite early problems, the U.S. developed a national financial system that facilitated capital formation.

In the debate over the importance of the railways to U.S. economic growth, the works of Fishlow and Fogel are particularly relevant.⁹⁷ They have challenged the importance of the railroads in the overall economic growth of the U.S., arguing in fact that they were not indispensable and that with canals, automobiles and aeroplanes, the transportation situation would not have totally impeded the progress of the economy. Therefore, because of the range of potential alternatives, no single innovation could be regarded as completely necessary.⁹⁸

⁹³ L. Davis, *et. al.* eds., *An Economist's History*, pp. 324-325 and pp. 327-332, as well as Chapter 10, 'Banks and their Economic Effects.'

⁹⁴ L.P. Doti and L. Schweikant, *Banking in the American West From the Gold Rush to Deregulation* (Norman, 1991), pp. 26-27.

⁹⁵ The U.S. banking sector still experienced a great deal of uncertainty. See A.L. Carlson, *Monetary and Banking History of Texas* (Fort Worth, 1930), J.M. Gant and L. L. Crum, *The Development of State-Chartered Banking in Texas* (Austin, 1978), and T. H. Gatton, *Texas Bankers Association, The First Century, 1885-1985* (Austin, 1984), H. Hutchinson, *Money, Banking and the United States Economy* (New York, 1967), L. Rufener, *Money and Banking in the United States* (London, 1936). P. Studenski and H. E. Krooss, *Financial History of the United States* (New York, 1952).

⁹⁶ H. Hutchinson, *Money and Banking*, pp. 51 -71.

⁹⁷ Fishlow's article in *A Re-interpretation of American Economic History* concludes that construction ahead of demand was not necessarily the appropriate hypothesis. Population centres already existed in parts of the West. Nonetheless, he argues for an alternative linkage from the railroad construction of the 1840s and 1850s to an on-going flow of westward migration that in turn led to continued railroad expansion. Fishlow calls this a process of anticipatory settlement, which he utilised to explain both the sequence and the vitality of private enterprise. A. Fishlow, 'The Dynamics of Railroad Extension into the West' in ed. R.W. Fogel and S. L. Engerman eds., *The Re-interpretation*, pp. 402-416. pp. 415-416. See also S. Kuznets, 'The contribution of Immigration to the Growth of the Labour Force,' in *A Re-interpretation*, pp. 396-401.

⁹⁸ See A. Fishlow *American Railroads*, R.W. Fogel, *Railroads and American Economic Growth*, L. Jenks, 'Railroads as an Economic Force,' R.W. Fogel and S. L. Engerman eds., *Views of American Economic Growth*, 'Quantitative Economic History: An Interim Evaluation,' *Journal of Economic History* 31 (1971). See also, L. David, *et. al.* eds., *American Economic Growth*, p. 514.

Nevertheless, the railways were important for the development of the western U.S. where the network of navigable waterways was limited.⁹⁹ Fishlow makes this point stating, 'No region was so transformed as the West.'¹⁰⁰ As such, it is important to review the development of the national railways as a background for further discussion in the next section and chapter.

The territorial expansion of the U.S. during the course of the nineteenth century meant that new regions remained isolated from the major centres of international and domestic trade. This gave rise to a need for linkages between population centres in order for western resources and supplies to reach the Atlantic. For example, the heavy expense of moving foodstuffs, using overland wagon transport or slow river routes limited market potential because of the real cost of moving freight and passengers around the country.¹⁰¹ Therefore, improvements to the existing means of inland transportation were needed.¹⁰² Early on, river routes facilitated the process of linkages in areas well served by an navigable river system; the Mississippi and Ohio permitted steamboats to reach the Midwest from the 1820s onward.¹⁰³ Between 1828 and 1840, the U.S. experienced its first surge of railway construction, and by 1839 some 3,000 miles (4,800 kilometres) of track were in service to include intercity lines along the East coast. In 1853, the completion of the New York Central to Chicago connected the Midwest to the Atlantic. By 1860, railway milage exceeded 30,000 (48,000

⁹⁹ W. Licht, *Industrializing America*, p. 83. There is the debate that railroads cannot be considered the lead force in industrialization. They are not necessarily the primary mode of transportation for products such as nails. Further more, they are not necessarily more advantageous than alternatives. However, railroads did reduce costs, but not so much to alter the pattern of U.S. economic growth.

¹⁰⁰ See. A. Fishlow, 'The Dynamics of Railroad Extension into the West' in R.W. Fogel and S. L. Engerman eds., *The Re-interpretation*, pp. 402-416.

¹⁰¹ J. Attack and P. Passell, *New Economic View*, p. 437 and p. 446, M.A. Jones, *Limits*, pp. 117-121. A.W. Neimi ed., *U.S. Economic History*, p. 45, J. Attack and P. Passell, *New Economic View*, p. 175, G. M. Walton and H. Rockoff, *American Economy*, pp. 162-169, P. Horgan, *Great River, The Rio Grande in North American History* (Hanover, 1984), pp. 347-349 and p. 463, *Oxford History*, pp. 159-162, J. Adler, *Yankee Merchants and the Making of the West, The Rise and Fall of Antebellum St. Louis* (Cambridge, 1991), pp. 14-25.

¹⁰² D.M. Smith, 'The Geographical Basis of American Life: Space and Society in the Development of the United States' in D. Welland ed., *A Companion*, pp. 6-8.

¹⁰³ Three routes linked the region to the East: New York-Great Lakes which was primarily canals; Pittsburgh-Philadelphia, which consisted of roads and canals; and New Orleans-Ohio via Missouri and Mississippi Rivers. *Oxford History*, p. 197, G.M. Walton and H. Rockoff, *American Economy*, p. 180 and M.A. Jones, *Limits*, pp. 113-121.

kilometres).¹⁰⁴ Railroad construction was slowed with the U.S. Civil War but growth resumed thereafter. The first post-Civil War push occurred between 1868-1873 when track mileage doubled and resulted in the first transcontinental line in May 1869, when the Union Pacific Railroad and the Central Pacific met at Promontory, Utah. This railway linked Omaha, Nebraska and Sacramento, California. Between 1879 and 1883 some 24,000 miles (38,400 kilometres) of track were laid including the Southern Pacific and Santa Fe transcontinental railways.¹⁰⁵ By 1890 the entire continental territory of the U.S. was connected by 167,000 miles (2,672,000 kilometres) of line.¹⁰⁶ Not unlike in Mexico, much of the railroad construction (particularly the transcontinental construction) was encouraged and underwritten by government through a system of federal land grants and private investment.¹⁰⁷ Therefore, although the railways have been discounted as the most important factor in the overall development of the U.S., such was not the case in the West. The railroads were particularly instrumental in helping overcome the lack of navigable waterways and bridging large expanses of territory. However, it was not until the 1870s and 1880s that the West was properly linked to the Atlantic seaboard by several transcontinental railways.

In terms of growth-promoting institutions, Coatsworth suggests that a relatively inclusive political system and decentralised governing structure coupled with widespread property rights ownership, an early public commitment to certain kinds of social spending and a lesser degree of concentration of wealth and income than in Mexico helped underscore growth.¹⁰⁸ The commitment to social spending is perhaps the most relevant to the development of the western U.S. The case of the railways mentioned above is one example. Another is the role of government in helping the West harness its water resources, given that

¹⁰⁴ J. Atack and P. Passell, *New Economic View*, p. 429. G.M. Walton and H. Rockoff, *American Economy*, pp. 347-369. See also A.D. Chandler, *The Railroads; The Nation's First Big Business* (New York, 1963), A. Fishlow *American Railroads and the Transformation of the Antebellum Economy* (Cambridge, 1965), R.W. Fogel, *Railroads and American Economic Growth* (Baltimore, 1964), L. Jenks, 'Railroads as an Economic Force in American Development,' in R. Cochran and T. Brewer eds., *Views of American Economic Growth* (New York, 1966), R. Reigel, *The Story of the Western Railroads* (New York, 1926).

¹⁰⁵ W. Licht, *Industrializing America*, p. 82 and J. Atack and P. Passell, *New Economic View*, p. 431 and D.M. Smith, 'The Geographical Basis,' in D. Welland ed. *A Companion*, pp. 8-9.

¹⁰⁶ W. Licht, *Industrializing America*, p. 82.

¹⁰⁷ J. Atack and P. Passell, *New Economic View*, p. 435 and W. Licht, *Industrializing America*, p. 87.

¹⁰⁸ J.H. Coatsworth, 'Notes', p. 27.

in 1893 Frederick Jackson Turner pronounced the end of the U.S. frontier and that free land could no longer support the expansion of the economy.¹⁰⁹ This pronouncement held a deeper meaning in that it reflected the growing concern that abundance would give way to scarcity. This suggested that there were limits to the U.S.'s prosperity.¹¹⁰

In the case of arable land, Westerners had for more than two decades been working on their own and seeking federal support to promote the construction of dams and irrigation systems on rivers and streams throughout the region.¹¹¹ Starting in 1891 several Western states began to lobby federal government and in 1894 the Carey Act made available to each Western state a grant of one million acres that could be developed by irrigation companies and then sold to farmers. However, neither states nor corporations were willing to risk investments.¹¹² The landmark Reclamation Act of 1902 – known as the Newlands Act – created a revolving Reclamation Fund financed by the sales of all public lands in the West and designed to fund the construction of dams and irrigation systems in that region. To ensure the benefits went to small and not large farmers, no single landowner could purchase

¹⁰⁹ See R. A. Billington's *Frederick Jackson Turner: Historian, Scholar, Teacher* (New York, 1973) or *Frontier and Section: Selected Essays of Frederick Jackson Turner* (Englewood Cliffs, 1961), *Oxford History*, p. 605, M.P. Malone, and R.W. Etulian, *The American West*, p. 1

¹¹⁰ Earlier environmentalists believed that in order to escape this fate, it was incumbent upon the country to take steps to preserve its natural resources. This early movement may be traced to John Wesley Powell, who in 1878 proposed to the U.S. Congress that existing land laws be revised and the settlement of the west be undertaken in a more collective and regulated process. J.W. Powell, *Report on the Lands of the Arid Regions of the United States* (Washington, D.C. 1878). See also G. Perkins Marsh's, *Man and Nature*, a treatise about the role that forests and other resources had played in the rise and fall of civilization. Marsh's concerns would be echoed by government officials and corporate leaders. Concern was not limited to forests. *Oxford History*, pp. 606-7, M.P. Malone and R.W. Etulian, *American West*, p. 15, and M.A. Jones, *Limits*, pp. 291-294.

¹¹¹ In 1877, the Congress passed the Desert Land Act modelled on an experimental effort undertaken two years earlier in Lassen County, California. The act applied to all western states except Colorado – individuals could purchase up to 640 acres of land (four times that available under the Homestead Act) at a price of U.S.\$ 1.25 per acre. Land was not for speculation. The intent was to promote irrigated farming not by direct federal investment but by making land available at relatively low prices to individuals who promised to make private investments in water technology. *Oxford History*, p. 613-15.

¹¹² A series of Irrigation Congresses organised by William E. Smythe together with engineers, lawyers, journalists, corporate leaders, government representatives, and others interested in promoting irrigation fomented federal action to extract from the remaining public domain all irrigable land so that it could be turned over to the states for improvements. M.P. Malone and R.W. Etulian, *The American West*, pp. 15-16, *Oxford History*, p. 617, and P. Limerick, *Legacy*, pp. 135-37.

more than 160 acres of land.¹¹³ As a result of these reclamation initiatives, it is possible to identify major works such as the Salt River Project in Arizona, the Truckee River Project in Nevada, and the Elephant Butte Dam project in New Mexico, which served as one of the primary water sources for C. Juárez-El Paso. By 1906 almost all Western states had some project in process.¹¹⁴ As time went on, the Bureau ignored the rule against sales of water to farm units larger than 160 acres and large agribusiness operations came to control an increasing share of irrigated acreage.¹¹⁵ By the early 1920s, federal reclamation projects had produced not much more than an additional one million acres of irrigated land, though the infrastructure was in place for significant expansion in the future. Local and private efforts had increased their acreage significantly so that federal projects accounted for only about one-tenth of the regional whole. The irrigated rural landscape was dominated by federal bureaucracies and large landowners, with the government showing a clear tendency to favour large long term water users over small ones.¹¹⁶ In short, the reclamation of new lands and abuses stemming from the project contributed to the emergence of corporate (large) agricultural interests in the U.S. Southwest.

The preceding overview national development provides a backdrop for a brief look international trade relations and regional development. U.S. tariff policy throughout most of the nineteenth century was protectionist in nature. This position was initially derived from the need to raise revenues. However, as time progressed arguments in favour of protecting ‘infant industries’ emerged and remained relatively firmly entrenched throughout most of the

¹¹³ Individuals who purchased the resulting water were to pay high enough fees to replenish the fund within a specified number of years, thereby making it a perennial source of investment capital for reclamation projects throughout the West. Responsibility for the revolving fund was assigned to the new Reclamation Service renamed the Bureau of Reclamation in 1923. *Oxford History*, p. 618, M.A. Jones, *Limits*, pp. 377-382, G.A. Walton and H. Rockoff, *American Economy*, p. 344 M.P. Malone and R.W. Etulian, *American West*, pp. 12-23.

¹¹⁴ P. Limerick, *Legacy*, pp. 137-38 and *Oxford History*, p. 619.

¹¹⁵ The mitigating problem was that by 1910, farmers were having difficulty meeting their obligations to the Reclamation Fund (despite it amounting to a federal subsidy because they had 10 to 20 years to repay without interest).

¹¹⁶ The Bureau was not the only entity promoting water projects. Local water authorities also pursued similar projects as in Los Angeles and San Francisco which were seeking guaranteed water to ensure their growth well into the new century. *Oxford History*, pp. 619-620. See also M.P. Malone and R.W. Etulian, *American West*.

period under study.¹¹⁷ This is not unlike the case of Mexico, where select industries were protected in order to foster certain domestic sectors. A detailed study of U.S. tariff history is outside the purview of this study. Notwithstanding as it is important as an 'institutional' consideration and as a balance to Mexican tariff policy, mention is made below of some of the main tariff acts in order to show that the U.S. also used tariffs to progress its domestic needs.

At the beginning of the nineteenth century, the ongoing battles in Europe between France and England precipitated a policy of Non-Intercourse (1809) that helped stimulate internal production of those goods previously imported such as cotton goods, woollen cloth, iron, glass and pottery. The restrictive nature of this policy led to a considerable rise in manufacturing that relied on continual protection. The tide of protection climaxed in a strong protectionist push in 1828.¹¹⁸ From 1830 to 1860 U.S. tariff policy vacillated along with great fluctuations in the course of trade.¹¹⁹ From 1833 to 1842, tariffs were slowly reduced, following a schedule that lasted until 1842. That year, a new act reversed the trend, and a new set of high duties was enacted.¹²⁰

The period of the Civil War was unprecedented in the promulgation of tariff and internal taxes measures. Throughout the War, no session of Congress or month passed without some increase in duties to help fund the war effort. The Morrill Tariff (1861) imposed a stronger application of tariffs and increased the duties on iron and wool, and included two internal revenue acts, which established and then extended an internal revenue system.¹²¹ After the War, Congress attempted to undo the complex tariff system it had

¹¹⁷ Taussig is considered the authority on U.S. tariff history. However, mention is made of several other works that have condensed Taussig's detail into more digestible parts. Texts such as J. Attack and Passell, *New Economic History*, make reference to tariff in a more general sense. They are not listed here because the focus is on the specific points rather than on the economics of tariffs. See F. Taussig, *The Tariff History of the United States* (New York, 1964), pp. 1-67.

¹¹⁸ P. Ashley, *Ibid*, p. 150.

¹¹⁹ F. Taussig, *Tariff History*, p. 109.

¹²⁰ A moderation of protection occurred in 1846 along with the establishment of a tariff schedule. This separated goods into categories labelled A,B,C and so on, with category A paying the highest tariffs (100 percent) and items such as cottons paying considerably lower rates (25 percent). F. Taussig, *Tariff History*, p. 121. S. Ranter, *The Tariff*, pp. 23-24 and P. Ashley, *Modern Tariff*, pp. 180-188.

¹²¹ The first act was in 1862. F. Taussig, *Tariff History*, pp. 155-170, S. Ratner, *The Tariff*, pp. 28-31 and P. Ashley, *Modern Tariff* pp. 198

created, and by 1872, all those that had connection with internal taxes were abolished. The Act of 1872 reduced tariffs in a horizontal fashion, and duties on coal were reduced, while raw materials and hides were admitted free. Additionally, the Act included a reduction in tariffs on all manufactures of cotton, wool, iron, steel and metals in general. However, a panic in 1873 lead to the repeal of many of these reductions. Interestingly, in 1882 the U.S. entertained the idea of a Reciprocity Treaty with Mexico, however these discussions never came to fruition. The Tariff Act of 1883 was the first general reversal in the direction of tariff protection since the Civil War, and duties on items such as woollens, pig-iron, steel rails and copper were reduced. However, duties on agricultural products such as beef, pork, ham were left mainly unchanged.¹²²

The Tariff Act of 1890, which included the McKinley Tariff, was significant for several of reasons. Firstly, it represented a move toward increased protectionism. A number of duties were increased, in particular those on wool, woollen goods, barely, wheat, hemp and flax in order to accommodate these growing industries in the West. Secondly, Reciprocity empowered the President to impose duties by proclamation on items such as sugar, hides, tea, and coffee, if he thought that any country exporting these commodities to the U.S. was imposing duties on agricultural imports from the U.S.¹²³ The policy was crafted mainly to apply to Central and South America, and countries such as Brazil, Guatemala, Nicaragua, Cuba (still part of Spain) and Jamaica (still part of Great Britain) benefited from the negotiation of agreements. Only three countries were subjected to the proclamations Colombia, Haiti and Venezuela.¹²⁴ In 1897, the Dingley Tariff placed items such as copper on a free list, while the duties on lead and lead ore went up as a concession to Western miners. The considerable importation of these minerals from Mexico had brought some competition, leading to a substantial duty on lead-bearing ore. Another significant change gave the U.S. Senate the power to execute was to the principal of reciprocity treaties instead of the President.¹²⁵

¹²² According to Taussig these duties had relatively no effect except on the insignificant extent on local trade across the Canadian border p. 249. See also P. Ashley, *Modern Tariff*, pp. 212-216.

¹²³ P. Ashley, *Modern Tariff*, pp. 225-238

¹²⁴ S. Ratner, *The Tariff*, pp. 36-38. See also F. Taussig, *Tariff History*, pp. 251-294.

¹²⁵ S. Ratner, *The Tariff*, p. 40 and P. Ashley, *Modern Tariff*, pp. 239-251. See also F. Taussig, *Tariff History*.

Several more tariff acts are important to highlight for the period under study. The Tariff Act of 1909 precipitated a dispute over hides, which had been free from 1872 to 1897; a 15 percent duty was imposed because there was a great deal of competition in the domestic market.¹²⁶ More importantly, the act abandoned reciprocity and adopted a principle of maximum and minimum values. In 1911, Taft negotiated a reciprocity treaty with Canada in the interest of promoting free trade in certain products, decreased rates on others and reduced duties on manufactured goods.¹²⁷ However, the bill was never enacted except in the case of print paper and wood pulp. A new tariff in 1913 expanded the list of free items to include raw wool, iron ore, steel rails, coal, lumber and many farm products including cattle but the War in Europe negated much of the law because import trade dropped off significantly.¹²⁸ The next tariff laws did not appear until after 1920, outside the period of this study.

There is an important omission in Taussig's study of American tariff history that possibly impacted trade through the Mexico-U.S. borderlands—the drawback. Ashley mentions it in his review of the tariff of 1798, where a drawback of the full duty less one percent was allowed on all commodities re-exported within twelve months.¹²⁹ He mentions it again as part of the McKinley Tariff that allowed for the same one percent provision on imports that have paid a duty and are used in the manufacture of articles manufactured and produced in the U.S. This was continued under the Dingley Tariff. However, the system was considered too cumbersome to administer and was later abolished¹³⁰ Still, for the overland traders that traded in the northern Mexican markets, the drawback was important. The ability to import finished goods from places such as Europe and transport them overland to the Mexico-U.S. border for re-exportation helped promote trade *via* land. A great deal of negotiation with the U.S. government was required to obtain this privilege. However, it would be wrong to say that the drawback dictated trade in the region as the land frontiers, during most of this period, were subordinate to sea ports in overall bi-national trade. This

¹²⁶ F. Taussig, *Tariff History*, pp. 361-408 and S. Ratner, *The Tariff*, pp. 41-43.

¹²⁷ S. Ratner, *The Tariff* p. 44.

¹²⁸ *Ibid.*, pp. 46-47 and F. Taussig, *Tariff History*, pp. 409-446.

¹²⁹ P. Ashley, *Modern Tariff*, p. 143. S. Ratner is silent on the issue.

¹³⁰ P. Ashley, *Modern Tariff*, pp 250-251.

is elaborated upon within the context of entrepreneurial activities in Chapter 5, and again in Chapter 7.

What role did protection play in the development of the U.S. economy? Initially, Taussig concluded that in industries such as cotton, wool, and iron and steel, the protective tariff was not vital. Subsequently, he concluded that the evidence was mixed and that tariffs may have helped.¹³¹ Ratner argues that tariffs helped shift the U.S. from a predominantly agricultural economy to a manufacturing economy behind early tariff protection, albeit unnecessarily high protection.¹³² Atack and Passell conclude that early protection of textiles probably was an important plus for the early American economy. However, by the 1840s protection was not as necessary because of changes in the learning process of American firms.¹³³

The U.S. benefited from an early commitment by the government to promote growth. The important initiatives included: the water reclamation acts that brought vast tracts of land under irrigation in the West; the extension of the railways across the continent; and a protectionist tariff regime that fostered the development of a domestic industrial base. This was much the same as in Mexico, except for the fact that in the case of the latter, ongoing political strife interrupted the development of these institutions.

The U.S., like Mexico, exhibited regional economic differentiation. At the beginning of the nineteenth century, economic industrial activity was centred on the North Atlantic seaboard where relatively few people engaged in the manufacturing industry. Production lagged behind that of Britain and France. The rate of employment in manufacturing increased by 3.4 percent per year over the ensuing 50 years. This shift in employment is attributed to the shift in American economic focus from agrarian and mercantile economy to a manufacturing economy. Up until 1880, the chief source of income was agriculture, but by 1890 the value of manufactures was three times that of agricultural products. By 1894, the U.S. produced more manufactures than any other country in the world. Industrialization centred around New York, Rhode Island, Philadelphia and parts of Massachusetts prior to

¹³¹ F. Taussig, *Tariff History* , pp. 1-10.

¹³² S. Ratner, *The Tariff* p. 82. The tariff protection of the Civil War also precipitated domestic development. *Ibid*, p. 85.

¹³³ J Atack and P. Pasell , *A New Economic View of American History* (New York, 1994), pp. 134-138.

1860. Only four cities outside the northeast had significant amounts of labour employed in manufacturing Chicago, St. Louis, Cincinnati and Louisville. Still, at that time industry was very dispersed. By the 1880s industry had spread to the Midwest, and manufacturing, processing and heavy industries such as coal and iron by 1920. The development of this region was driven both by a growing regional market for furniture, clothing machinery and by external demand.¹³⁴

Early domestic agricultural production was focussed in the South, but with the expansion of the Western Frontier, agricultural producers emerged in the Midwest and beyond. However, as explained above, transportation costs had hindered further development. After 1850, the Midwest entered into the global market by exporting to Europe. By 1875-79 the East coast farmer supplied less than half the wheat consumed in the region, and between 1910-13, the production relative to consumption declined to 23 percent. Apart from the Midwestern farmer, countries such as Argentina, Canada and Australia became suppliers. The specialisation in wheat centralised in the Midwest led to a surplus of 328 percent above the consumption needs of the area, with Chicago as the key city in the region. Further expansion in the West made places like the Dakotas, Kansas, Nebraska, Minnesota and the Central Valley of California also significant.¹³⁵ Hence, the Midwest also became associated with agricultural production.

The southern part of the U.S., in general, is connected with cotton. It was a great source of wealth prior to the Civil War, and its continuation after the War made this region different to other parts of the U.S. The success of the region was intimately linked the use of slavery, which is outside the purview of this study. Still, it is important to note that because of slavery, the South was able to establish a pre-dominance in cotton production. The primary markets for the region's production were in the North-East and England. However, manufacturing failed to develop as in the North. Specialisation in Southern cities focussed on resource processing, low-wage textiles, and printing and publishing. The southern cities that emerged were commercial, not manufacturing cities. After the Civil War,

¹³⁴ See V.S. Clark, *History of Manufactures in the United States* (New York, 1929). F. Taussig includes a great deal of discussion on manufacturing and industry. See F. Taussig, *Tariff History*

¹³⁵ See D.C. North, *The Economic Growth of the United States, 1790-1860*, Chapter XII 'The Economic Structure of the Northeast' and Chapter XI 'The Economic Structure of the West' (Englewood Cliffs, 1961). See also J. A. Tack and P. Pasell, *New Economic View*, L. David, et. al. *American Economic Growth: An Economist's History of the United States* (New York, 1972)

new arrangements emerged that helped maintain a plantation-type economy.¹³⁶ In fact, there is some debate as to whether or not the tariff regime of the U.S. exacerbated the North-South divide and contributed to the Civil War.¹³⁷

The Western U.S. shared characteristics with other frontiers such as those found in South Africa and Latin America. There is an absence of a concise economic history of the U.S. West, possibly because it involves a great territorial mass with numerous key sites such as California, the Pacific Northwest or the Great Plains and the Southwest, making it difficult to make generalisations. What is clear about the development of the Western part of the U.S. is that it evolved around a series of rushes to exploit resources such as minerals. Mining, lumber, and finally, land as it came to be harnessed under the reclamation projects mentioned above, all fuelled growth in spurts. The West functioned as a supplier of raw materials for the East during the period under study. As a consequence of the internal and external migrations, it urbanised more rapidly than the rest of the country, but did not become a significant economic force in domestic terms until well after 1920.¹³⁸

In bringing all the regions of the U.S. economy together, North has argued that the need for increasing resources was fomented by industrialisation, precipitated by British demand for raw cotton.¹³⁹ The expansion of the frontier into the Midwest and beyond created the opportunity for regional specialisation and trade, thereby permitting greater advances in growth. North's thesis holds that increasing internal commerce led to a division of labour between three sections of the U.S. – the West, East and South. However, Atack and Passell argue that this position is problematic given that much of the Midwestern food production was shipped to the North-East and not the South as originally proposed by North. They have further asserted that the upper South was almost self sufficient in food production, therefore

¹³⁶ Much has been written about the South and the slave economy. Some of the works include E.D. Genovese, 'The Significance of the Slave Plantation for Southern Economic Development', in H.N. Scheiber, *United States Economic History* (New York, 1964), D.C. North, *Economic Growth*, Chapter X, 'The Economic Structure of the South', R. Fogel, *Without Consent or Contract, The Rise and Fall of American Slavery* (New York, 1989) and S. Engerman 'The Economic Impact of the Civil War', in R. Fogel and S. Engerman eds., *The Reinterpretation of American Economic History* (New York, 1989) and P.K. O'Brian, *The Economic Effects of the American Civil War* (London, 1988).

¹³⁷ *Ibid*, p. 138.

¹³⁸ See. D.C. North, *Economic Growth*, Chapter XI, 'The Economic Structure of the West', R.A. Billington, *Westward Expansion: A History of the American Frontier* (New York, 1949), F. Merck, *History of the Westward Movement* (New York, 1978).

¹³⁹ See D. North, *The Economic Growth of the United States, 179-1860* (Englewood Cliffs, 1961)

undermining the North thesis that the South imported foodstuffs from the Midwest and specialised solely in the production of raw cotton, which it traded to the northeast for manufactured goods.¹⁴⁰

In terms of regional development the U.S. experienced a great shift from a predominantly agricultural economy to a manufacturing economy. Originally centred on the Northeast, a shift in the concentration of manufacturing to the Midwest occurred. The southern part of the U.S. remained primarily agricultural, while dynamic changes were experienced in the West, as new regions became large suppliers of raw materials and food stuffs for the expanding domestic economy.

In its trade relations, the composition of U.S. trade changed between 1850 and 1900, signalling a shift in the comparative advantage of the country way from agriculture and toward manufacturing. U.S. exports during this period demonstrated a decline in raw materials (such as cotton and crude foodstuffs). In the meantime, semi-manufactures and finished food stuffs increased and by 1915, these accounted for almost half of the total value of exports. Imports of crude materials rose to one-third of the value of imports in 1900. The chief materials were rubber, tropical fibres, and metals such as nickel and tin. U.S. trade linkages altered as well. Europe was an important customer prior to the Civil War; the U.K. accounted for 50 percent of U.S. exports in the 1840s. After 1885, exports to Europe began to decline. In the 1870s and 1880s, Europe received four-fifths of the U.S. exports, but by 1920 this had dropped to three-fifths. New markets in Asia, Canada and Latin America emerged. The U.S. was Europe's best customer, again with the U.K. being the largest supplier of goods to the U.S. The same countries that represented new markets for U.S. exports also played a larger role in U.S. imports.¹⁴¹ The international trade relations of the U.S. although shifting, still focussed on Europe. Trade, in particular with Mexico is the subject of Chapter 7. Some of these points will be further elaborated upon within that context.

This section has shown how U.S. economic history is couched in terms of increasing natural resources, labour and capital as an explanation for the long term growth experienced

¹⁴⁰ See J. Atack and P. Passell, *A New Economic View*, pp. 160-164.

¹⁴¹ See D.C. North, 'Economic Growth', Chapter VII, 'International Economic Flows', 1815-1860 R. Lipsey, 'Foreign Trade', in L. Davis, et. al. *An Economist's History*, or J. Atack and P. Passell, *New Economic View*.

by the country during the nineteenth century. It has also shown that the railroads were important to the development of the Western U.S., as was the government's commitment to social spending on programs such as the water reclamation projects of the early twentieth century. A degree of regional specialisation occurred within the country, with the Northeast serving as the manufacturing base, although this spread westward as far as Chicago. The South remained an agricultural region for most of the period, and the West, for all intents and purposes, functioned as supplier of raw materials.

III

The above comparative economic histories have highlighted the fact that, in general, the U.S. experienced sustained economic growth throughout most of the nineteenth century unlike Mexico, which did not match U.S. growth rates until much later in the century.¹⁴² Therefore, by the time Mexico was able to reverse its fortunes, it had fallen far behind in the race for development. From these generalisations, it is often concluded that the countries diverged. However, these two stories ignore the fact that at a regional level there were similarities in the growth trajectories, giving rise to a bi-national historiography, that of the Mexico-U.S. borderlands. To illustrate this assertion and lay a foundation for subsequent chapters it is instructive to revisit several major themes outlined above.

In the previous two sections, much mention has been made about the import of growth-promoting institutions, making their earlier dismissal seem precipitous. However, it is useful to reiterate the general theme that emerged from above, that both countries pursued 'protectionist' and inward-looking policies during the period covered by this study. Therefore, a common institutional framework designed to foster the formation of the C. Juárez-El Paso cross market was not present, although individual policy efforts resulted in a spill-over effect that contributed to the process. These unexpected windfalls for self interested national policies contribute to the emergence of a regional history.

Returning to Coatsworth, his study on the impact of the railways on Mexico suggested that Northern Mexico benefited the most from the growth of the Porfiriato. Here the railways had a 'unique and pioneering role in stimulating foreign investment.'¹⁴³ This observation

¹⁴² Coatsworth argues that Gross Domestic Product (GDP) growth rates for Latin American countries since the late nineteenth century have roughly equalled, and in some cases surpassed, those of the U.S. See J.H. Coatsworth, 'Comparative Economic History,' p. 10.

¹⁴³ J. H. Coatsworth, 'Indispensable Railroads,' p. 952.

echoes the arguments put forward by Fishlow in regard to the role of the railways in facilitating development in the Western U.S. Consequently, the importance of the railways to regional development represents a point of overlap. Overland transportation and the respective national decisions to develop it was key to Northern Mexico and the Southwestern U.S., both of which were landlocked areas with no navigable river ways.

The mobilisation of capital resources is another component of the histories where similarities may be found. Chihuahua and C. Juárez, had a long history of interchange with the U.S. Therefore, it is not surprising that by 1902, U.S. businesses had invested some US\$ 30 million in the State, and by 1907, the figures reached US\$ 50 million.¹⁴⁴ These significant amounts of capital led to the resurgence of the regional mining sector, which also benefited from a new mining law that fomented capital investments in activities such as new smelting facilities and railways. After the railways were completed, Northern Mexico mining districts began to send output to smelters in Colorado, Kansas, Missouri, Oklahoma and Texas.¹⁴⁵ Thus, they were linked to the U.S. economy through cross-border mining interests including The Greene Consolidated Copper Company in Cananea, Sonora, as well as the vast holdings of American Smelting and Refining Company (ASARCO), both of which will be discussed in subsequent chapters.¹⁴⁶

Along with mining, agriculture also benefited from increased foreign investment. The largest foreign landholding in Chihuahua belonged to the Hearst family (Babícora). Other sizeable holdings included La Palomas Land and Cattle Company and the Corralitos Land and Cattle Company that straddled the frontier with New Mexico.¹⁴⁷ Land, as well as minerals, was a significant motivational factor for further development of the U.S. West. New forms of federal support and a new system of mechanised dryland farming helped raise productivity. The promotion of land reclamation and irrigation projects mentioned above was

¹⁴⁴ M. Wasserman, 'Foreign Investment in Mexico 1876-1910: A Case Study of the Role of Regional Elites,' *Academy of American Franciscan History*, 36 (1979) 1, p. 5, and M. Wasserman, 'Chihuahua: Family Power, Foreign Enterprise and National Control,' in T. Benjamin and W. McNellie, *Other Mexicos: Essays on Regional Mexican History* (Albuquerque, 1984), p. 44.

¹⁴⁵ M. Bernstein, 'Economía Minera,' p. 144 and p. 241.

¹⁴⁶ In the following chapters these companies will reappear as key players in the regional market. *Moody's Manual of Railroads and Corporation Securities* (New York, 1906), p. 2047 and *The Stock Exchange Official Intelligence* (London, 1910), p. 553.

¹⁴⁷ D. Cosío Villegas, *História Moderna*, p. 1107-8.

particularly important in the U.S. Southwest. Certain types of irrigated farming required economies of scale thereby leading to agribusiness development.¹⁴⁸ The importance of these capital investments to the development of regional resources also suggests a shared history.

Another point of similarity may be found in the increase in regional labour resources. In the case of Mexico, international commerce in the later part of the century helped consolidate modernisation and a favourable demand for primary products allowed exports to grow throughout the period. This was particularly true in mining and agriculture, where external demand was a determining factor.¹⁴⁹ The new capitalist activities counted on cheap labour, and this was complemented by the fact that many areas of Mexico were incapable of absorbing excess labour that emerged from population growth and the usurpation of communal land during the construction of the railways, or the process of modernization and commercialization of the economy, which tended to be capital intensive. Therefore, many migrated to the northern frontier where they could either earn a higher wage working in the mining camps and haciendas or enter the U.S. where the emerging agribusinesses were also demanding increasing supplies of labour. The Texas-Mexico border was especially attractive because of the need for unskilled wage labour in the U.S. Southwest. Hence, Mexican border communities such as C. Juárez and El Paso experienced a large influx of economic refugees because of prominence on the Mexican Central Railway and because of its ties to regional mining, commercial agriculture and U.S. markets.¹⁵⁰

During the Revolution, the emerging trends of labour dislocation were exacerbated by the flow of political refugees in addition to economic refugees.¹⁵¹ The vast extent of the U.S.-Mexico border offered disenfranchised Mexican nationals an opportunity to escape persecution and promote their ideas beyond the reach of Díaz. Communities such as San Antonio, El Paso and Los Angeles had large Mexican populations and a long Mexican tradition, and the extended family network and familiar cultural surroundings made it easy

¹⁴⁸ M.P. Malone and R. W. Etulian, *American West*, pp. 13-15 and P. Limerick, *Legacy*, pp. 125-130.

¹⁴⁹ F. Rosensweig, 'El Desarrollo,' p. 422.

¹⁵⁰ F. Katz, 'Liberal Republic,' in *Mexico Since Independence*, p. 89, J. Vasconcelos, *Breve Historia*, pp. 407-420 and F. Rosensweig, 'El Desarrollo,' p. 450.

¹⁵¹ O.J. Martínez, *Border Boom Town, Ciudad Juárez since 1848* (Austin, 1975), p. 41 and p. 43.

for expatriates to air their dissent.¹⁵² For example, the Flores-Magón organization of the Partido Liberal Mexicano (PLM), although based in California, used El Paso as a staging ground to organise support for its anti-Díaz causes and control C. Juárez because of its role as international rail centre.¹⁵³ Finally, when Francisco Madero issued his call to revolution from San Antonio, he travelled to El Paso, and crossed into Mexico to meet with Pancho Villa and Pascal Orozco.¹⁵⁴ Hence, in a sense a cross-border political network was emerging.

Finally, the tariff histories of the two countries demonstrate resemblances. Clearly, both Mexico and the U.S. had protectionist tendencies, allowing certain domestic industries to develop behind a tariff wall. In the brief review of regional development, Northern Mexico was far more industrialised than the rest of the country. Mining, and agriculture produced for both the domestic and international markets. However, it is this region that was most impacted by the openness of Mexico to foreign trade. Likewise, the western United States developed quickly with the help of protective barriers and in similar sectors, sometimes seemingly in isolation from Mexican counterparts. But as this thesis will show, often times these juxtaposed interests formed part of a vertically and horizontally integrated cross-border industrial network. Again, the interaction of these elements of the two regional economies will be brought together in subsequent chapters under the umbrella of cross-border markets.

This section has highlighted points in the respective histories where an overlap in local or regional circumstances resulted, in part, from national self interest. These include the role of the railways in regional development, the mobilisation of capital resources in order to underwrite increasing production in mining and agriculture, the demand for labour resources and the use of tariffs to foster domestic growth. The task of the following chapters is to show how cross-border integration, despite the general context, resulted from the internal cohesion of the C. Juárez-El Paso cross-border market.

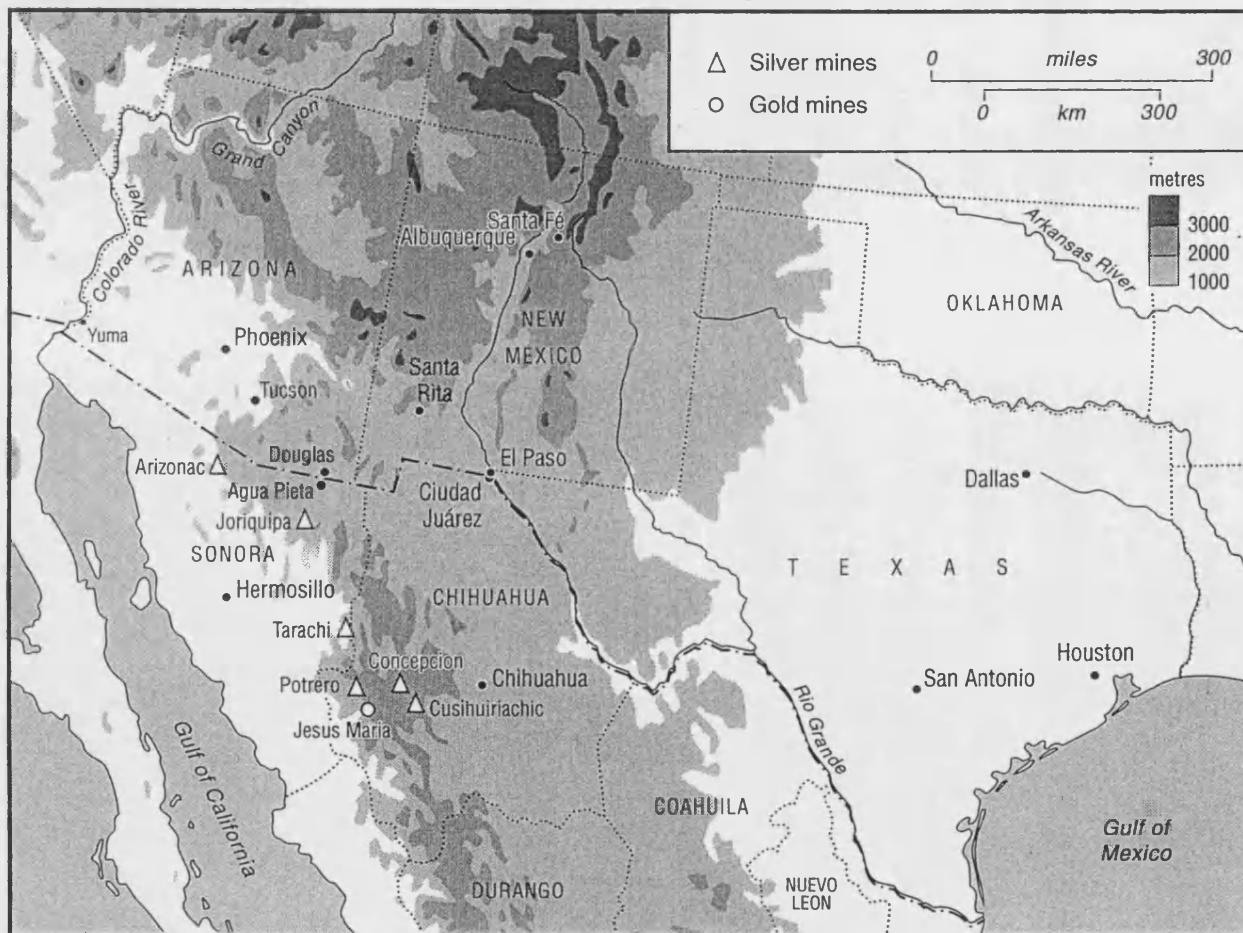
¹⁵² P.V.N. Henderson, *Mexican Exiles in the Borderlands, 1910-1913*, Southwestern Studies Monograph, No. 58 (El Paso, 1979), p. 5 and J.D. Cockcroft, *Mexico: Class Formation*, pp. 94-95.

¹⁵³ Interestingly, El Paso also served as a publishing haven. The first appearance of María no A zuela's *Los de Abajo* appeared in the papers and in book form in 1916. R. Estrada M., 'Border Revolution, the Mexican Revolution in the Ciudad Juárez-El Paso Areas, 1906-1915,' MA thesis, University of Texas at El Paso, 1975, pp. 34 and 136, and D. Abad de Santillán, *Historia de la Revolución Mexicana* (Mexico, 1992), pp. 267-298.

¹⁵⁴ A.R. Chávez M., *Historia de Ciudad Juárez, Chihuahua* (C. Juárez, 1970), p. 360.

Part II

Figure 4.1
Map of Principle Centres and Mineral Deposits in the Cross-border Region, 1910



Adapted from a map found in C. Cardoso ed., *Mexico en el siglo XIX: Historia económica y de la estructura social* (Mexico, 9th edition, 1990), p. 131.

CHAPTER FOUR

THE CROSS-BORDER RESOURCE BASE AND TRANSPORTATION INFRASTRUCTURE

This chapter sets forth the assumptions underpinning this study of the C. Juárez-El Paso cross-border market. As explained in the survey of the Mexico-U.S. borderlands literature, in the strictest geographical sense, this has been a generally accepted fact. Furthermore, in the discussion on the definitions of a region, Boundary Studies clearly omits a territorial expression of a region, preferring to focus on the international boundary and conflict analysis. In Regional Economics, several definitions of a region have been developed homogenous, functional and nodal as a special case of functional. However, none of these definitions was an adequate expression of the C. Juárez-El Paso case. Notwithstanding, modality and functionality are not overlooked because the C. Juárez-El Paso area demonstrates characteristics of this type of region, certainly as a transportation hub or node. The analysis is divided into three sections. The first section describes the geology and topography of the C. Juárez-El Paso region, emphasizing the climatic characteristics and identifying the major population centres important to the case study.¹ The second details the resource base relative to the urbanisation. One of the key elements of the formation of a regional market is the natural resource endowment, which is stationary and pre-existing. In the language of Export Base Theory, it is the export activities that are key. For a region that bases itself on primary production, the language of both perspectives points to a reliance on land-based resources that may be exploited for export-orientated activities. The most obvious resources are land for agricultural production, minerals and water. These are important not only because they contribute to the location of populations, but also because they create the

¹ As established in Chapter 1, present day place names will be utilised throughout the thesis.

possibility of gains from production.² Again, land itself is not herein considered as a factor of production because it is immobile. However, the product of land-based activities and the other factors are considered as mobile. Finally, the third section explains the evolution of the transportation infrastructure thereby linking its design to the resource base and pattern of settlement. This discussion draws on the observations about the historical importance of the railways in Mexico made by Coatsworth and the debates in the U.S. literature. In regions such as the U.S. Southwest and Northern Mexico that were under served by other modes of transport, the impact was immense. More importantly, this discussion, taken as a whole, sets the stage for a more detailed look at the way in which the resource base and transportation infrastructure were utilised by the factors of production (entrepreneurs, labour and capital) in the cross-border economy.

I

When seen from above (see **Figure 4.1**), Northern Mexico and the U.S. Southwest are dominated by the imposing barriers represented by the Sierra Madre and Rocky Mountains; the Sonoran and Chihuahuan Deserts; and the Great Central Plateau of Mexico. The characteristics of the surface vegetation and climate are not uniform over the territorial expanse, although several common features may be identified, specifically the existence of mountain ranges with intervening valleys. The climate ranges from subtropical through semi-arid, to arid. Bunch grasses constitute the primary vegetation, although significant pine forests exist in Chihuahua and New Mexico.³ This larger landscape may be divided into two sections: the eastern, from the middle of the Sonoran Desert to the Pecos river, which includes parts of Arizona and Sonora, Chihuahua, New Mexico and West Texas; the western, which includes the Sonoran Desert and parts of western Arizona, Sonora, South-East California, both Baja California Norte and Sur, as well as Southern Nevada. The C. Juárez-El Paso metropolitan area belongs to the eastern sector. The climatic characteristics of the eastern sector are that it is arid, receiving less than 15 inches (38.1 cm) per year of rainfall.

² S. Pollard, 'Regional Markets and National Development,' in M. Berg ed., *Markets and manufacturing in early industrial Europe* (London, 1990), pp. 30-31.

³ R.N. Richardson, *The Greater Southwest, The Economic, Social and Cultural Development of Kansas, Oklahoma, Texas, Utah, Colorado, Nevada, New Mexico, Arizona, and California from the Spanish Conquest to the Twentieth Century* (Glendale, 1934), pp. 24-26. U.S. Department of the Interior, *United States and Mexican Boundary Survey* (hereafter *Boundary Survey*) (Washington, D.C. 1859), part I, p. 11 and Report of William H. Emory (hereafter *Emory Report*), Vol. 1. (Washington, 1857), pp. 40-52.

Water, even for livestock raising and domestic use, is difficult to secure in most places. However, in more favoured locations, grasses support a ranching industry of considerable proportions. The western part includes irrigation districts where truck and sub-tropical fruits are grown.⁴

Narrowing the focus on the greater C. Juárez-El Paso area, Mexico and the U.S. share the Chihuahuan Desert, which extends from Northern Mexico up into New Mexico. The territory is bounded by the Sierra Madre Occidental to the west, extending from Southern Arizona some 2,000 miles into Mexico and varying in width up to 250 miles in some places, and the Rocky Mountains to the east. The region manifests varying degrees of aridity and vast open spaces, represented by the alternating presence of savanna-type lands, possessing agricultural potential, and outright desert. The Rio Conchos and Rio Grande form the major drainage systems across the basins and ranges. Desert covers approximately one-half of the state of Chihuahua, and one-third is grasslands. Pine forests occupy the eastern slopes of the Sierra Madre. Much of New Mexico possesses the same geography as northern Chihuahua with pine forests found in the mountains further north.⁵ The C. Juárez-El Paso cross-border region is in reality a geographic whole circumscribed by formidable barriers – the Sierra Madre and Rocky Mountains and the Chihuahua desert.

Figure 4.1 is a 1910 relief map of the region, showing major population centres as well as the location of several of the major mineral sites, which will be elaborated upon below. Present-day territorial divisions are shown. The major population hubs were established during the Spanish colonial period. The poles of population relevant to the C. Juárez-El Paso cross-border market during the period under study are located at Chihuahua and Santa Fe.⁶ The former was officially founded on 5 October 1709, although a mission and

⁴ 'Truck' farming refers to market gardening. Given that Far West Texas is often considered to be more like New Mexico and Chihuahua, this discussion does not enter into an overall description of the geography of Texas. See C. McWilliams, *North from Mexico, The Spanish Speaking Peoples of the United States* (New York, 1990), p. 54.

⁵ F.A. Carlson, *Geography of Latin America* (New York, 1936), p. 475, pp. 536-7, M. Wasserman, *Capitalists, Caciques and Revolution: Native Elites and Foreign Enterprise in Chihuahua, Mexico, 1854-1911* (Chapel Hill, 1984), p. 8 and *Boundary Survey*, p. 12. See J. House, *Frontier on the Rio Grande: A Political Geography of Development and Deprivation* (Oxford, 1982), R.H. Schmidt, Jr., *A Geographical Survey of Chihuahua* (El Paso, 1973).

⁶ This refers to the city of Chihuahua in the state with the same name, and the latter is found in New Mexico.

other activities date back to 15 August 1639.⁷ Santa Fe was founded by Don Juan de Oñate in 1598, the outcome of his expedition to conquer New Mexico.⁸ During the Spanish colonial period, New Mexico was a military district whose main function was as a buffer between encroaching foreign interests and the interior of the country. The indigenous tribes that populated the area – the Pueblos of New Mexico, Comanches, and various Apache groups including the Jicarilla, Lipan, Mescalero, Mimbres and Chiricahua – helped slow the advance of European settlement.⁹

Present-day C. Juárez was situated at the southern end of the military province of New Mexico. It was the half way point for east-west travel from the Gulf of Mexico to California, and always a place for crossing the Río del Norte.¹⁰ It was also the principal stopping point along the Camino Real between Chihuahua and Santa Fe.¹¹ Hence, the continual references to 'el paso del Río del Norte,' 'el paso del Norte,' or 'el paso' in the primary sources.¹² A community was established in 1653 and was insignificant throughout most of the colonial period, except for the continued push of missionaries northward from Chihuahua.¹³ In 1680 a fierce Pueblo Indian revolt expelled the Spanish from Santa Fe forcing many of them to retreat to C. Juárez; this event led to the first significant population growth of the community. The retreating settlers made the site a base from which to launch

⁷ F.R. Almada, 'La fundación de la ciudad de Chihuahua,' *Boletín de la Sociedad Chihuahuense de Estudios Históricos*, 1 (1938) 1, pp. 6-10 and F C. Lister and R.H. Lister, *Chihuahua: Storehouse of Storms* (Albuquerque, 1966), pp. 58-59.

⁸ See G.P. Hammonds, *Don Juan de Oñate and the Founding of New Mexico*, Historical Society of New Mexico, October 1927, A.E. Hughes, 'The Beginning of Spanish Settlement in the El Paso District' unpublished Masters thesis, University of California - Berkeley, 1914 and D.J. Weber, *The Spanish Frontier in North America* (New Haven, 1992).

⁹ R.N. Richardson, *Greater Southwest*, p. 27.

¹⁰ El Paso was non-existent at that time.

¹¹ The *Camino Real* will be elaborated upon in the section on the transportation infrastructure.

¹² See A. von Humboldt, *Political Essay on the Kingdom of New Spain*, John Black translation (London, 1813) or Mexico, Dirección General de Estadística, *Alejandro de Humboldt Tablas Geográficas Políticas del Reino de Nueva España y Correspondencia Mexicana* (Mexico, 1970).

¹³ C. Calleros, *Queen of the Missions* (El Paso, 1952), p. 7. See a H.H. Bancroft, *North Mexican States and Texas*, A.B. Chávez M., *Historia de Ciudad Juárez*, A.B. Chávez M., *Síntesis Gráfica*, A.B. Chávez M., *La Villa de Paso del Norte de 1527 a 1700* (C. Juárez, 1948), C.L. Sonnichsen, *Pass of the North*, vol. 1, and W.H. Timmons, *El Paso* (El Paso, 1971).

Table 4.1
Population in and around
Ciudad Juárez and El Paso, 1802 - 1920

<u>Year</u>	<u>El Paso</u>	<u>C. Juárez</u>
1802/4	----	6400
1810	----	10121
1825	----	6287
1834	----	8495
1850	200	4000
1857	----	13000
1860	428	----
1870	764	----
1872	----	10000
1880	736	----
1887	----	20,000-29,000
1890	10388	12000
1900	15906	8218
1910	39279	10621
1920	77560	----
1921	----	19451

Sources: Population statistics for C. Juárez prior to 1850 based on primary data found in the Archivo del Ayuntamiento de Paso del Norte, University of Texas-El Paso, C.L. Sonnichsen Special Collection, for dates specified and State of Chihuahua, *Noticias Estadísticas del Estado de Chihuahua* (Chihuahua, 1834), p. 77. El Paso statistics are taken from City of El Paso, Industrial Development Corporation, *Statistical Abstract of El Paso, 1986*. Additional data was obtained from *Statistical Abstract of the United States-Mexico Borderlands*, ed. P. L. Reich (Los Angeles, c1984) and O.J. Martínez, *Border Boom Town, Ciudad Juárez Since 1848*, Appendix Table 1, *Population in the Ciudad Juárez Area, 1850-1974* (Austin, 1975), p. 158 and U.S. Census Office, *U.S Census of Populations, 1860-1920*.

their re-conquest of New Mexico in 1692.¹⁴ In the case of El Paso, its origins can be traced back to the lands granted to José María Ponce de León to settle on the northern bank of the Rio Grande. When the international boundary was drawn, this locale unexpectedly became part of U.S. territory. In fact, all communities on the northern bank of the river passed into U.S. hands.¹⁵

A key factor in the process of cross-border market formation is the urbanization of the C. Juárez-El Paso area. **Table 4.1** presents the population figures for both C. Juárez and El Paso from 1802 to 1920. Population growth was relatively unremarkable through 1881, (the date of the completion of the first railway linkages) after which time a more significant pattern of longer term growth may be seen. The causes and consequences of this process will be elaborated upon within the context of the cross-border labour market. For the purposes of the discussion in hand, it is instructive to highlight the emerging importance of the C. Juárez-El Paso area within the broader regional context. The high population growth rates in the twentieth century point to the pooling of labour resources in the area. Furthermore, **Figure 4.1** suggests a linear pattern to the placement of the settlements. The principle communities were located along the valleys between the Rocky Mountains and the Sierra Madre, and near the only sources of water. Thus, geography can be said to have contributed to the process of urbanization, functioning as a funnel for population.

¹⁴

L.I. Perrigo, *American Southwest*, pp.42-43, C. Calleros, *Queen of the Missions*, p. 9; T. Hall, *Social Change in the Southwest, 1350-1880* (Kansas, 1989), p. 88; C.W. Hackett, 'The Retreat of the Spaniards from New Mexico in 1680, and the beginning of El Paso,' *Southwestern Historical Quarterly*, 2 (1912) 16, p. 137; A.E. Hughes, 'The Beginning of Spanish Settlement in the El Paso District' (Berkeley, 1914), pp. 295-297; N.L. Hammonds, 'A History of El Paso County,' pp. 25-26; and El Paso Historical Commission, *Census of 1841 for Ysleta, Socorro and San Elizario*, (El Paso 1988), introduction, A. von Humboldt, *Political Essay on the Kingdom of New Spain* (Norman, 1990), abridged, p. 53, and *Alejandro de Humboldt*, pp. 46-48 and M. Simmons, *Spanish Government in New Mexico* (Albuquerque, 1990), p. 35. See also A. von Humboldt, *Political Essay*, John Black translation.

¹⁵

The primary U.S. population centres referred to as Franklin in the military reports of John Russell Bartlett or Major Jefferson Van Horn correspond to the activities of a local entrepreneur, Benjamin Franklin Coonz who acquired the Ponce de León estate just after the Mexican War. The long-standing communities of Ysleta, Socorro and San Elizario also formed part of the local agglomeration, the latter became an old presidio and seat of government for the area. J.R. Bartlett, *Personal Narrative of Incidents in Texas, New Mexico, California, Sonora and Chihuahua, 1850-1898* (Chicago, 1965), pp. 186-188 and U.S. War Department, *Records of the War Department, Office of the Adjutant General*, Major Jefferson Van Horne, Selected letters, University of Texas - El Paso, C. L. Sonnichsen Special Collection. See also J.J. Bowen, *The Ponce de Leon Land Grant* (El Paso, 1969), A.E. Hughes, 'The Beginnings,' N.L. Hammonds, 'History of El Paso County,' C.L. Sonnichsen, *Pass of the North*, vol. 1, and W.H. Timmons, *Borderlands History*.

This brief discussion on the geology and topography of Northern Mexico and the Southwestern U.S. has demonstrated that the C. Juárez-El Paso area was part of a larger geographic context stretching from Chihuahua to Santa Fe. Within this region, the climate was arid and vegetation varied from bunch grass to forests. The pattern of urbanization followed a north-south flow with the cross-border region serving as an intermediate point. To a certain extent, geography was an important consideration in the placement of settlements. This will become increasingly relevant as the analysis addresses resources and transportation.

II

Given that C. Juárez-El Paso formed part of a larger geographic whole, it is reasonable to assume that they shared the region's resources. Resources are frequently taken for granted in most analyses, according to Pollard. He argues that it is a mistake to neglect them in any account of regional development.¹⁶ Consequently, this section describes three particularly important natural resources to the cross-border region: water, land (for farming, grazing and forestry) and minerals. In the case of water, Mexico and the U.S. were forced to put aside differences in order to ensure its availability, as pointed out in the discussion on international water rights and land reclamation projects in the U.S. Southwest during the late nineteenth and early twentieth centuries. Thus, more arable land and mineral resources became accessible as a result of changes in the national institutional framework and the completion of a transportation network also lowered transportation costs.

Water in general is important because it has many functions: as a source of power, as a means of transport, and as an input to many other activities such as working materials. Additionally, it can also be important in defining the territorial limits of a country. In the immediate vicinity of C. Juárez-El Paso, water was perhaps the single most important resource because of its scarcity.¹⁷ John Russell Bartlett, commissioner of the U.S. delegation to the U.S.-Mexico Boundary Commission established by the Treaty of Guadalupe-Hidalgo, published an account of his travels through the region in the early 1850s. He reported that a major constraint to further development in the area was the lack of water. Bartlett wrote,

¹⁶ Although Pollard's arguments are framed for the European experience, they are also relevant to this case study. S. Pollard, 'Regional markets,' p. 35

¹⁷ *Emory Reports*, p. 15.

'The most important consideration is water, without which this route never can be made available as a great public highway.'¹⁸ Additionally, in C. Juárez, a system of compulsory work known as the *fatiga* was used to construct and maintain irrigation ditches.¹⁹ The main purpose was to ensure a regular supply of water to the community.

The waters of the Rio Grande served more as a shared resource than as a great international dividing line. However, the Treaty of Guadalupe-Hidalgo contained no provisions for apportioning water rights along the section of the Rio Grande that served as the Mexico-U.S. boundary from C. Juárez -El Paso to the Gulf of Mexico.²⁰ Although the origin of the Rio Grande was in the mountains of southern Colorado, the greatest source of water was found in New Mexico as a result of snowfall at higher elevations. It was highly adaptable to irrigation uses throughout its course, hence the early use of *acequias*, or canals, to irrigate plots of land.²¹ However, the reliance on snow melts made the availability of water seasonal and precarious. This problem was intensified as demand increased, particularly as the U.S. Southwest began to grow in both population and production.²² For example, by 1867, C. Juárez was looking for ways to secure water from the river by constructing a dam.²³ Similarly, in El Paso, the city council appointed *repartidores* individuals charged with

¹⁸ J.R. Bartlett, *Personal Narrative*, pp. 125-127. Bartlett also noted that the quality of the water available was palatable although it, "...smelled strongly of sulphuretted hydrogen."

¹⁹ Archivo del Ayuntamiento de Paso del Norte, Microfilm Series 495, C. L. Sonnichsen Special Collection, University of Texas-El Paso, r. 44, f. 1108 (c1854). See also C.L. Sonnichsen, *Pass of the North*, p. 135.

²⁰ The International Boundary Commission was created in 1889 and continues to have jurisdiction over all questions regarding the river boundary between the U.S. and Mexico. G.F. Reinhardt, 'Rectification of the Rio Grande in the El Paso-Juárez Valley' *The American Journal of International Law*, 31 (1937), p. 44 and American Association for the Advancement of Science, Southwestern and Rocky Mountain Division, Committee on Desert and Arid Zones Research, C.S. Kowlton ed., *International Water Law Along the Mexican-American Border* (El Paso, 1968), p. 1.

²¹ In 1877-78 a special board warned of the possibility of problems relating to the distribution of water from the Rio Grande. The board's main concern was irrigated farming and flooding. P.C. Haney, 'The International Controversy over the Waters of the Upper Rio Grande,' unpublished Masters thesis, College of Mines and Metallurgy, 1948, p. 17 and p. 32.

²² See Chapter 3 for general discussion about development of U.S. Southwest.

²³ A report filed by the Jefe Político of C. Juárez notes that the community's agricultural activities had been in decline for the past five years. The recent formation of a Domestic Junta led to the reconstruction of the *acequia* and its principle opening. Project ledger entries revealed that the main materials required were chalk, carbon, iron, steel (procured from outside the immediate vicinity), and payments to labourers. Total disbursements over the two and a half year period were MN\$ 16,660.72. ACJ (495), r. 44, ff. 170-184 and C.L. Sonnichsen, *Pass of the North*, p. 135.

apportioning water to each planter deriving benefit from the *acequias*.²⁴ In the 1890s, a water commissioner was appointed, whose monthly salary was paid for by collections from those residents whose property bordered the *acequia* system.²⁵ Finally, in 1894, the river in and around C. Juárez-El Paso went dry in mid-June, precipitating complaints from farmers to their respective governments regarding water usage in the Upper Rio Grande Basin; the lack of water in the region was attributed to diversion further north in Colorado and New Mexico. The problem of water scarcity persisted into the twentieth century, and as late as 1913, the Rio Grande was dry for more than three months, forcing farmers to pump water from wells, at a cost three times greater than from the canal system. Other activities such as smelting and refining also depended on water in order to continue operations.²⁶ Therefore, it was incumbent upon the region to resolve the water availability crisis.

As this issue involved two sovereign states sharing a single resource, the respective national governments were forced to put aside political differences in order to settle the problems of both supply and access. This was the beginning of the movements toward land and water management, later known as reclamation projects. In 1890, the U.S. and Mexico entered into a convention to ascertain how much water was taken between the river's origin and the point where it became the international boundary. Additionally, the commission sought to determine the feasibility of constructing a dam, since Mexico had been pressing a claim against the U.S. for millions of dollars in compensation for water taken from the river before it reached C. Juárez-El Paso.²⁷ However, it was not until 1902 that the U.S. Reclamation Act made it possible to use federal funds for large irrigation projects. This legislation precipitated the agricultural development of the U.S. Southwest because it enabled

²⁴ City of El Paso Minute Books, C. L. Sonnichsen Special Collection, University of Texas - El Paso, Book B, 1880, p. 13, and Book D, General Collections, Fiscal Year Ending February 28, 1989 (n.p.).

²⁵ U.S. Government, Department of State, *Commercial Relations of the United States with Foreign Countries* (hereafter *Commercial Relations*), 1877, p. 897.

²⁶ *Rex Strickland Papers*, MS 131, C.L. Sonnichsen Special Collection, University of Texas - El Paso, pp. 1-3, 'First Shortage of Rio Grande Water in 1890,' *El Paso Herald Post*, 18 May 1938, G.A. Martin, 'Years of fighting Ended in 1904 When Mexico, New Mexico and Texas "Sign Up" for Elephant Butte Dam,' *El Paso Herald*, 2 November 1922, 'Lack of Water Recalls Days When Farmers had to Pump,' *El Paso Herald Post*, 24 April 1935. See also R. A. Fernández, *The Mexican-American Border Region: Issues and Trends* (Norte Dame, 1989).

²⁷ G.A. Martin, 'Years of fighting,' *El Paso Herald*, 2 November 1922 and 'Lack of Water,' *El Paso Herald*, 24 April 1935.

the reclamation of millions of previously arid and unproductive acres of land.²⁸ Subsequently, in 1904 a National Irrigation Congress met in El Paso and produced a compromise between the U.S. and Mexico, which was formalised by treaty in 1906. In this document the U.S. agreed to build Elephant Butte Dam and deliver 60,000 acre feet of water annually to C. Juárez. The treaty also created the Rio Grande Irrigation District of which the Dam was an integral part. In return, Mexico relinquished all claims for damages which, by this point, amounted to US\$ 35 million. The U.S. government along with New Mexico and Texas landowners were to pay for the cost of the dam.²⁹

Since the political process was taking years to complete, private business also tried to address the problem. (The process of determining water usage and securing a constant flow of water began in 1890). The Rio Grande Irrigation and Land Company, Ltd. was formed in 1893 for the purposes of building dams, ditches and canals to meet the water needs of the region. The enterprise was, in fact, a British company that had garnered fame because of its work in the Nile Valley.³⁰ The plan was to bring 230,000 acres under ditch irrigation and allow some 300,000 acres to be irrigated using a dam, taking into consideration that the greatest flow of water was between April and July. This plan also included a reservoir site at Elephant Butte in New Mexico.³¹ At the time the U.S. and Mexico agreed the treaty to build Elephant Butte dam, work on the private project had progressed to the point where the company had acquired lease privileges and property rights. After a great legal struggle, the U.S. government succeeded in revoking the claims of the company in 1903, in order to allow it to proceed with its treaty obligations. However, the dam was not completed until 1915.³²

²⁸ Chapter 3 discussed the importance of water to the development of the western U.S. R. A. Fernández, *Issues and Trends*, p. 68.

²⁹ 'Lack of Water,' *El Paso Herald Post*, 24 April 1935 and G.F. Reinhardt, 'Rectification of the Rio Grande,' p. 46.

³⁰ Nathan Boyd with the backing of British capitalists drew up plans for the construction of what would become Elephant Butte dam. 'Elephant Butte Dam - It Made a City,' *El Paso Times*, 6 July 1956.

³¹ It was the largest irrigation project in the world, larger than the Aswan Dam in Egypt, or the Hume Reservoir in New South Wales Australia and the Cauvery River project in India. C.A. Bissell, 'Elephant Butte is largest Artificial Irrigation Project, *New Reclamation Era*, July 1930. *Rex Strickland Papers*, pp. 14-19.

³² The British government filed claims on behalf of the company in 1923, but these were subsequently dismissed by the American-British claims arbitration tribunal. P.C. Haney, 'International Controversy,' pp. 57- 58 and *Rex Strickland Papers*, pp. 14-15.

The reclamation project allowed for larger scale agricultural pursuits including cotton, which was first planted in 1917. By 1920, cotton had taken a firm hold, leading to the emergence of a local textile industry, still in existence today.³³

Thus, the first key resource for the cross-border region was water. However, this was not so much for its use as a means of transportation, given that the Rio Grande was not navigable in its upper reaches and often ran dry or supplied little water to the C. Juárez-El Paso area. Furthermore, it did not serve as a primary source of power. The river's main use was for agricultural purposes. In this regard, it was unreliable until Mexico and the U.S. undertook to better apportion water by means of a treaty. While the treaty represented a concerted effort to resolve the issue of water apportionment, the fact remains that agricultural production was already well entrenched in the area. Ensuring access to water for citizens throughout the region fomented growth, it did not give rise to or determine it.

The second important resource was land, particularly for farming, cattle ranching and forestry. At the time of the Mexico-U.S. War, the region was almost exclusively arable. In the immediate vicinity of C. Juárez-El Paso, a network of *acequias* allowed for self-sufficient cultivation when water was available.³⁴ However, throughout Northern Mexico and the U.S. Southwest, grazing land was abundant, although two-thirds lacked natural water, and sold at low prices.³⁵ The regional abundance of grazing land meant that cattle, sheep, goats, horses and mules could be raised in great numbers provided a secure source of water could be found. To overcome the lack of surface water, farmers resorted to wells, windmills, reservoirs and other artificial means of supply. They dug wells six to seven feet deep near the mountains. As the period progressed and new technology was introduced, deeper wells could be dug at lower cost, and with the advent of the gasoline engine, water could be pumped from as deep as 300 to 400 feet. These conditions allowed for herding on a large scale.³⁶ For example, the Half Circle J Ranch had 10,000 head of cattle in 1880. *The*

³³ 'King Cotton Once a Rarity,' *El Paso Herald Post*, 28 May 1936 and 'Enterprise Largest in This Area,' *El Paso Times*, 25 October 1931.

³⁴ J.V.K. Mansfield, *Mansfield on the Condition of Western Forts, 1853-1854*, ed. Robert W. Frazer (Norman, 1963), p. 27.

³⁵ N. Hammond, *History of El Paso County*, p. 120.

³⁶ The U.S. Consul to Chihuahua reported that pumps and wells, and better breeds of cattle for the large ranches were being imported. *Commercial Relations, 1885-86*, pp. 897-898.

Chihuahua Enterprise reported the following herd sizes in the late 1890s: Luis Terrazas, 150,000; John Hearst 30,000; Enrique Miller, 15,000 and Felix Maceyra, 4,000.³⁷ In 1901, the R.L. Hall ranch had 2,000,000 acres with 6,000 cattle. The Spanish War at the end of the nineteenth century led briefly to the elimination of Cuba as a source of beef cattle for the U.S. This, in turn, further stimulated the cattle industry in Northern Mexico. By the mid-1900s, the industry had reached even greater scale. The Terrazas family, for example, owned nearly 5,000,000 acres of land and branded nearly 1,000,000 of cattle yearly. The large cattle holdings of Arizona, New Mexico, Texas and Chihuahua sustained an industry that encompassed a 700 mile radius.³⁸ The expansion of ranching led to the development of support industries such as meat packing and slaughter houses. Therefore, land was a key resource for agricultural and ranching purposes. This is significant, because as this study turns to the internal exchange of the cross-border trade, cattle is a key component.

The hinterlands in and around C. Juárez-El Paso also offered other resources, namely timber and minerals. The vast pine forests of the Sierra Madre and New Mexico permitted the exploitation of timber on a large scale.³⁹ This is exemplified by the case of William Greene, who sought to expand his interests beyond mining by seeking local and regional sources of lumber and timber to supply his mines instead of importing from Puget Sound.⁴⁰ The Sierra Madre Lumber company under his control held 2,315,000 acres of land in Chihuahua having a stumppage of 1,852,000 feet (564,462 m) of yellow and white pine. Another example is The Pearson Company, which operated the Madera Lumber Company in Chihuahua as its subsidiary. Fifty percent of the raw lumber from this company's holding

³⁷ *Chihuahua Enterprise*, 9 July 1898, n.p.

³⁸ The Terrazas holdings also yielded minerals, lumber and other foodstuffs. This was in addition to the horses and mules that grazed on the land. M. Machado, Jr., *The North Mexican Cattle Industry, 1910-1959: Ideology, Conflict and Change* (College Station, 1981), pp. 29-30 and p. 40.

³⁹ *Emory Report*, p. 12.

⁴⁰ D.M. Pletcher, *Rails Mines and Progress: Seven American Promoters in Mexico, 1867-1911* (Ithaca, 1958), pp. 222, 226 and 232.

in Madera and Pearson, Chihuahua passed through C. Juárez-El Paso.⁴¹ But while timber was important, it was also subsidiary to another land-based resource, ores.

The third important resource was mineral deposits. These were important because they helped fix the locations of populations and industrial pursuits. **Figure 4.1** shows the location of the more important regional mining centres. As can be seen, there was relatively little mineral wealth in the immediate El Paso-C Juárez area, except at Santa Rita, New Mexico, much of it was found in the surrounding mountains to the south, south-west and east. Many mining camps were located over 100 miles south of the border. The city of Chihuahua, for example, was located in the heart of one of Mexico's richest mining districts: within range were 15 silver mines, one gold mine, and one copper mine.⁴² In the C. Juárez-El Paso hinterlands to the west, the Cananea mines of William Greene belonged to a much larger copper zone several hundred miles long that straddled the Arizona-Sonora border.⁴³

The mining sector tended to challenge the entrepreneur to the extent that these activities were often confronted with a frontier that was ever changing – deeper seams and camps further afield. In order to cope with these changes, innovations in technology had to

⁴¹ Greater El Paso Chamber of Commerce (GEPCC), Report for 1911, 'Prosperity and Opportunities in El Paso and El Paso's Territory,' pp. 45-47 and W.E. French, 'Business as Usual: Mexico North Western Railway Managers Confront the Mexican Revolution,' *Mexican Studies/Estudio Mexicanos*, 5 (1989) 2, p. 221.

⁴² F.C. Lister and R.H. Lister, *Storehouse of Storms*, pp. 58-59, M. Wasserman, *Capitalist*, p. 9 (Wasserman explains that the hacienda dominated the landscape because of the geography.), and A. von Humboldt, *Political Essay, abridged*, p. 201 or A. von Humboldt, *Political Essay*, John Black translation, p. 313. See also *Descripciones Económicas Regionales de Nueva España, Provincias del Norte, 1790-1814* (Mexico 1976). F. Katz suggests that northern Mexico was marginalised from the centre because its land was not suited to agriculture and therefore only supported small groups. This situation was exacerbated by the loss of territory as a result of the Mexican War. See. F. Katz, 'Condiciones de Trabajo en las haciendas de México durante el Porfiriato; Modalidades y Tendencias' in E. Cárdenas ed., *Historia económica de México* (Mexico, 1992), pp. 145 - 151.

⁴³ The Greene holdings consisted of 40 mines and prospects located in the Cananea mountains in northern Sonora, Mexico about 20 miles south of the border. The company also held 486,000 acres of timber and grazing lands leased to the Cananea Cattle Co and controlled the Sierra Madre Land and Lumber Company and the Sierra Madre & Pacific Railroad. *Moody's Manual of Railroads and Corporation Securities* (New York, 1906), p. 2047. The copper field was inadvertently bisected by the international boundary as contained in the Gadsden Purchase of 1853. The mining camps of Bisbee, Douglas and Prescott (Az) became important sites in the 1890s. Sonora lagged behind at first because of Apache raids and later for lack of development capital. Phelps Dodge Copper Company purchased shares in the Cananea company of Greene in 1903. D.M. Pletcher, *Rails, Mines and Progress*, pp. 222-226.

be employed.⁴⁴ In the case of the mineral deposits contained in the cross-border area, their eventual exploitation resulted from two complementary trends. In the U.S., western producers were obliged to sell their ores in monopolistic markets.⁴⁵ Far from the precious metal markets along the eastern seaboard and in Europe, overall costs were higher for these producers because of the need to transport over land and long distances. Furthermore, as the U.S. industrialised, the need for more natural resources spurred westward expansion and greater distances. Similarly, in Mexico, the north was mineral rich and relatively underdeveloped. Existing mining interests had been accustomed to sending their mineral output to Europe, specifically copper from Oaxaca and Sonora to Swansea, because of the lack of a local smelting and refining industry or transportation linkages and access to smelting operations nearer to the source. With the construction of the Central Mexicana railway, in particular, the mining districts of Northern Mexico gained easy access to smelters in the Southwestern U.S. Large mining interests as far off as Missouri and Oklahoma could access low cost Mexican ores.⁴⁶ Mexican interests were also able to take advantage of U.S. capital and technology in order to help them develop their own domestic industry. Thus, the exploitation of mineral deposits in the region was an outgrowth of the convergence of the needs of industrialists north and south of the frontier. In most instances, technological innovations were imported from the north.

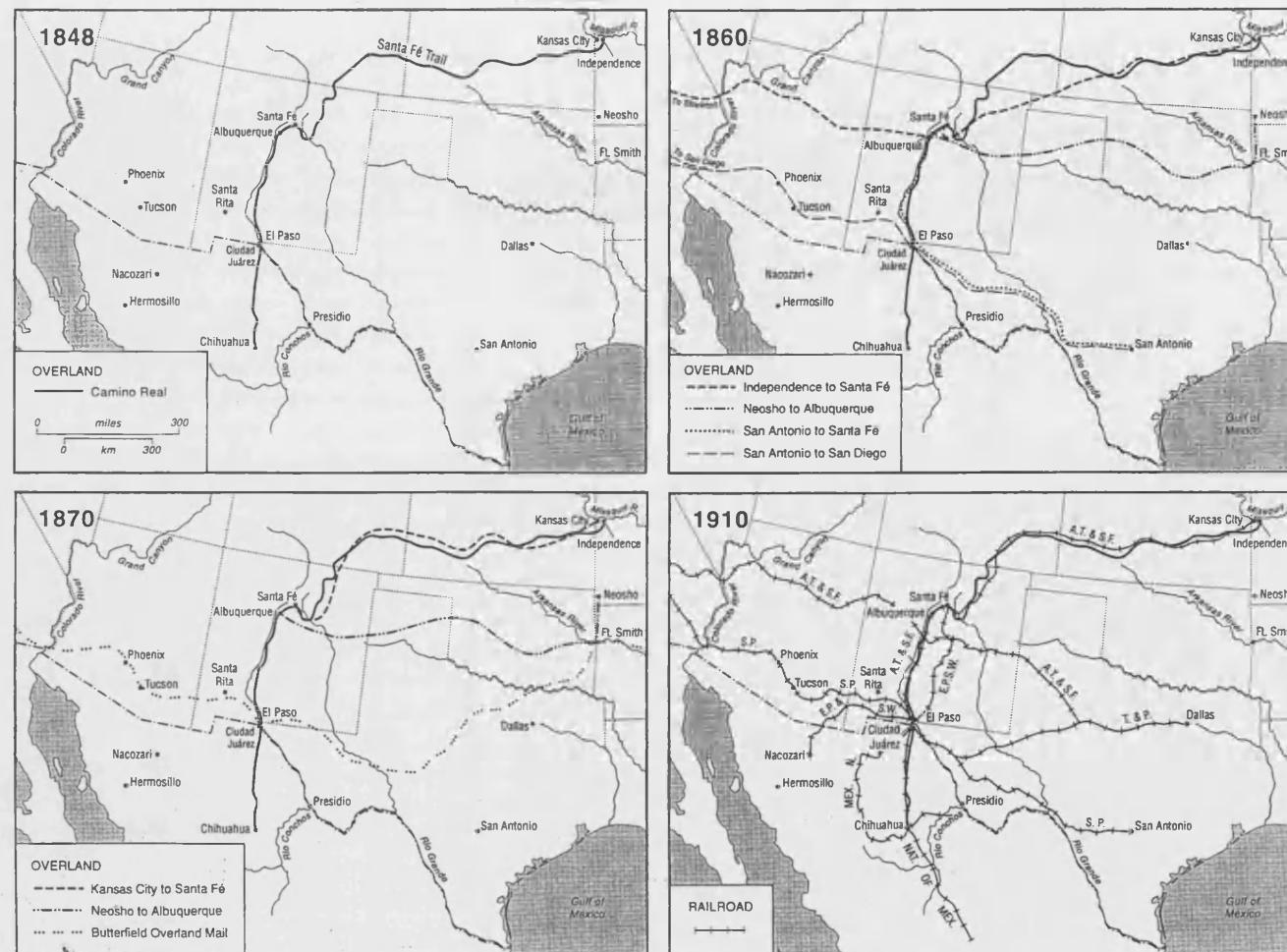
The cross-border resource base consisted of three principal resources: water, land and minerals. These may also be considered as the base for regional export-related activities, discussed in subsequent chapters. Each of these resources was exploited on a limited basis early in the period. Another important impetus to the formation of a regional market was state action. Institutional changes arising out of the bi-national effort helped resolve the water availability problem thereby permitting natural resource exploitation on a larger scale than perhaps would have been otherwise possible. Finally, innovations in technology further aided the process of the formation of a regional market. The introduction of newer

⁴⁴ According to Pollard it was in the British mines that the steam engine, the iron rail and the railway along with other innovations were first employed. S. Pollard, 'Regional Markets,' p. 34

⁴⁵ 'A description of the Lead and Copper Plant of the American Smelting and Refining Company,' *Engineering and Mining Journal Press*, 27 (1925), pp. 1041-1042.

⁴⁶ M. Bernstein, 'La Modernización de la economía minera,' in E. Cárdenas ed., *Historia Económica*, p. 241.

Figure 4.2
Progression of transportation network, 1848 to 1910⁴⁸



⁴⁸ This series of maps was adapted from representations found in M. Moorehead, *New Mexico's Royal Road, Trade and Travel on The Chihuahua Trail* (Norman, 1958), p. 104-105, *Atlas of Historical Geography of the United States* (Baltimore, 1932), plates 138a, 138b and 139 and *Atlas of Traffic Maps* (Chicago, 1924), Map No. 14, transcontinental territorial group.

technologies provided the impetus for the development of other activities such as smelting, refining, lumber milling and meat packing. All of these drew on a resource base that was similar throughout the region and led to the establishment of El Paso-C. Juárez as a cross-border way station between raw material suppliers and the finished product. The smelters in C. Juárez-El Paso treated ores, lumber mills processed timber, and stockyards and packing houses processed cattle from a resource base that included Chihuahua, Coahuila, New Mexico, Arizona, and Durango.⁴⁸ This is an important point that must kept in mind, particularly as regards the discussion on cross-border exchange.

Despite all the centripetal forces outlined above, the unavailability of an efficient means of transportation was an important deterrent to further development. The discussions of geography and resources have repeatedly emphasised that the greatest hindrance to the development of these resources was inaccessibility as a result of the physical landscape. The transformation of the transportation infrastructure ameliorated this constraint, fomenting the role of C. Juárez-El Paso as a regional point of convergence for many activities.

III

Figure 4.2 displays four panels constructed using various sources on transportation networks in the C. Juárez-El Paso area between 1848 and 1910. Each panel contains a map showing the infrastructure to a specific date. Present-day territorial divisions are shown. In order to sustain the argument that a cross-border transportation network existed, each of the panels is taken in turn and compared to the preceding panels to better develop an analysis of the routes.

In **Panel 1848**, two elements are important: the single north-south route of the colonial transportation infrastructure; and the east-west Santa Fe trail. This early configuration was attributable, in part, to the geography of the region. As was explained above, the Rocky Mountains as well as the Sierra Madre represented formidable obstacles to east-west travel, hence the north-south orientation. A long wagon road, the Camino Real, was the only *official* road linking Chihuahua, C. Juárez-El Paso and Santa Fe. The road between Santa Fe and C. Juárez-El Paso was 539 kilometres (337 miles) long, and another

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M. T. Garcia, *Desert Immigrants: The Mexicans of El Paso, 1880-1920* (New Haven, 1981), p. 9. N. Hammonds, *History of El Paso County*, p. 118, A. Leibson, *El Paso Times*, 4 March 1949, 'Smelter Has Big Payroll: A.S.&R. Plant here is one of the Largest in the United States,' *El Paso Times*, 22 August 1930, and J. M. Day, 'El Paso; Mining Hub for Northern Mexico, 1880 - 1920,' *Password*, 24 (1979) 1, p. 28.

298 miles (478 kilometres) to Chihuahua.⁴⁹ Travel between C. Juárez-El Paso and Chihuahua took four days. The road functioned primarily as a military postal route, being used by official commercial/administrative caravans that supplied the region every year. Mail travelled by express coach (*diligencia*) and horseback. The commercial interests mentioned above also carried mail to the interior, offering patrons an alternative to the official post. While communication south was regular, northward from Chihuahua, contact was irregular.⁵⁰ Road maintenance relied upon local taxes levied on traders and merchants. However, as commercial activity was very limited, funds were scarce and repairs carried out infrequently. For example, between 1798 and 1802 a bridge across the Rio Grande was built just above C. Juárez-El Paso. The yearly floods that plague the area every Spring made maintenance expensive because wood had to be brought from Northern New Mexico. The perennial lack of financial resources and difficulty in securing materials from distant suppliers resulted in neglect of the bridge, and it was eventually washed away.⁵¹

The region was isolated both from the main centres of population on the U.S. eastern seaboard and in Central Mexico, cut off from international and national trade. Prior to 1803 the trans-Mississippi region of what became the U.S. was sparsely settled, but with the purchase of the Louisiana territory, settlement grew. The pressures to find viable outlets for regional production led some frontier entrepreneurs to seek opportunities in New Mexico and Chihuahua, thereby opening an overland trail that linked the two frontiers.⁵² The wagon trail between Santa Fe and Missouri served as an avenue for regional trade between 1821 and 1848. The trail also became an official U.S. postal route under an act dated 3 March 1847.⁵³

⁴⁹ M. Moorhead, *New Mexico's Royal Road*, pp. 107-108 and J.J. Web, *Adventures in the Santa Fe Trade, 1844-1847* (Glendale, 1921), p. 91.

⁵⁰ Private interests carried the post because of the inability of local and federal government to support the service. It was easily added to the activities of transportation merchandise. ACJ (495), r. 45, fr. 372 (c1850).

⁵¹ P. Horgan, *Great River, The Rio Grande in North American History* (Hanover, 1984), pp. 347-349 and p. 463.

⁵² P. Horgan, *Great River*, pp. 364-367, C. A. Milner II, et. al. eds., *Oxford History of the American West* (Oxford, 1996), pp. 159-162, J. Adler, *Yankee Merchants and the Making of the West, The Rise and Fall of Antebellum St. Louis* (Cambridge, 1991), pp. 14-25, and A. Q. Niemi, Jr., *U.S. Economic History* (New York, 2nd edition, 1980), p. 45.

⁵³ According to J.J. Webb the journey from Missouri to Santa Fe could take up to 70 days. See J.J. Webb, *Adventures in the Santa Fe Trade*, p. 91. *United States Statutes at Large*, Vol. 9 (Washington, D.C., 1958), p. 194.

For the purposes of this discussion, the importance of this trade is the coincidental creation of an additional feeder line to the north-south transportation trunk.

The transportation infrastructure up to 1848 was characterised by a single, little utilised route with a south-north orientation. It was in fact an outgrowth of the needs of the colonial administration. Private interests used the road, but because trade activities were limited, their influence on the development of the regional infrastructure was also limited. The state served as an important element in maintaining and utilising transportation services. However, after 1821, as regional trade increased, so private traffic grew, adding a north-easterly spur to the existing south-north road.

Panels 1860 and 1870 in **Figure 4.2** show the evolution of new routes. Contrasting these two maps with **Panel 1848**, two features are most pronounced. Firstly, the proliferation of east-west routes north of the border is significant. Secondly, the emerging trend toward the ‘convergence’ of networks on two hubs, the C. Juárez-El Paso area and Santa Fe/Albuquerque merits further discussion. The proliferation of routes is attributable to several factors. Initially, the most prominent factor was the westward expansion of the U.S. Many of these new routes were developed by government, for largely administrative purposes. Increases in U.S. population west of the Mississippi prompted by events such as the gold rushes and the establishment of a cordon of military posts throughout the U.S. Southwest after 1848, necessitated better transportation and communication services to the newly settled territories, particularly California. The U.S. military was the first to create a new branch to the network, namely a wagon trail to the army post opposite C. Juárez. For the first decade, the road was used mainly for postal services. In 1851, an army postal contract was awarded to Henry Skillman, a local entrepreneur, to operate a monthly mail service from San Antonio. The contract was more of a dispatch service for the troops.⁵⁴ In 1854, a second military contract was awarded to David Wasson for mail service between San

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Oxford History, pp. 195-6, A.L. Stimson, *History of the Express Companies and the Origin of American Railroads* (New York, 1858), and L.R. Hafen, *The Overland Mail, 1848-1869* (Cleveland, 1926), p. 32. The contemplation of Pacific Coast mail service was contained in a military legislative measure designed to develop the U.S. naval capabilities. Numerous setbacks, among them depredations at the hands of Apaches, forced Skillman into bankruptcy. El Paso County Deed Records (EPCDR) book C (1851). This is further discussed in Chapters 5 and 7. See also R.H. Thonhoff, *San Antonio Stage Lines* (El Paso, 1971).

Antonio and Santa Fe *via* El Paso.⁵⁵ And in 1857, a third was awarded to James Birch for a San Antonio to San Diego route. Unfortunately he died before assuming the job, and this prompted the U.S. Postmaster General to consider options for an ordinary overland mail route to the Pacific.⁵⁶ Prior to this time, most mail between the east and west coasts was transported by ships *via* the Straits of Magellan or across Central America. But this proved much too costly and time consuming for the growing demand. After much discussion, a contract was awarded to John Butterfield for a semi-weekly overland service, which began in 1858.⁵⁷ However, the predominance of the public sector in forging a transport network and mail services did not crowd out private initiatives. Merchant houses such as C. J. Cook, A.A. Lockwood, and B.F. Fickline of San Antonio also provided transportation services over the same routes established by the government. These interests utilised their freight trains into Mexico *via* C. Juárez-El Paso as a means of moving merchandise and supplementing the official post.⁵⁸ Therefore, private initiative, as well as state intervention, fostered development of a regional transportation infrastructure. It is interesting to note that private individuals helped developed the links with Northern Mexico, while U.S. interests focussed on California.

⁵⁵ This line was taken over by George H. Giddens in 1854, who held the contract until 1858. Apart from carrying the post, he also allowed for travellers. B. Montgomery, 'Trans-Western Mail Come Through EP 100 Years Ago,' *El Paso Times*, 8 July 1957 and B. Montgomery, 'Many Troubles Hit Famed Early Mail Line,' *El Paso Times*, 8 July 1857. Interestingly enough Skillman continued to drive for the Butterfield Company and even served as a Confederate courier between El Paso and San Antonio during the Civil War. 'Pioneer Postman Brought Mail Horseback Into Apache Infested Land,' *El Paso Times*, 29 April 1956. L.R. Hafen, *Overland Mail*, pp. 73-74.

⁵⁶ Early explorations had uncovered several practicable routes. The choice of route became entangled in the question of slavery. Additionally, several cities competed for the position as eastern terminus of the Pacific railroad - Chicago, New Orleans, Memphis, Saint Louis. *Texas Almanac*, 1859, pp. 139-150, W.R. Austerman, *Sharps Rifles and Spanish Mules: The San Antonio-El Paso Mail, 1851-1881* (College Station, 1985), pp. 4-6, 'Butterfield Overland Mail Played Important Part in Developing West,' *El Paso Times*, 6 November 1938, J. Leach, 'Stage Coach Through The Pass - The Butterfield Overland Mail Comes to El Paso,' *Password* 3 (1959) 4, p. 130, *American West*, p. 209 and L.R. Hafen, *Overland Mail*, pp 79-99. See also R.R. John, *Spreading the News* (Cambridge, 1995).

⁵⁷ W.B. Lang, *The First Overland Butterfield Mail St. Louis to San Francisco, 1858-1861* (Saint Louis, 1940), pp. 18-20, C. J. Crouch, 'Old Butterfield Stage Line, Story of Race Between Coaches and Famous Ship Great Eastern Across the Continent for \$100,000,' *Dallas Morning News*, 26 September 1926. 'Butterfield Mail 100 Years Old Monday' *El Paso Times*, 17 September 1957.

⁵⁸ The Lockwood interest was bought out by George H. Giddens who used the line to supply the California emigrants. B.F. Fickline ran his line in 1870. W.R. Austerman, *Sharps Rifles*, pp. 14-15 and p. 65, and C. Babcock, 'San Antonio and El Paso Mail and Its Connections,' transcription taken from *Texas Almanac* 1870, El Paso Public Library, Southwest Room.

Figure 4.2, Panel 1860 shows that a number of overland routes utilised either C. Juárez-El Paso or Santa Fe/Albuquerque as hubs. Centred on Santa Fe/Albuquerque were connections originating or terminating in Kansas City, Fort Smith, Stockton, and C. Juárez-El Paso. El Paso was another regional hub with connections to Santa Fe/Albuquerque, San Antonio, Chihuahua and San Diego. Not unsurprisingly, by 1870 (**Panel 1870**), the regional transportation network had contracted and Santa Fe/Albuquerque ceased to function as a hub for travel to California; no routes extended west of Santa Fe/Albuquerque. C. Juárez-El Paso, on the other hand, no longer had links with San Antonio, but appears to have benefited from a connection to Fort Smith. This hub maintained its connections with Chihuahua and Santa Fe/Albuquerque and seems to have offered the only connection with California through San Diego. There are several reasons for the changes and the failure to expand the network. The 1860s were a period of political turmoil and conflict in Mexico and the U.S. due to the French Intervention and the U.S. Civil War, respectively.⁵⁹ Although there was conflict, this did not mean that transportation through the area disappeared. It did, however, mean that further development of routes was delayed. The hardships associated with overland transportation also contributed to the ephemeral nature of some transportation linkages. Finally, overland wagon travel was never really suitable for hauling heavy equipment needed to further economic development. Therefore, it did not serve as an adequate technology transmission mechanism.

In **Figure 4.2, Panel 1910**, several features stand out. First, the emergence of C. Juárez-El Paso as a regional hub over Santa Fe/Albuquerque. Second, railways are the dominant form of transport, displacing wagon trails, although following the trajectories established by early postal routes. This panel shows only the railway routes and can be assumed to mean that wagon trains became less important as the railway networks matured. The building of the railways was the single most important innovation to the transportation network. There are two parts to the story of the extension of the railroads through the region that must be emphasised here: the race for monopoly control of transcontinental routes in the U.S. and the nature of railway construction and development in Mexico. The race for monopoly control over southern transcontinental routes brought about a convergence of

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See Chapter 3. I. Herrera Canales, 'La circulación: transporte y comercio' pp. 198-202 and 'La Circulación (comercio y transporte en México entre los años 1880-1910),' pp. 437-39 in C. Cardoso ed., *Méjico en el Siglo XIX* (Mexico, 9th edition, 1990).

several railways along the Mexico-U.S. border in the 1880s. The clustering of lines at C. Juárez-El Paso was not a goal in itself, but rather the result of establishing through routes to the West (California). C. Juárez-El Paso occupied the shortest all-weather mountain pass through the Continental Divide (Rocky Mountains), thereby making it a prime location for transcontinental travel. Additionally, in the U.S., large-scale production with its attendant specialisation, rendered the system of regional self-sufficiency antiquated, and required greater linkages between interdependent productive units. This was a driving force behind improvements and the extension in existing means of transportation on land (and water).⁶⁰ Thus, the nature of the railway construction must also be understood within the context of U.S. growth.

The second element is the nature of Mexican development, particularly the extension of the railways in the northern states of Mexico, which was the direct result of foreign investment and reflected their interests, namely access to primary resources and an ability to exploit them for export (to the U.S., in particular). As the U.S. network extended further west (and south-west), U.S. promoters of railway projects often regarded Mexico as an extension of the Western frontier. Therefore, it was natural to consider extending the railways through Mexico as long as they fulfilled the function of supplying primary resources for continued U.S. industrialization. While Americans were important, the role of the Mexican government in encouraging these activities cannot be discounted. During the last quarter of the nineteenth century, the Mexican state utilised export-led development as a means of integrating the north into the nation. A national transportation network was seen as a means of achieving this goal. After 1880, the Mexican government succeeded in attracting private investment to launch a major program and issued concessions for numerous routes, including two trunk lines to the northern border.⁶¹ The process of industrialisation in

⁶⁰ See also E.R. Johnson, *et. al.*, *History of Domestic and Foreign Commerce of the United States*, (Washington, 1922), R.E. Riegel, *The Story of the Western Railroads* (New York, 1926), p. 1-2 and p. 179, I.G. Clark, *Then Came the Railroads: The Century from Steam to Diesel in the Southwest* (Norman, 1958), Chapters 16 and 17, R.W. Fogel, *Railroads and American Economic Growth: Essays in Economic History* (Baltimore, 1964), and A. Fishlow, *Railroads and the Transformation of the Antebellum Economy* (Cambridge, 1965).

⁶¹ See Chapter 3 as well as M. Wasserman, 'Foreign Investment in Mexico, 1876-1910: A Case Study of the Role of Regional Elites,' *The Americas*, 36 (1979) 1, D. M. Pletcher, *Rails, Mines and Progress: Seven American Promoters in Mexico, 1867-1911* (Ithaca, 1958), p. 219, J.H. Coatsworth, 'Indispensable Railroads in a Backward Economy: The Case of Mexico,' *Journal of Economic History*, 39 (1979) 4, p. 940-47 (See also J.H. Coatsworth, *Growth Against Development*), L.M.

the U.S., which required a larger resource base, available in the C. Juárez-El Paso hinterlands, coupled with a tendency on the part of the Mexican state to utilise exports as an engine for development, clearly contributed to the formation of a regional infrastructure. However, it is important to reiterate that the building of the cross-border transportation network, cannot be solely attributed to the demands of the U.S. economy. Strong links to the domestic market also existed between Northern and Central Mexico. The desire of the central government to form a stronger national bond between all of Mexico's regions, renders myopic the position that the development of the railroads Mexico was purely an extension of U.S. expansion.

Moving on from a discussion of **Figure 4.2**, an examination of railway company case histories demonstrates the growing importance of C. Juárez-El Paso. The first railway to arrive was the Southern Pacific (SP) in May 1881, building out of San Francisco.⁶² The Atchison, Topeka and Santa Fe (AT&SF), working southwards, was the second major line to reach El Paso-C. Juárez in June 1881. The third major connection was made by the Texas and Pacific (T&P) in November 1883. The fourth company to reach C. Juárez-El Paso was the Galveston, Harrisburg and San Antonio Railway (GH&SA), which also arrived in 1883. The fifth was the National Railways of Mexico (shown as the Nat. of Mex. on **Figure 4.2, Panel 1910**, and hereafter cited as such), building from the south, arrived in 1884.⁶³

Largely an east-west network, the SP became one of biggest regional railways with transcontinental routes. It acquired the GH&SA in 1883, which gave it access to the Atlantic

Parlee, 'Porfirio Diaz, Railroads, and Development in Northern Mexico: A Study of Government Policy Toward the Central and Nacional Railroads, 1876-1910, unpublished Ph.D. thesis, University of California-San Diego, 1981, I. Herrera Canales, in C. Cardoso ed., *Mexico Siglo XIX*, F. Rosenzwieg, 'El Desarrollo económico de México de 1877 a 1911' in E. Cárdenas ed., *Historia económica de México* (Mexico, 1992), D. G. López Rosado, *Curso de Historia Económica de México* (Mexico, 1963), F. Katz, 'The Liberal Republic and the Porfiriato, 1867-1910' in L. Bethell ed., *Mexico Since Independence* (Cambridge, 1991) and S. Kuntz Ficker, *Empresa Extranjera y Mercado Interno; El Ferrocarril Central Mexicano, 1880-1907* (Mexico, 1995).

⁶² P.R. Robinson, Superintendent Rio Grande Division of the Southern Pacific, 'Kiwanians Hear Part Railroads Play in History , Development of El Paso,' *El Paso Times*, 12 June 1952. See also L.L. Waters, *Steel Trails to Santa Fe* (Lawrence, 1950).

⁶³ The line was originally established as the Central Mexicana. It was eventually absorbed into the Ferrocarril Mexicana in 1908 as part of the nationalisation of the railways becoming the Ferrocarril Nacional Mexicano (Mexican National Railway). In the map the abbreviation Nat. of Mex. is used. See J.H. Coatsworth, 'Los Ferrocarriles, Indispensables en una Economía Atrasada: El Caso de México,' in E. Cárdenas ed., *Historia económica de México*, pp. 203-205 or See S. Kuntz Ficker, *Central Mexicana*.

via El Paso. Construction of the GH&SA began in 1851 in Harrisburg, Texas, under the auspices of Louisiana entrepreneurs who wanted a direct connection between New Orleans and Texas, and southern and eastern markets. The original plan was for the railroad to travel through El Paso and on to Mazatlán in Mexico, but the U.S. Civil War interrupted construction. It was not until 1870 that the GH&SA was re-organised with the objective of reaching El Paso from San Antonio in order to connect with the SP.⁶⁴ The ambitions of the SP brought it into contact with the AT&SF. Prevented as the result of a conflict with the Denver and Rio Grande railway from building west through southern Colorado as originally planned, the AT&SF built southward, hoping to gain access to the west through C. Juárez-El Paso.⁶⁵ However, having reached C. Juárez-El Paso, the AT&SF continued southward into Mexico. Only later in the 1890s did the railway revive the east-west project, constructing a main line from Albuquerque to California. The AT&SF organised the Nat. of Mex. railway company under the laws of Massachusetts and connected C. Juárez-El Paso to Chihuahua and Mexico City, thereby allowing AT&SF to benefit from the Mexican trade. Designed to carry minerals and fibres, the Nat. of Mex. was the longest railway in Mexico, and the only one to run to the northern border at C. Juárez.⁶⁶ It was also the only railway functioning in the State of Chihuahua between 1882 and 1891.⁶⁷ The third major company attempting to control

⁶⁴ H.B. Wilson, Secretary to the Superintendent of the El Paso Division of the Southern Pacific Lines, 'A Brief History of El Paso Division c.1923', n.p. See also I.G. Clark, *Then Came the Railroads*, 'Historical Sketch: Texas, El Paso and El Paso City,' *El Paso Times*, 2 January 1890.

⁶⁵ The extension was an attempt to break the territorial monopoly of C. P. Huntington and his associates in the Southern Pacific Railroad. F.W. Powell, *Railroads of Mexico*, pp. 123 and 127, G. Overman, 'The Mexican Central The First Railroad in Ciudad Juárez' mimeograph El Paso Public Library, Southwest Room, 23 April 1937.

⁶⁶ As with the rest of the railroads built in the country, the Mexican government subsidised up to one-third of the construction costs to include large land concessions and rights of way. Locally, this translated into the Santa Fe running its line through the middle of C. Juárez, where residents objected because the plans would have changed the course of the river and resulted in continuous flooding. Furthermore, the Nat. of Mex. went about planning and placing stakes through the middle of the main street and levelling homes without proper recompense to owners. After a brief interlude of political activity in which Mexican President Porfirio Díaz intervened on behalf of the railway, construction was continued and the company proceeded in a much more considerate fashion, offering common stock options to Mexican individuals along its projected route. See F.W. Powell, *Railroads of Mexico*, J.H. Coatsworth, *Growth Against Development*, and S. Kuntz Ficker, *Central Mexicana*.

⁶⁷ The total cost was U.S.\$ 30 million. J. Coatsworth, 'Indispensable Railroads,' p. 203, State of Chihuahua, *Album al señor General Don Porfirio Díaz Presidente de la República Mexicana en recuerdo de su visita a la capital del estado* (Chihuahua, 1909), p. 25, H.A. Horsfall, 'The Railroad Systems of Northern Mexico,' *The Engineering and Mining Journal*, 3 (1909), p. 712, and L.M. Parlee, 'Porfirio Díaz, Railroads,' p. 71, Foreign Office, Diplomatic and Consular Reports on Trade

the southern transcontinental routes was the Union Pacific (UP), which was also acting in defence of its position as a monopoly carrier on the northern route. The UP utilised the T&P to enter into the competition to monopolise routes through C. Juárez-El Paso, acquiring the line after 1920.⁶⁸

In addition to the transcontinental companies, several regional railways emerged as mining and agricultural opportunities expanded. For example, The Copper Queen Mining Company originally sought to persuade AT&SF to run its rails through Southern Arizona in order to alleviate the company's transportation problems (copperore was transported by mule trains between Bisbee and Benson in Arizona.) As the copper industry grew, Phelps-Dodge, owners of the Copper Queen, found themselves obliged to switch to rail in order to move loads. They had also attempted to persuade SP to extend its lines to the Arizona-Mexico border, but were equally unsuccessful. As a result the partners of Phelps-Dodge drew-up plans to ship their copper to El Paso where they could take advantage of the connections with the AT&SF, SP, T&P and GH&SA. This resulted in the organization of the El Paso and Southwestern Railroad (EP&SW). Construction started in 1896 and was completed in 1903, connecting El Paso with the mines of New Mexico and the copper fields of Arizona.⁶⁹ Another example is the Mexico Northwestern (MNW), which began as The Corralitos, then the Gulf, Rio Grande and Pacific, and then the Rio Grande, Sierra Madre and Pacific, before finally becoming the MNW, which connected C. Juárez-El Paso to cattle and mining interests in Northern Mexico. This provided another linkage with U.S. railways along which Mexican timber, minerals, ore, cattle and other products were transported. When construction of the line reached C. Juárez from Chihuahua in 1891, immediate steps were taken to build a bridge across the Rio Grande. However, Texas law required American ownership of railway interests, leading to the formation of the El Paso Southern Railway (EPS), a locally managed

and Finance, No.309, 'Report on the Railways now existing in Mexico,' p. 3.

⁶⁸ See L.H. Haney, *A Congressional History of the Railways in the United States, 1850-1887* (Madison, 1910) and C. Whitlock, 'Railroads Started City's Progress,' *El Paso Times*, 26 August 1946.

⁶⁹ It was absorbed by Southern Pacific in 1924. E.D. McCallum 'Phelps-Dodge Developed Rail Net to Solve Transportation Problems,' *El Paso Times*, 6 August 1965; P. D. Robison, 'Kiwanians Hear'; 'History of E.P. & S.W. System' *Southern Pacific Bulletin*, November, 1924, p. 5; 'E.P. & S.W. Is Well Built Railroad Property,' p. 8, 'Southwestern Serves Rich, Picturesque Region,' pp. 9-10, both articles in 'From Trail to Rail, The Story of the Beginning of Southern Pacific, Chapter 35, Southern Pacific Properties in the Southwest: History of Arizona Eastern and El Paso & Southwestern,' November 1928, pp. 12-16.

company. The EPS built the International Bridge and several short spurs linking the line to the T&P, the AT&SF and various other railways. The EPS owned no rolling stock, rather it hired locomotives to switch train cars over to other railroads.⁷⁰ Two further examples of regional railways are the Mexican Northern (MN) and the Ferrocarril Nacozari (FN). The (MN) opened in 1891 between Chihuahua and the mining camps of Coahuila. It was incorporated in New York in 1890 by Robert S. Towne, George F. Peabody and associates, obtaining its concession in Mexico in March 1890. The FN was a western extension of the EP&SW from Agua Prieta and was built in 1901 by Phelps Dodge.⁷¹

The race for control of the transcontinental railway routes led to the formation of a regional railway transportation network centred on C. Juárez-El Paso. This configuration was due to the fact that the conurbation occupied the lowest all-weather pass through the Rocky Mountains. As time progressed and the cross-border economy developed, regional lines emerged, feeding into the main trunk lines. As a consequence of this activity, C. Juárez-El Paso became a transportation hub. The significance of this discussion is its resonance with the theory on the concentration of economic activity and the role of transportation networks. Krugman argues that one of the reasons why a manufacturing belt emerged in the U.S. between the Midwest and the East was precisely because of the density of the railway network connecting the cities in the region.⁷² In this study, the emergence of a cross-border market based on the exploitation of cattle ranching, minerals and cheap labour is hypothesised to derive from the same process. The densification of the regional transportation network points to this process.

With the establishment of a regional railway system, there was an attempt to harmonise freight rates, and over time it appears that an integrated system of regional rail tariffs emerged. Detailed tariff schedules do not survive. However, there is fragmentary evidence on attempts amongst companies to agree specific rates. A recent study of the history of the Nat. of Mex. suggests that the AT&SF railway endeavoured to set rates in

⁷⁰ Prior to the construction of any bridges to span the Rio Grande, crossings were made in an ordinary row boat propelled by Mexican boatmen pulling the boat along a rope strung from bank to bank. The Southern Pacific ferried timber and other supplies to its men near the smelter. W.W. Bridges, 'Rio Grande Boatman's Photograph Located,' *El Paso Times*, 24 September 1944, C. Calleros, *Then and Now*, pp. 26-27 and H.A. Horsfall, 'Railroad Systems,' p. 712.

⁷¹ H.A. Horsfall, 'Railroad Systems', p. 721 and F.W. Powell, *Railroads of Mexico*, p. 163-4.

⁷² P. Krugman, *Geography and Trade* (Cambridge, 1991), pp. 24-25.

Northern Mexico independent of the tariff schedule authorised by the Mexican government. The Nat of Mex., an affiliate of the AT&SF, entered into agreements with other railways registered in the U.S. to set up a common schedule of charges to be applied to goods transported between designated points in the U.S. and Mexico City.⁷³ Other studies on railways in Mexico indicate the disposition of the Mexican government to accept a different scale of rail charges for the export sector as a means of developing the north, this is not surprising given that export-led growth figured prominently in Diaz project to develop Mexico.⁷⁴ It may be argued from this perspective that Mexican policy favoured some sort of convergence in rates in order to entice U.S. railway companies to further develop the region. By 1910, it appears that there was a schedule of low, outbound rail freight rates that applied to the C. Juárez-El Paso region as a whole.⁷⁵ The consolidation of a common scale of rail freights supports the argument that, for railway companies at least, the area was an integrated region. The network of railways throughout stimulated further investment opportunities in activities such as mining and commercial agriculture.

The regional transportation infrastructure developed from a single wagon road to a network of railways that centred on C. Juárez-El Paso. Furthermore, in the early stages of their construction, the state was instrumental in creating the transportation network and later played an important role in accommodating private interests. The nature of railway construction was the most salient feature of the regional infrastructure and was a driving force behind a number of issues related to subsequent economic growth and development. While this is not a study of the social savings achieved by the introduction of the railways in the cross-border region in place of alternative means of conveyance, several qualitative assertions may be made. First, in a land-locked region, a more efficient means of moving population and goods to and through the region was needed. It is clear from the discussion that railways were the solution. Secondly, once the primary trunk lines were in place, there ensued a process of densification of railway linkages with a cross-border orientation. In the

⁷³ S. Krantz, *Central Mexicana*, pp. 148-149.

⁷⁴ This was as a consequence of the desire to favour export-sector growth.. See W. Summerhill, 'Transport Improvements in Brazil and Mexico,' in S. Haber ed., *How Latin America*, or J.H. Coatsworth, *Growth Against Development*, and S. Kuntz Ficker, *Central Mexicana*.

⁷⁵ Greater El Paso Chamber of Commerce, Report for 1911, 'Prosperity and Opportunities in El Paso and El Paso's Territory,' p. 18.

following chapters, the far-reaching consequences of the development of the regional transportation network will become apparent.

IV

C. Juárez-El Paso was part of a larger geographic region extending from Chihuahua to Santa Fe and circumscribed by imposing barriers such as the Rocky Mountains and Sierra Madre. These three points were also the major population centres, with C. Juárez-El Paso functioning as an intermediate point between the two poles. There was a north-south axis of settlement due to the physical landscape. C. Juárez-El Paso was the central point of a common resource base where land and minerals were abundant. This lead to its emergence as a smelting and refining, food processing and transporting hub. However, the availability of water for domestic and irrigation purposes was an important concern that was not remedied until the large land reclamation projects undertaken by the U.S. in the early twentieth century. The cross-border area demonstrated significant urbanization after 1881, a phenomenon associated with the arrival of the railways.

The early regional transportation infrastructure consisted of a single wagon road running from Chihuahua to Santa Fe *via* El Paso-C. Juárez over which trade and information was transmitted. Later, this network extended to include Missouri, and expanded and contracted with U.S. attempts to forge links between the Atlantic and Pacific coasts. After 1881 the railways ameliorated the problems of isolation due to an inadequate transportation infrastructure, given that their construction was linked to resource exploitation and the race to monopolise transcontinental traffic. More importantly, they provided a mechanism for increased internal (north-south) integration and allowed for external (east-west) trade.

The following study draws heavily on the foregoing discussion of the underlying resource base and transportation network. It will be argued that the ability of the factors of production to move freely throughout the region derives from the fact that residents simply considered C. Juárez-El Paso as an economic whole. The analysis will begin with the activities of entrepreneurs and the organisational structure of their enterprises. This will be followed by a discussion of the demand for labour arising from the increasing development of the region. Finally, the means of financing regional activities and the resulting trade flows will clearly demonstrate that the C. Juárez-El Paso cross-border region functioned as an integrated market. This suggests that integration between Mexico and the U.S. dates from much earlier than the mid-twentieth century.

CHAPTER FIVE

ENTREPRENEURS AND ENTERPRISES

This chapter examines the role of entrepreneurs and enterprises in the regional economy. Unlike the previous chapter, where the geographical integrity of the region has been a recurring theme in the literature, the conceptualization of entrepreneurs as operating in a cross-border market presented here represents a new methodological framework for examining C. Juárez-El Paso business history.¹ Unfortunately, detailed business records for entrepreneurs or enterprises for this early period were either not available or do not survive. Therefore, only a qualitative analysis gleaned from a few key sources follows. The work of Brown, Casson, Corely and Rose on entrepreneurs and entrepreneurship provides a theoretical underpinning for this discussion. Specifically, Rose and Brown, along with Corely, suggest that entrepreneurship involves many activities, including the adjustment to market conditions, the making of decisions to suit these conditions, the ability to make a situation work for the entrepreneur rather than merely accept it, and some formulation of expectations about the future of the market. The emphasis, according to Casson, is on innovation and change, rather than on inertia and stagnation.² As market conditions change, the entrepreneur often adjusts the organizational structure of the enterprise (firm). The entrepreneur as an innovative and proactive factor is particularly appropriate because local businesses had to find ways to overcome the international boundary. The works of Rose,

¹ In the literature survey presented in Chapter 1, it was noted that economic studies have tended to focus on issues such as labour movements or trade policy. Few works have attempted to study entrepreneurs or entrepreneurial activity, and much less frame the discussion in terms of cross-border activity. Notwithstanding, several texts have been written within the disciplines of history and political science. The most relevant to this study is *Capitalists, Caciques and Revolution* by M. Wasserman.

² J. Brown and M.B. Rose, 'Introduction' in J. Brown and M.B. Rose ed., *Entrepreneurship, networks and modern business* (Manchester, 1993), pp. 3-4.

Brown and Corely are supplemented with Chandler's studies of the American, British and German entrepreneurial experiences.³ The concepts of scale and scope will be employed herein when describing the increasing size of entrepreneurial activities and the diversity of activities that they encompassed, both of which implied a decreasing unit cost of production. More importantly, trends emphasised in the national economic histories should be kept in mind. In the U.S., immigration and internal migration brought entrepreneurs to the region. Concomitantly, Mexico's desire to open itself to a similar process meant that regional entrepreneurs were encouraged to invest and develop Northern Mexico. National trade policy and its paradoxical nature in respect of the cross-border setting will also emerge as a topic. Together, these points of emphasis are important to the growing cross-border relationship.

The following analysis is divided into three sections. The first section segregates market activities along three broad lines – retail and wholesale trade, transportation services, and primary production. This discussion derives from the assertion that the concentration of economic activity stems from several key factors, including the availability of natural resources and the role of the state as explained in the previous chapter. In the language of Export Base Theory, regional economic growth is focussed on the export base – those activities undertaken solely for export. However, the usage of the language does not imply an adoption of the theoretical position. The second section analyses the organisational structure (sole proprietorship, partnership and large-scale commercial enterprise) of these activities and their evolution over time. Here, the definition of entrepreneurs is key: the entrepreneur is defined by his activities and not his function.⁴ These entrepreneurs include the individuals and partners that organised regional resources in order to produce and market products (and services).⁵ Chandler and Tedlow provide additional theoretical background

³ This refers to A.D. Chandler, *Scale and Scope: The dynamics of Industrial Capitalism* (Cambridge, 1990), pp. 21-24.

⁴ M. Casson, *The Entrepreneur: An Economic Theory* (Oxford, 1982), p. 11.

⁵ This definition is drawn from T.A.B. Corley's discussion found in *Entrepreneurship, networks and modern business*, ed. J. Brown and M.B. Rose (Manchester, 1993). In the same text Casson further elaborates on the role and function of entrepreneurs. See M. Casson, 'Entrepreneurship and business culture.'

regarding the development of urban markets and the structure of enterprises.⁶ The general evolution of business organisational structures is not unique in and of itself. However, that this took on a cross-border characteristic is particularly important because it fomented the internal cohesion of the cross-border market. Section three outlines and analyses the impact of the obstacles encountered by the entrepreneur and enterprise. Here, Casson's work on entrepreneurial problem-solving is utilised to underpin the discussion. The final section provides a summary of the role of entrepreneurs and enterprises in the formation of the bi-national economic space.

I

Early on, the C. Juárez-El Paso cross-border area was primarily a subsistence economy. This emerged from the historical and geographical contexts discussed earlier. As explained in Chapter 2, one of the major reasons why Marxist and Dependency-styled approaches found some favour in the regional historiography was because of the existence of quasi-communal patterns of landholding within the region.⁷ While the communal integrity of local populations may have been preserved, the island pattern of settlement of the region also fomented the formation of markets. Consequently, there were limited opportunities for entrepreneurs outside the community or hacienda, and these involved retailing and wholesaling prospects associated with the caravan system described in the previous chapter. As time progressed and the region experienced increasing internal and external integration, self sufficiency gave way to varying levels of production and allowed for diversification of activities to include smelting and refining, meat packing, and entertainment and tourism.

However, it cannot be assumed that Northern Mexico or Ciudad Juárez was dependent on the U.S. or El Paso for any of these pursuits.

⁶ A.D. Chandler and S. Tedlow, *The coming of managerial capitalism: A casebook on the history of American economic institutions* (Homewood, 1985), p. 312. See also, A.D. Chandler, 'The Coming of Big Business,' pp. 269-279 and A. W. Shaw, 'Scientific Management in Business,' pp. 279-285, in A.D. Chandler, S. Bruchey, and L. Galambos eds., *The Changing Economic Order: Readings in American business and economic history* (New York, 1968) and A.D. Chandler, 'The Emergence of Managerial Capitalism,' *Business History Review*, 58 (1984) 4.

⁷ Chapter 2 provides an overview of Dependency Theory and Chapter 3 explains that although the indigenous communities were present, the scarcity of population meant that a true hacienda -type system did not develop. The area was, in the first instance, populated by nomadic tribes that resisted settlement. This condition was not remedied until the later part of the nineteenth century. Therefore, a large peasant class dominated by a single landlord did not emerge. Another important point is that the region was not exclusively export-orientated.

Retail and wholesale merchandising were by far the most important market activities during the late colonial period.⁸ These activities were carried out by a loose network of agents who represented Mexico City and Chihuahua merchants and dealt in imported products and local commodities.⁹ However, the opportunities for entrepreneurial activities were severely limited by the trading system, which was administered and monopolistic. The caravan system established and reinforced a commercial hierarchy at the top of which sat Mexico City merchants. Their function was to supply agents in the provincial capitals, where a system of fairs was organised by provincial governments and scheduled to coincide with the arrival of caravans. Merchant houses in the provinces, in turn, functioned both as wholesalers and retailers. As provincial wholesalers, they utilised the network to supply local markets.

The reality was that caravans were usually less frequent than planned and by the time they reached the regions, carried only remnants of imported goods. Consequently, as the caravans moved north, domestic products replaced imported goods as primary stock. For example, according to Thomson regional centres such as Oaxaca, Valladolid and Guadalajara had all acquired textile industries by the end of the eighteenth century. That of Puebla was the most dynamic and supplied not only its immediate hinterland, but extra-regional and international markets. Puebla's industry specialised in ordinary cotton *mantas* of which very little was consumed in Mexico City. In fact, much of Puebla's production passed through Mexico City and on to mining towns in the provinces.¹⁰ It is not surprising, then, that when imported goods were scarce, regional merchants dealt in cloth and woollens from Queretaro and Puebla and in local artisan goods such as coarse blankets, cigars, pottery, rough leathers,

⁸ 'Market' activities should be understood to mean opportunities for entrepreneurs.

⁹ See G.P.C. Thompson, *Puebla de los Angeles, Industry and Society in a Mexican City, 1700-1850* (Boulder, 1989). See also D. A. Brading, *Miners and Merchants in Bourbon Mexico, 1763-1810* (Cambridge, 1971).

¹⁰ Thomson also states that European imports did not represent a threat to Puebla production, rather it appears that they were complementary goods. Competition was apparent at the beginning of the nineteenth century when imports from the U.S. and Asia entered the market at a time when Puebla's textile industry was in decline. G.P.C. Thomson, *Puebla*, pp. 38-39 and pp. 43-45. W.E. Brown, *The Santa Fe Trail* (St. Louis, 1988), p. 3 and State of Chihuahua, *Noticias Estadísticas del Estado de Chihuahua* (Chihuahua, 1834), p. 170.

hides, live animals, and agricultural and meat products.¹¹ In addition to fairs organised when the caravans arrived, annual markets were also licensed for the exchange of regional items. Although, the system was hierarchical with provincial agents subsidiary to monopolists based in Chihuahua or Mexico City, these fairs and, in particular, licensed markets afforded opportunities for local entrepreneurial initiative. For example, Martín and Antonio Félix Sánchez served as agents for Chihuahua merchants, and also sought to monopolise the local (New Mexico) market for provisioning the garrison at Santa Fe.¹²

At the beginning of the nineteenth century a new element was introduced overland trade with the U.S. American frontiersmen pushing westward as a consequence of the fur trade, opened trails between Missouri and Santa Fe, Northern Mexico.¹³ The fur trade was structured around a series of trade alliances between individual fur traders and the native populations. Consequently, few stable commercial connections grew as a result and only a trickle of individuals made their way across the plains for this purpose. Notwithstanding, the publication in 1810 of Zebulon Montgomery Pike's account of his travels through Northern Mexico and of the commercial possibilities in the region stimulated several expeditions in 1812 and another in 1815.¹⁴ These initiatives were frustrated by Mexico's political instability, resulting from the struggle for independence.¹⁵ In the post-Independence era, the

¹¹ E. Florescano, and I. Gil Sánchez eds., *Descripciones económicas generales de Nueva España: provincias del norte, 1790-1814* (Mexico, 1976), pp. 225-229, E. Covers ed., *The Expedition of Zebulon Montgomery Pike* (New York, 1895), 2, pp. 739-740, and G.P. Hammonds, 'Don Juan de Oñate and the Founding of New Mexico,' *Historical Society of New Mexico*, 11(1927), pp. 19-23. W.E. Brown, *Santa Fe Trail*, p. 3.

¹² Another example is Chihuahua merchant Francisco de Guizarnótegui. M. Moorhead, *New Mexico's Royal Road: Trade and Travel on the Chihuahua Trail* (Norman, 1958), p. 49 and pp. 51-52.

¹³ The Spanish had already gained some experience in the fur trade because Taos was situated at the head waters of beaver country in the province, as evidenced by the fact that regional residents traded buffalo hides, robes, and fur. J. Adler, *Yankee Merchants and the Making of the West: The Rise of Antebellum St. Louis* (Cambridge, 1991), pp. 14-25. See also P.A. Limerick, *The Legacy of Conquest: The Unbroken Past of the American West* (New York, 1987), D.J. Weber, *Taos Fur Trappers in the Far Southwest, 1540-1846* (Norman, 1971) and *The Spanish Frontier in North America* (New Haven, 1992), and D.J. Winehart, *The Fur Trade of the American West, a Geographical Synthesis* (London, 1979).

¹⁴ Pike was an U.S. army lieutenant. See E. Covers ed., *Zebulon Montgomery Pike*.

¹⁵ J. Gregg, *Commerce of the Prairies*, ed. M. Moorhead, (Norman, 1954), p. 11 and *Pike*, ed. E. Covers, pp. 739-759. In the travel diary of G.F.A. Ruxton, he makes reference to the fact that foreigners were arrested and taken to work the mines to the south (probably Chihuahua). See G.F.A. Ruxton, *Adventures in Mexico* (London, 1915). See also M.L. Moorhead, *Royal Road, J.J. Webb, Adventure in the Santa Fé Trade 1844-1847* (Glendale, 1931), and D.J. Weber, *Taos Fur Trappers*.

first successful and large-scale fur trapping and trading expedition was organised in 1821 by Captain William Becknell. In a second expedition in 1822, he concentrated exclusively on trading, attempting to open up new markets in Northern Mexico.¹⁶ Subsequently, trading networks expanded further south to Chihuahua, where the wealth of the nearby mines, the mint and connections with the coastal merchants ensured that locals had specie on hand to buy the manufactures brought from the U.S. Atlantic states and Europe.¹⁷ At first glance, this confluence of activities represented a clash of commercial cultures, that of the independent trappers and traders of the U.S. western frontier and Spanish/Mexican monopoly, regulated trade. In reality, increased commercial contacts with the U.S. reinforced a regional disposition in Northern Mexico to trade independently of the system of organised caravans and fairs and, therefore, created greater entrepreneurial opportunities.

Up until 1848, retailing and wholesaling of imported, domestic and regional goods dominated market activities. However, the scale and scope underwent changes as a result of increased migration associated with the militarisation of the region. The size and needs of government-related activities coupled with the ever increasing number of migrants afforded entrepreneurs greater market opportunities. Militarisation was a primary source of population growth between the Mexico-U.S. War and the U.S. Civil War. The U.S. move to consolidate control over its newly acquired territories led to the establishment of a cordon of military posts and subsequent Anglo-American settlements.¹⁸ Similarly, Mexico attempted to reinforce its presence along the northern frontier by bolstering military colonisation.¹⁹ Another factor contributing to population expansion was the unprecedented westward

¹⁶ W.E. Brown, *Santa Fe Trail*, p. 8. See also M.L. Gardner, *The Mexican Road: Trade, Travel and Confrontation on the Santa Fe Trail* (St Louis, 1988).

¹⁷ Gregg makes reference to receiving more remittances in specie in Chihuahua, thereby making the return journey easier for traders. J. Gregg, *Commerce of the Prairies*, p. 155. See M. L. Moorhead, *Royal Road*.

¹⁸ A provision in the Treaty of Guadalupe Hidalgo required that the U.S. use military force to restrain Indians along the international boundary. P.N. Garber, *The Gadsden Treaty*, unpublished thesis, University of Pennsylvania, 1923, pp. 2-18, and A.R. Stevens and W. M. Holmes, *Historical Atlas of Texas* (Norman, 1989), p. 35. See also C.L. Sonnichsen, *Pass of the North: Four Centuries on the Rio Grande* (El Paso, 1968), W.H. Timmons, *El Paso A Borderlands History* (El Paso, 1990), and L. Metz, *Border, The US-Mexico Line* (El Paso, 1989) for a more regionalised discussion.

¹⁹ Mexico, Ministerio de Guerra y Marina, José Joaquín de Herrera, 15 July 1848, edict. In the case of Chihuahua, the military colonies established were San Carlos, Norte, Pilars, Paso and Janos.

migration of people as the territorial U.S. extended to the Pacific. Finally, after 1881, the railroads facilitated emigration on a larger scale.²⁰ Consequently, although the region remained isolated, commercial opportunities increased.²¹ The growing number of settlers and migrants allowed for the establishment of general stores, also known as trading posts, which became a prominent feature of the economic landscape. Furthermore, often times the general store was not only a retailing centre, but also the focus of many business service activities such as commission and transport agent, transport, blacksmithing, carpentry and accommodation. This 'all-in-one' establishment was important to the survival of the entrepreneur because although the market was growing, it remained small and volatile. For example, Ben Dowell owned an adobe structure in which he operated a saloon in one section and postal office in the other. He also owned a butcher shop, which he used in his contract to supply Fort Bliss with beef, and land, which he used to grow wheat for flour.²² Larger more established merchant houses such as J. Cook and A. Lockwood of Santa Fe or Kettelsen and Degetau of Chihuahua established themselves at the opposite ends of the Santa Fe Trail.²³

Continued isolation through the 1860s and 1870s due primarily to the lack of stable transportation services, meant that commerce (retailing and wholesaling) remained the principal market activity in a predominately subsistence economy. After 1881 retailing and wholesaling activities experienced another surge and fixtures such as the general store grew

²⁰ M.L. Crimmins, 'Gold Rush to California Brought First Attention to El Paso Settlements: War Department Made Reconnaissances and Established Military Post Here to Protect Emigrants from East, Says Col. Crimmins' *El Paso Times*, 22 November 1925; 'Gold Rush Helped Open Route to Fort Bliss' *El Paso Times*, 19 September 1948; and 'Pioneers Get Early History About El Paso' *El Paso Herald*, 16 February 1923, C. Wise, Jr., 'The Effects of the Railroads Upon El Paso,' *Password*, 5 (1960) 3, pp. 91-100. Egan estimates that maybe 9,000 emigrants passed through the region on their way to California. He concludes that by and large most travelers preferred the other overland routes to the isolated circumstances of C. Juárez-EL Paso. F. Egan, *The El Dorado Trail, The Story of the Gold Rush Routes Across Mexico* (Mexico, 1980) pp. 50-55. See also C.L. Sonnichsen, *Pass of the North*, W.H. Timmons, *El Paso*. O.J. Martínez, *Border Boom Town, Ciudad Juárez since 1848* (Austin, 1978).

²¹ J.V.K. Mansfield, *Mansfield on the Condition of Western Forts, 1853-1854* ed. R.W. Frazer (Norman, 1963), p. 21. Mansfield reported that the military posts of Far West Texas and New Mexico were supplied by area merchants.

²² M.D. Dowell Memoirs (MS 031), C.L. Special Collection, University of Texas-El Paso, n.p. Other regional histories that mention Dowell's holdings include C.L. Sonnichsen's, *Pass of the North*, and W.H. Timmons', *El Paso*.

²³ These establishments also sought retail and wholesale relationships. The latter shipped European and Asian merchandise in-bond through the United States via El Paso. W.R. Austerman, *Sharps Rifles*, p. 65.

in size or became more specialised. This process has been modelled by Chandler and Tedlow who explained that, as urban markets developed, retail stores tended to become more specialised, narrowing the range of wares carried: they identified four categories in which specialization first occurred – groceries, dry goods, hardware and home furnishings. The categories further broke down into specialty stores dedicated to tools, boots and shoes, carpeting, fancy dry goods, and furniture.²⁴ Specialisation did not mean the end of general trading. In fact, the general store continued to exist as small and even micro (one person) businesses, particularly in C. Juárez. As late as 1909, a commercial census of the city listed 162 mercantile establishments, many of which were family-owned micro shops.²⁵

Transportation was another important area of entrepreneurial activity. It is useful to reiterate that the Rio Grande was not a suitable alternative to wagon transport in the region. Therefore, many of the transportation activities relied on wagons. Early on the muleteers (*arrieros*) who led the caravans tended to be members of the indigenous populations, who often preferred the nomadic nature of the caravan system to structured mission life.²⁶ The opening of the overland trail between the U.S. frontier at Missouri and Santa Fe, Northern Mexico generated additional openings for entrepreneurship in transport and ancillary services such as repair and outfitting specialists. After 1848, the size and needs of government-related activities coupled with migrant flows also generated greater demand for transportation services. ‘About to start to a very remote part of the frontier to which access has been very difficult and intercourse is likely to be uncertain and rare...The arraignments for transporting supplies here seem very defective,’ reported by Major Van Horne, the first U.S. military official dispatched to establish a fort in El Paso.²⁷ Another observer, John Russell Bartlett,

²⁴ A.D. Chandler and S. Tedlow, *The coming of managerial capitalism: A casebook on the history of American economic institutions* (Homewood, 1985), p. 312. See also, A.D. Chandler, ‘The Coming of Big Business,’ pp. 269-279 and A. W. Shaw, ‘Scientific Management in Business,’ pp 279-285, in A.D. Chandler, S. Bruchey, and L. Galambos eds., *The Changing Economic Order* and A.D. Chandler, ‘The Emergence of Managerial Capitalism,’ *Business History Review* 58 (1984) 4.

²⁵ State of Chihuahua, Secretaría de Gobierno, Sección Estadística, ‘Noticia de los giros mercantiles en el año de 1909 (hereafter ‘giros mercantiles’), en Distrito Bravos (Chihuahua, 1909), n.p.

²⁶ A. von Humbolt, *Political Essay, abridged*, (Norman, 1990) p. 201.

²⁷ U.S. War Department, Records of the War Department, Office of the Adjutant General, *Selected Letters of Major Jefferson Van Horne*, C. L. Sonnichsen Special Collection, University of Texas-El Paso, letters dated 13 May 1849 and 1 October 1850.

commissioner of the U.S. delegation to the U.S.-Mexico Boundary Commission, noted that it took over a month to reach the area from east Texas.²⁸ The military's own supply convoys traversed western Texas by wagon train from San Antonio, but this proved problematic because by the time they reached post (El Paso), the supplies had been consumed not only by the teamsters, but also by the California emigrants who accompanied the convoys for security reasons. In short, government contracts were an incentive as well as important to transportation businesses between 1848 and 1881. A good example is Henry Skillman, who operated a monthly stage coach service between San Antonio and Santa Fe and was awarded a postal contract in 1851.²⁹ Other examples are another postal contract awarded to David Wasson for mail service between San Antonio and Santa Fe *via* El Paso, and the James Birch route between San Antonio to San Diego, respectively.³⁰ A government contract did not guarantee the profitability of the business, but was an important subsidy for many struggling firms. There are other examples of companies offering transportation facilities outside the government contract scheme. This means that entrepreneurial initiative as much as government regulation was important in developing the cross-border system. However, this does not mean that it was managed to a great extent by the U.S. government. In the case of entrepreneurial interests, these were secondary activities subsidised by the main business

²⁸ J.R. Bartlett, *Personal Narrative of Incidents in Texas, New Mexico, California, Sonora and Chihuahua, 1850-1898* (Chicago, 1965), pp. 125-127. Bartlett also noted that the quality of the water available was palatable although it, '...smelled strongly of sulphuretted hydrogen.'

²⁹ Skillman charged US\$ 120 to Santa Fe; US\$ 100 to San Antonio, and US\$30 between El Paso and Santa Fe. A.R. Stevens and W.M. Homes, *Historical Atlas*, p. 37, R. Strickland, *Six Who Came to El Paso: Pioneers of the 1840s* (El Paso, 1963), p. 10, W.R. Austerman, *Sharps Rifles and Spanish Mules, The San Antonio-El Paso Mail, 1851-1881* (College Station, 1985), p. 65. C.A. Milner, C.A. O'Connor and M.A. Sandweiss eds., *The Oxford History of the American West* (Oxford, 1986), pp. 195-6, L.R. Hafen, *The Overland Mail, 1848-1869* (Cleveland, 1926), p. 38. See also A.L. Stimson, *History of the Express Companies: And the Origin of American Railroads* (New York, 1958), and J. Leach, *Stage Coach Through The Pass: The Butterfield Overland Mail Comes to El Paso* (El Paso, 1958).

³⁰ B. Montgomery, 'Trans-Western Mail Come Through EP 100 Years Ago,' *El Paso Times*, 8 July 1957 and 'Many Troubles Hit Famed Early Mail Line,' *El Paso Times*, 8 July 1957, 'Pioneer Postman Brought Mail Horseback Into Apache Infested Land,' *El Paso Times*, 29 April 1956, n.p., and L.R. Hafen, *The Overland Mail, 1848-1869* (Cleveland, 1929), pp. 73-74.

activity. The larger merchant houses involved in general retailing and wholesaling mentioned above, J. Cook and A.A. Lockwood and Kettelsen and Degetau and B.F. Fickline, utilised mercantile freight trains into Mexico *via* El Paso to move their stock and may have offered facilities to other parties.³¹ Up until 1881, transport as a primary business was a precarious activity for entrepreneurs. Those transport firms that survived tended to depend on an array of clients, and most transportation services were offered by firms for which they were a subsidiary to their main line of business (retailing or wholesaling).

In 1881 more specialised transportation businesses emerged. Three levels of entrepreneurial activity can be identified: (1) international companies, (2) regional railways financed and operated by regional capitalists whose primary business may or may not have been transport, and (3) local transport services financed locally, but not necessarily provided by transport specialists. The large international transportation companies are typified by the Santa Fe Railroad and the National Railways of Mexico. These two are singled out because the Santa Fe sought to integrate Northern Mexico into its overall operation by forming the latter. Several regional railways such as the El Paso and Southwestern Railroad or the Ferrocarril de Nacozari, which provided a linkage to the mines of New Mexico and the copper fields of Arizona, were organised by regional entrepreneurs.³² The El Paso Southern Railway specialised in bridging the international frontier, thereby permitting railways like the Mexican Northwestern to add the cattle and mining interests in Northern Mexico to the economic base. Anson Mills and Mariano Samaniego, who both established a mule street car service in C. Juárez-El Paso after 1882, are examples of local cross-border transportation entrepreneurs.³³

³¹ See also FN 24. These establishments also sought retail and wholesale relationships. The latter shipped European and Asian merchandise in-bond through the United States *via* El Paso. W.R. Austerman, *Sharps Rifles*, p. 65. The Lockwood interest was bought out by George H. Giddens who used the line to supply the California emigrants. B.F. Fickline ran his line in 1870. W.R. Austerman, *Sharps Rifles*, pp. 14-15 and p. 65, and C. Babcock, 'San Antonio and El Paso Mail and Its Connections, transcription taken from Texas Almanac 1870, El Paso Public Library, Southwest Room.

³² The Ferrocarril de Nacozari was a western extension of the El Paso and Southwestern from Agua Prieta (AZ) and was built in 1901 by Phelps Dodge. H.A. Horsfall, 'Railroad Systems of Northern Mexico', *The Engineering and Mining Journal*, 3 (1909), p. 721 and F.W. Powell, *Railroads of Mexico* (Boston, 1921), pp. 163-4.

³³ There is very little about the history of the construction of international bridges in the region. There seems to a great deal of confusion in the various sources as to exact dates. Generally speaking, the U.S. government would have to give a concession to bridge the international boundary. B. Chapman, 'Fuss Over Bridge Tolls, Hours Not New; It Started When First Crossings Built,' *El Paso Times*, 16 July 1939, n.p.

Entrepreneurs and Enterprises

Figure 5.1
Mode of Transport, 1890



The mode of transport at the turn of the century (c1890) remained primarily mule drive carriages. Photo courtesy of the El Paso Public Library.

Figure 5.2
Mode of Transport, c 1910



The tracks that support the electric tramway that serviced the C. Juárez-El Paso area in 1910 may be seen in the background. This picture was taken in advance of the visit of Porfirio Díaz to C. Juárez in 1910. Photo courtesy of the El Paso Public Library.

Other examples of strictly local services include the El Paso Electric Company, the El Paso Electric Railway Company, the El Paso and Juarez Traction Company, Rio Grande Valley Traction Company and the Cía. Tranvías de Ciudad Juárez.³⁴ **Figures 5.1 and 5.2** show examples of the types of vehicles employed in the transportation activities. It is particularly relevant to point out the extraordinary change in transportation modes from **Figure 5.1** to **Figure 5.2**. These contrasting images highlight the dynamic influence of the introduction of the railways in the region.

Commercial agriculture and mining constituted the third broad area of entrepreneurial activity. However, the production of foodstuffs for the market did not become an important activity until after the 1880s. Although yielding small surpluses for trade, early ranching and agriculture were largely subsistence pursuits. Irrigation ditches (*acequias*) allowed for the cultivation of corn, wheat, rye, barley, rice, tobacco, fruits, vegetables, and grapes. The arrival of troops in the region increased the demand for these goods, and the possibility of obtaining government contracts meant a more secure market. However, shortfalls in production occurred because of the relative infertility of the land, insufficient and unreliable availability of water, and primitive technology. The small-scale agriculturalist/rancher followed the same pattern as the retailer and wholesaler, relying on more than one activity to support the enterprise. For example, Simeon Hart operated a grist mill where he produced wheat flour and corn meal, which he sold to local residents and troops.³⁵ W.W. Mills and Juan Zubirán operated a cross-border partnership to supply U.S. troops with meat. Mills independently engaged in wine production and had a two-year contract with the government to supply salt and vinegar. The vinegar was manufactured from grapes grown locally, and the salt was extracted from a natural lake 125 miles north-east of El Paso, ground and sacked at Hart's mill. Zubirán was a cattle rancher with political ties to Chihuahua.³⁶

³⁴ El Paso Electric Company, 'Annual Report,' for the 12 months ending December 31, 1922 Stone and Webster, (Boston, 1921), p. 5 and M. Wasserman, *Capitalists, Caciques and Revolution, The Native Elite and Politics of Chihuahua* (Durham, 1993), p. 62.

³⁵ Simeon Hart actually acquired the mill by virtue of his marriage to the daughter of a local Mexican gentleman. C.L. Sonnichsen, *Pass of the North*, p. 133 and 157-158, T. Bryan, 'Dr. Samaniego Was Consultant In Franklin, Tex. But Did El Paso Ever Carry Another Name?' *El Paso Times*, 27 March 1964, and H.H. Jones ed., *El Paso: A Centennial Portrait* (El Paso, 1950), p. 98. See also R. Strickland, *Six Who Came*.

³⁶ W.W. Mills, *Forty Years at El Paso, 1858 - 1898* (El Paso, 1962), p. 27.

Reduced transportation after 1881 costs facilitated the transmission of capital and new technology, leading to new methods of irrigated farming or watering for ranch lands. This allowed large-scale commercial agriculture, particularly in Sonora and Chihuahua, to flourish. By the turn of the century, it was not uncommon to see corporate ranches as well as large partnerships with foreign partners dominating the productive landscape and operating on both sides of the border. The emergence of larger, more complex enterprises is exemplified by The Corralitos Company (cattle), situated in the northern part of Chihuahua, about 188 kilometres from C. Juárez. Its holdings extended over 850,000 acres and included the Rio Grande, Sierra Madre and Pacific Railroads. As this interest grew, so did the need for support industries and services. For example, the vast number of cattle exported from Northern Mexico into the U.S. through C. Juárez-El Paso were for breeding and slaughter. The cattle industry led to the growth of the packing house industry in El Paso, and national companies such as Swift, Armour and Morris established branches in the city.³⁷ The Terrazas-Creel cattle interests in Chihuahua included a tract of land that stretched from the outskirts of Chihuahua to just south of C. Juárez.³⁸ Many agricultural interests were also involved in mining. For instance, on the Corralitos ranch, lead, copper, gold and silver mines were leased to the Candelaria Mining Company.³⁹ Interests specialising in mining also existed, such as the smelter established by Robert S. Towne in El Paso in 1885, which operated for a number of years before being absorbed by American Smelting and Refining Company (ASARCO).⁴⁰ Another mining interest, the El Paso Tin Mining and Smelting Company, was incorporated in 1909 and received ores from Chihuahua, Coahuila, New

³⁷ M.T. García, *Desert Immigrants, The Mexicans of El Paso, 1880-1920* (New Haven, 1891), p. 24.

³⁸ M. Wasserman, *Capitalists*, p. 48.

³⁹ Thomas Wentworth Pierce Papers - The Corralitos Company, Nettie Lee Bentson Collection, University of Texas, Austin, n.p.

⁴⁰ A. Leibson, *El Paso Times*, 4 March 1949; A. Carroll, 'Chris Fox Comments on the El Paso Smelter's Beginnings, Growth, History, Perspective,' *El Paso Herald Post*, 11 April 1972. See also M. Bernstein, *The Mexican Mining Industry, 1980-1950, A Study of the Interaction of Politics, Economics and Technology* New York (1964) and I.F. Marcosson, *Metal Magic, The Story of American Smelting and Refining Company* (New York 1949), 'Smelter Has Big Payroll: A.S.&R. Plant here is one of the Largest in the United States,' *El Paso Times*, 22 August 1930, N. Hammonds, *History of El Paso County to 1900*, unpublished Masters Thesis, College of Mines and Metallurgy, 1942, p. 118.

Mexico, Arizona and Durango.⁴¹ Finally, statistics in the 1909 industrial census of C. Juárez showed that the city possessed 40 industrial sites, most of which were locally owned and operated.⁴²

Entertainment and tourism also figured as an area of entrepreneurial activity. The operation of a tavern or saloon along with another business such as retailing, for example, was common. Earlier, the mention of Ben Dowell illustrates this point; he operated a saloon in a structure that also functioned as a postal office. Prior to 1876, travelers to the frontier had been attracted in part by alcohol, gambling and prostitution, activities which were always closely related. Vice-related trade fostered economic activity and contributed to the economy of the region. In the case of El Paso, these activities were semi-tolerated. The city saw fines on gambling and prostitution as a means of generating municipal revenues and instituted a system of US\$ 10 'licensing fees' on roulette, faro, poker, keno and craps tables. Similarly, prostitution was tolerated (although not necessarily legalised) and fines levied against prostitutes were US\$ 1.00, plus court costs of US\$ 3.50.⁴³ Frost's detailed work on prostitution in El Paso is an excellent study of the role of vice in frontier communities of the U.S. West. The entire prostitution economy had an elaborate set of rules and guidelines to ensure that the enterprise remained profitable to its owners and served as a source of revenues for frontier towns that had yet to develop more legitimate economic activities from which to raise revenues.⁴⁴ Subsequently, the increase in formal market activities allowed the city to institute more conventional means of taxation apart from the 'sin taxes.' This does not mean that entertainment ceased to be important. Entertainment continued to form an integral part of the cross-border economy. For example, in 1909 a concession was given to businessmen

⁴¹ 'Smelter Has Big Payroll,' *El Paso Times*, 22 August 1930.

⁴² State of Chihuahua, Secretaría de Gobierno, Sección Estadística, 'Noticia de los giros industriales que existen en el año 1909 en Distrito Bravos (Chihuahua, 1909), n.p. (hereafter giros industriales)

⁴³ H.G. Frost, *Gentlemen's Club: The Story of Prostitution in El Paso* (El Paso, 2nd edition, 1987), p. 18. The existence of red-light districts was not uncommon in many American cities during the period and in fact up to the 1920s. Apart from the revenue generating potential, segregation of these activities allowed for better control. See H.B. Woolsten, *Prostitutes in the United States* (New York, 1921), pp. 103-105.

⁴⁴ See G. Frost, *Gentlemen's Club*.

for the establishment of a hippodrome and club in C. Juárez.⁴⁵ The opportunities for new business initiatives were substantially increased by the introduction of Prohibition in the U.S. after 1919. This encouraged tourism and entertainment, particularly in C. Juárez, which benefited from further capital investments by American distilleries such as D & H, D & W, and D & M of Kentucky.⁴⁶ The entertainment industry was a natural complement to liquor sales, and entrepreneurs did not hesitate to create entertainment-related establishments in the city. In 1920, the Foreign Club S.A. was incorporated with capital from five El Pasoans for the purposes of, 'fostering social relations and harmony of the residents of the border cities.'⁴⁷ Similarly, a 12,000 seat sports coliseum, formed by a group of three entrepreneurs, staged prize fights and wrestling.⁴⁸

Very much in line with the concept of a base built around certain pursuits, the C. Juárez-El Paso market evolved around three core activities – retailing and wholesaling, transportation and primary production. However, the transformation of the transportation infrastructure allowed for a wider range of business opportunities, which were also encouraged by political stability and freedom of movement across the international boundary. Entrepreneurs and enterprises can be seen to adjust their activities to either specialise or increase in scale and scope with the growth and development of the cross-border market. Better articulation with other markets in the form of improved transportation linkages and broader business organisational structures helped eliminate the uncertainty associated with economic and geographic isolation.

⁴⁵ *Periódico Oficial del Estado de Chihuahua*, vol. 29, no. 4. Acta de la sesión ordinario del día 14 de Diciembre de 1907 del Ayuntamiento de C. Juárez, p. 237, State of Chihuahua, gobierno del Estado, *Archivo Histórico del Notariado Público* (hereafter *AHNP*), Record Book of Felix Leija, No. 792 (1909), R. Estrada M., 'Border Revolution, the Mexican Revolution in the Ciudad Juárez-El Paso Areas, 1906-1915,' unpublished Masters thesis, University of Texas - El Paso, 1975, p. 16. The Terrazas-Cuilty family as well as Hearst and Associates developed the Jockey Club, racetrack, restaurant and bar in C. Juárez in 1909.

⁴⁶ E. L. Langston, 'The Impact of Prohibition on the Mexican-U.S. Border, The Case of El Paso: Ciudad Juárez,' unpublished PhD dissertation, Texas Tech University, 1974, pp. 57-62.

⁴⁷ *AHNP*, No. 7 (1920).

⁴⁸ Opening day drew 8,000 fisticuffs aficionados to see Jack Dempsey fight. E.L. Langston, *Impact of Prohibition*, pp. 92-94 and O.J. Martínez, *Border Boom Town*, pp. 57-60.

II

This section will analyse how entrepreneurs responded to the market opportunities highlighted above. As explained in the introduction to this chapter, changes in the external conditions often precipitated changes in the internal organizational structure of the firm. Additionally, these changes manifested themselves in three types of business structures: the sole proprietorship, the partnership and the corporation. This listing should not be construed to imply a linear transition from one structure to the next. As the discussion will show, the primary activity, in many instances, dictated the organizational structure of the firm. Concomitantly, access to credit played a vital role in the longevity of the firm, and influenced the ability of small firms (sole proprietorships and partnerships) to grow into large corporations. Growth was also accomplished through horizontal and vertical acquisitions. The increasing specialisation and integration of the cross-border market with other regions fostered the growth in scale and scope of firms. The changing face of entrepreneurial activity did not, however, mean that certain opportunities no longer existed or that the micro business did not persist. In fact, the small, family-owned general store persisted throughout the period.

Initially, because of the small size and hierarchical nature of the primary market activity (wholesaling/retailing), the sole proprietorship was the most common organisational structure. Examples of local entrepreneurs include Benjamin Franklin Coonz, James Wiley Magoffin, Simeon Hart, Ben Dowell, Henry Skillman and Mariano Samaniego. For the purposes of this discussion on early (post Mexico-U.S. War) sole proprietorship, it is useful to single out two case studies: Coonz and Magoffin, already mentioned in the previous section. Coonz, a former Santa Fe trader, settled in the area in 1849 after having purchased a tract of land on the northern bank of the river upon which he built a trading post and tavern.⁴⁹ When Major Van Horne arrived in 1849 with the first troops for the 'Post Opposite El Paso,' Coonz made additional improvements to his holdings including extra buildings and corrals. These proved useful in securing a contract to house the Quartermaster of the U.S. Army for two years (1849-1851). He leased the main building of his property and six acres of land to the government for US\$ 2,000 per year. The contract included the provisioning

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U. S. Senate, Thirty-first Congress, First Session, Senate Executive Document No. 64, *Reports of Reconnaissances, pt. 1, Routes from San Antonio to El Paso, Report of S.G. French*, 21 December 1849, p. 49. War Department, *Van Horne*, letter dated 13 May 1849, and J.J. Bowen, *The Ponce de Leon Land Grant* (El Paso, 1969), pp. 3-5. See also R. Strickland, *Six Who Came*.

of supplies, which Coonz obtained through his trade contacts in Santa Fe and Missouri. Apart from his government contract, Coonz offered transportation services across the Rio Grande, transporting foot passengers *via* small canoes; wagon trains and other vehicles crossed in larger boats.⁵⁰ Magoffin, another former Santa Fe trader, established an hacienda not far from Coonz, known as Magoffinsville, which included a store with warehouses around an open square, and its own *acequia* for irrigation. He conducted a commission business from which travelers could replenish worn-out stock by purchasing mules. Commodities for his business were procured from Missouri and the Texas Gulf ports. Magoffin benefited from government contracts, serving as headquarters to the U.S. delegation to the U.S.-Mexico Boundary Commission during their stay in the region.⁵¹ In 1854, the U.S. War Department relocated the 'Post Opposite El Paso' to Magoffinsville where it remained until 1875.⁵²

Because of growing market demand and better supply networks after 1881, the sole proprietorship in some instances became a more specialised business, including activities in the other sectors of the regional economy. For example, of the 40 'industrial' sites in C. Juárez in 1909, mentioned above, 39 were listed as sole proprietorships.⁵³ They produced

⁵⁰ The land and buildings leased by Coonz originally belonged to Juan María Ponce de León. In 1853 The U.S. War Department closed the post as part of re-structuring of its defenses in the West, removing it 40 miles further north to Fort Fillmore, New Mexico. J.J. Bowen, *Ponce de León Land*, pp. 3-5, 'Ft. Bliss Museum Shows first 100 years of History' *El Paso Times*, 30 January 1976, and 'Bits o' Bliss', *Our Army*, 4 (1932) 9, n.p., *Centennial Portrait*, ed. H.H. Jones, p. 98. See also L.C. Metz, *Desert Army, Fort Bliss on the Texas Border* (El Paso, 1988) and *U.S.-Mexico Line* (El Paso, 1989), R. Strickland, *Six Who Came*, W.H. Timmons, *El Paso*.

⁵¹ J.R. Bartlett, *Personal Narrative*, p. 187, and El Paso County Deed Records, Record Book A (hereafter EPCDR followed by book letter) p. 201.; and R. Strickland, *Six Who Came*, p. 14. The treaty that ended the U.S.-Mexico War provided for the creation of a commission to delimit the land boundary between the two countries given that the Rio Grande served as the physical boundary from C. Juárez-El Paso to the Gulf of Mexico.

⁵² After an assessment of the military preparedness of the Western forts the post was re-instated. L.C. Metz, *Desert Army*, pp. 37-38. By 8 March 1854, its official name was changed to Fort Bliss. The fort is named for a fallen Mexican War hero. See War Department Order dated 8 March 1854. Also, Memorandum to Marshall Hail of *El Paso Herald Post* from M.G. McKinney dated 24 January 1966. El Paso Public Library, Southwest Room. 'Pioneers Get Early History About El Paso' *El Paso Herald*, 16 February 1923, and B. Graves, 'Old Fort Bliss' *Western American*, 31 October 1931, n.p.

⁵³ 'giros industriales' (1909), n.p.

items such as clothing, shoes, bread, wheat flour, bottled water, mattresses and pasta.⁵⁴ Additionally, success in one endeavour permitted networking with other sole proprietors and led to the emergence of large-scale partnerships and corporations, discussed below. A salient example is Mariano Samaniego who, apart from being politically active in C. Juárez, owned several ranches in the area. He translated his political clout into a concession from the Chihuahua state legislature to construct a mule drawn tramway. The project expanded into several additional lines through the formation of partnerships, and was finally absorbed by the El Paso and Juarez Traction Company.⁵⁵ Despite the growing number of opportunities for consolidation and growth, the small-scale general store did not disappear from the landscape.⁵⁶ On the contrary, it flourished, perhaps functioning as an entry level position into the business sector for those wishing to move out of subsistence farming or away from wage labour. This explains the persistence of small and very specialised sole proprietorships, particularly as shown in the industrial census of C. Juárez.

Based on the above examples it is possible to identify the characteristics of the sole proprietorship. First, early on the sole proprietorship was small and ephemeral in nature. The scope of activities undertaken by the enterprise was varied in order to mitigate risk. These tended to be centred around trade and transportation activities in a general store setting. Additionally, the government contract was important as long as it lasted. When the contract was moved to another supplier, the sole proprietorship was faced with a void which quite possibly could not have been filled by the remaining activities. As time progressed, the growing cross-border economy allowed some of these enterprises to expand. Some sole proprietorships grew in scale, others became more specialised, or diversified, creating independent enterprises. Regardless of the scale or scope, the individual was the focal point of all aspects of the enterprise.

The partnership was a natural outcome of the growing market. It took various forms:

(a) family-based and/or informal; and (b) formal. Kinship networks, based not only on the

⁵⁴ *Ibid.*

⁵⁵ R. León G., 'Mariano Samaniego: Medio Siglo de Vida Fronteriza,' in C. Caramausell and S. Alvarez eds., *Chihuahua: Las Epocas y Los Hombres* (Chihuahua, n.d.), pp. 34 - 35

⁵⁶ 'giros mercantiles' (1909), n.p.

extended family, but also on cultural ties, were an important way of mitigating risk and raising capital, particularly in an environment where market opportunities were ephemeral.⁵⁷ The Schwartz Family provides a good local example. Adolf Schwartz migrated to Northern Mexico from Germany in the 1870s. He began his career as a news reader on the National Railways of Mexico (then known as the Mexican Central) railroad between Chihuahua and C. Juárez. He later formed a partnership with Simon Picard, another immigrant from the same region as Schwartz, creating a business known as the Tres B (Buena, Bonita and Barata). The store eventually evolved into the Popular Dry Goods, which served as a major general merchandising store in both El Paso and C. Juárez.⁵⁸ Informal partnerships between sole proprietors were also formed outside the kinship network. Two examples are Henry Skillman and James Magoffin, and W.W. Mills and Juan Zubirán. As mentioned above, Skillman was awarded a postal contract in 1851 by the U.S. government. However, when he could no longer manage his transportation business because of the costs, he was forced to sell his equipment to Magoffin who in turn leased back the equipment thereby allowing Skillman to carry on.⁵⁹ Another example is the case of W.W. Mills and Juan Zubirán, who together supplied U.S. troops with meat. This example is particularly relevant because of the cross-border linkage formed by their joint activity. The point here is that the early partnership relied on kinship and informal networks as a means of meeting demand and underwriting retailing activities. In these cases, the various activities could be managed by more than one person, thereby spreading overall risk between the partners.

The formal partnership functioned along much the same lines as the family-based or informal version. The partnership was comparatively easy to create, supplement and terminate according to the needs and changing circumstances; ownership and management were unified to ensure interest in building up a steady business. Flexibility was also a basic

⁵⁷ S.E. John, 'Arabic-Speaking Immigration to the El Paso Area, 1900-1915,' *Password*, 38 (1993) 4, p. 160.

⁵⁸ F. S. Fierman, *The Schwartz Family of El Paso: The Story of a Pioneer Jewish Family in the Southwest* (El Paso, 1980), pp. 5-27.

⁵⁹ EPDCR, C (c1852), p. 31. This deed record book shows the actual transaction between Skillman and Magoffin in which it stipulates that Skillman be allowed to continue to carry the mail although the mules and other equipment were owned by Magoffin. The implications for financial relationships is further elaborated upon in Chapter 7.

ingredient to a successful partnership. This did not preclude independent operations (or general business as they were termed). Importing or exporting on a house's own account could be far more lucrative, but because it presented greater risks and required large amounts of capital it was not the preferred form of business.⁶⁰ Some examples of formal partnerships include the merchant houses mentioned earlier that had maintained a presence at opposite ends of the Santa Fe Trail such as J. Cook and A. Lockwood of Santa Fe or Kettelsen and Degetau of Chihuahua.⁶¹ The case of Kettelsen and Degetau, who dealt in American goods and agricultural implements, firearms and cartridges is particularly relevant because of the cross-border character of the enterprise. As it grew in scale once the railways were completed, Kettelsen and Degetau opened offices in both C. Juárez and El Paso.⁶² Another example is the large partnership of the Krakaur Zork Moye, originally based in Chihuahua, which specialised in hardware merchandising. Here again, the company opened branch offices and ventured into other activities such as transportation, finance and mineral production. They too had offices on both sides of the frontier.

Therefore, as with the sole proprietorship, the characteristics of the partnership were the flexibility of the organisational structure. The important factor was that risk was shared. The kinship network was particularly instrumental in moving the earlier sole proprietorship towards a more complex organizational form, particularly as specialisation came to play a more important role in the market. Some firms that offered general merchandising and transportation services, for example, grew in scale in merchandising activities and formed separate enterprises to handle transportation activities. In this sense, firms ceased to rely on a variety of activities under one roof in order to survive. This growth pattern led to the formation of corporations.

According to Chandler, one of the basic challenges facing enterprises was how to fashion the organisational structures essential for the efficient administration of newly won

⁶⁰ H.J. Heath, 'British Merchant Houses in Mexico, 1821-1860: Confronting Business Practices and Ethics, *Hispanic American Historical Review* 73 (1994) 2, p. 268.

⁶¹ The latter shipped European and Asian merchandise in-bond through the United States *via* El Paso. W.R. Austerman, *Sharps Rifles*, p. 65.

⁶² See R. León G., 'Comerciantes extranjeros en Chihuahua. La Casa Kettelsen y Degatau' *Chamizal*, 5 (June 1991)10. The first store was established in the latter; it moved to C. Juárez after the Mexican government extended the *Zona Libre* the entire length of its northern border.

business empires.⁶³ Chandler explains that in the case of the U.S., by the beginning of the twentieth century, many industrial sectors came to be dominated by a few great enterprises. For example, manufacturing companies not only sold the goods they produced, but also marketed them directly to retailers or even to the ultimate consumer. Other firms purchased, or even produced, the primary inputs necessary for the final product, thereby bringing all or many of the aspects of the production process under one vertical umbrella. Two strategies were utilised in this process: (1) a single company expanded in the same line of business and integrated several stages in the process of production and marketing within the same enterprise; and (2), a number of companies joined together in a horizontal combination a trade association, pool, trust, or holding company consolidating their manufacturing activities and then quickly integrating forward into marketing or backward into purchasing.⁶⁴ In the case of merchandising companies, a number began to carry both retail and wholesale functions and to buy directly from the manufacturer, and even to control manufacturing plants.

Cross-border corporations emerged from various sources: (1) the large partnerships (such as Krakaur Zork Moye or Kettelsen and Degetau); (2) regional interests with specialised goals; and (3) extra-regional interests entering the cross-border area such as ASARCO, the Corralitos Land and Cattle Company, and the railways mentioned earlier. An example of a large partnership that grew into a regional corporation is Krakaur Zork Moye, mentioned above. This enterprise affords a unique look at cross-border commercial interests and how some businesses extended their network of holdings into associated industries, thereby controlling the market(s) for specific lines of products.⁶⁵ Krakaur Zork Moye Company was originally organised as an affiliate of Krakaur Zork and Moye Company of Chihuahua at the end of 1889 with a capital stock of US\$ 120,000.⁶⁶ As time progressed, the

⁶³ A. Chandler, *Strategy and Structure: chapters in the history of the industrial enterprise* (Cambridge, 1962), p. 25.

⁶⁴ *Ibid.* See also A.D. Chandler and S. Tedlow, *Managerial Capitalism*.

⁶⁵ A.D. Chandler and S. Tedlow, *Managerial Capitalism*, pp. 327 -328.

⁶⁶ The incorporation information shows that Adolph Krakaur, Gustav Zork and Edward Moye organised in 1886; they formed the mercantile business 31 December 1889. Very little is written about the Zork company. They continue to function and have a corporate headquarters in San Antonio, Texas. *Zork Company Collection, 1827-1967*, C.L. Sonnichsen Special Collection,

partnership associated with Enrique and Juan A. Creel, and E.C. Guilty of Chihuahua to form the Compañía de Ferrocarril Minera de Chihuahua in 1898 with the objective of taking advantage of a new railway that would splinter-off from the National of Mexico. Krakaur Zork and Moye also owned shares in the Compañía Eléctrica de C. Chihuahua and held at least 14 properties in that city. They owned stock in various mining-related concerns including La Purissima, La Aurora and Socorro mining companies and the Mexican Dynamite Company. Finally, they held shares in financial institutions such as the Banco Central de México, the Banco Minero, the Banco Baja Ahorros, plus the First National of El Paso and the El Paso Guarantee Trust Company.

The ownership of stock in a railway linked to mining interests and in the dynamite company meant that the store could provide hardware and blasting material for the extractive pursuits, while their banking interests ensured access to credit for capital-intensive undertakings.⁶⁷ The Krakaur Zork Moye Company became a vertically integrated enterprise with a consolidated network of related backward and forward activities including a network of cross-border financing and supply companies. In this way, the specialised corporation evolved as entrepreneurs anticipated or responded to the opportunities that emerged from changes in regional economic environment. Furthermore, their innovations reinforced the cross-border ethos, rather than discouraged it.⁶⁸

University of Texas - El Paso, MS 122, File 2, pp. 33-34. The Greater El Paso Chamber of Commerce (GEPCC), *Greater El Paso: The Power House of the Southwest*, 1 (1919) 1, p. 16. The *Archivo del Ayuntamiento de Paso del Norte, Microfilm Series 495* (ACJ) C.L. Sonnichsen Special Collection, University of Texas - El Paso, contains an invoice from Kettelsen & Degetau for miscellaneous items dated El Paso, Texas, 1883. *ACJ*, r. 57, ff. 118-119 (1883).

⁶⁷ Zork Collection, *Ibid.*

⁶⁸ In the *AHNP*, the *Notario Público* (public notary) took the formal declarations of all parties involved in the formation of businesses, the sale of properties, or the concession of powers of attorney, and any other legally binding transaction. The books could then be used to resolve disputes as they arose. Obviously the state and local governments earned revenues from fees for official stamps and certifications by the notary.

Another salient example of market anticipation arose from the U.S. and Mexico negotiations to resolve the problem of water availability along the Rio Grande. In anticipation of a successful conclusion to these discussions, entrepreneurs soon began to form interests designed to take advantage of the fact that more land would be available for farming and ranching pursuits. For example, in 1909, the Garden City Development Company of Ciudad Juárez was formed by cross-border interests to buy and sell lands and to establish hydraulic plants and construct aqueducts for agricultural purposes; all of the founders were from the El Paso area.⁶⁹ Other examples include: The Juárez Land Co., S.A., incorporated in C. Juárez by James P. and George C. Dawson of C. Juárez and William H. Williamson of El Paso with US\$ 25,000 in capital for land development purposes; and The Senecu Realty Co., incorporated in 1913 with US\$ 5,000 in capital; all of whose stockholders were from El Paso, sharing the aim of designing and installing water works.⁷⁰

The appearance of extra-regional corporate enterprises was directly related to large-scale extractive and commercial agricultural interests, exemplified by the cases of The Consolidated Kansas City Smelting and Refining Company founded by Robert S. Towne, the Corralitos Land Company and the El Paso Electric Company. Towne established the first smelter in El Paso in 1885 as a private individual, although he was employed by the Consolidated Kansas City Smelting and Refining Company at the time.⁷¹ The smelter's main function was to treat ores from northern Mexico, as well as from Arizona and New Mexico. The interest operated 13 years before being acquired by ASARCO in 1901, a conglomeration of 16 smelters and 18 refineries.⁷² The Corralitos Company was a complex set of business relationships that included the Corralitos (of Colorado and New York) and the Candelaria Mining Company (of New York). Since Mexican law prohibited the Candelaria from holding title to the property, the San Pedro Company was formed to hold title to the

⁶⁹ *AHNP*, No. 792, 1909. See also R. León, R. León G. 'Kettelsen y Degatau' and *Mariano Samaniego*.

⁷⁰ *AHNP*, No. 796 (1909) and No. 1285 (1913).

⁷¹ A. Leibson, *El Paso Times*, 4 March 1949; A. Carroll, 'Chris Fox Comments.' See also M. Bernstein, *Mexican Mining* and I.F. Marcossen, *Metal Magic*.

⁷² 'Smelter Has Big Payroll,' *El Paso Times*, 22 August 1930, N. Hammonds, *History of El Paso County*, p. 118. A. Carroll, 'Chris Fox Comments.' See also M. Bernstein, *Mexican Mining* and I.F. Marcossen, *Metal Magic*.

Figure 5.3
The El Paso Electric Company Electric Grid, 1923.⁷⁷



⁷⁷ This diagram of the El Paso Electric Company grid was taken from the 'Annual Report' for 1920.

properties of the Candelaria Mining Company and the Ramos Company was formed for the purposes of holding title to the Corralitos Company.⁷⁴

The case of the El Paso Electric Company is particularly relevant to this discussion on the origins of cross-border corporations. Here, the merging of specialised transportation companies, sometimes belonging to individuals, led to the formation of a corporate entity with a cross-border service area. Furthermore, the diversity of commercial uses of electricity facilitated the process of horizontal integration of companies in the cross-border market. In 1883, the C. Juárez-El Paso region had no electric power service. Both communities relied on kerosene lamps as the primary source of lighting, and the use of electricity was purely on an experimental basis. By 1886, a small electric plant was erected, employing two small engines that supplied electricity for a few street lamps and internal lighting for a few local shops. In 1901, Stone & Webster (engineering firm) of Boston assumed management of the lighting plant and mule cars, bringing with them the first electric car to operate in El Paso in 1902. The increasing usage of electric energy led to the transformation of the mule car lines (depicted in **Figure 5.1**) into electric traction companies such as the El Paso Electric Railway Company, the El Paso and Juarez Traction Company, Rio Grande Valley Traction Company and the Cía. Tranvías de Ciudad Juárez, referred to above (see **Figure 5.2**). All of these entities were either absorbed or created by the El Paso Electric Company.⁷⁵ Concomitant with, but not solely attributable to the proliferation of traction lines, was an increase in the capacity of the power plant in 1902, which had grown to 500 kilowatts, and by 1923 the plant was capable of 18,000 kilowatts.⁷⁶ As early as 1902, the company's transportation services carried some 2,154,035 passengers and travelled 310,552 car miles. By the early 1920s, the traction line operations were 10 times those recorded in 1910, transporting 19,645,626 passengers.⁷⁷

Figure 5.3 is a reproduction of a map showing the El Paso Electric Company's

⁷⁴ Thomas Wentworth Pierce Papers, n.p.

⁷⁵ Unfortunately, the reports did not specify the dates at which the individual companies formally became part of the electric company. EPEC, 'Annual Report,' 1922, p. 5.

⁷⁶ EPEC, 'Annual Report,' 1923, pp. 4-5.

⁷⁷ *Ibid.*

service area in 1920. The service network is represented by a thick black line, and the international boundary is also shown, as are the civil delimitations of both C. Juárez and El Paso. Interestingly, at this time, the Rio Grande does not always represent the international boundary. It was noted in the Introduction that the actual boundary was not fixed until the 1960s. Here the meanderings of the Rio Grande are clearly seen, and a small portion of Mexico is shown to be north of the international boundary. The power generation station was located in the centre of the conurbation, and it is clear that the Electric Company's lines ran into Mexico as far as the Juarez Race Track, a company referred to above within the context of entertainment-related activities. The electricity grid consisted not only of lighting but also of energy for the traction lines. Note that many of the lines, electric or traction, did not extend into the residential districts clearly shown on the map. The important point here is the clear existence of a cross-border service.

The extraordinary increase in the number of passengers that travelled over the traction lines between 1902 (2.1 million) and in 1923 (19.6 million) generated a great deal of business for the company. In fact, in the annual Report for 1920, over 50 percent of the company's operating revenue was obtained from the traction companies and the bridges they utilised, bearing in mind that the only bridges were international in nature.⁷⁸ How did this contribute to the formation of a cross-border transportation network and enterprise? The total population of the C. Juárez-El Paso urban area in 1902 was just over 24,000.⁷⁹ Assuming that much of the traffic was local, each passenger would have had to have utilised the lines at least 100 times each year in order to reach the two- million plus figure. By the early 1920s the cross-border population was 102,000, equivalent to 19 journeys per individual. Although this represented a decline in the number of *per capita* journeys, possibly due to the disruptions caused by the Mexican Revolution, the ten-fold increase in usage in the electric traction systems clearly underscores the continued movement of people across the boundary. Since it has been argued that the urban area constituted an economic whole, then it is logical to assume that the movement of individuals involved cross-border traffic, not including the railways.

⁷⁸ EPEC, 'Annual Report,' 1920, p. 6.

⁷⁹ The actual population statistics are given in Chapters 4 and 6.

The characteristics of the corporations may be said to be related to the increasing economies of scale required by regional development and contact with other markets. They emerged from a number of sources including partnerships, new ventures formed in order to exploit a specific opportunity, or resulted from the process of rationalisation in industrial sectors such as mining or the railways. The cases of Krakaur Zork Moya, ASARCO, Corralitos, and the El Paso Electric Company, mentioned above, clearly conform to Chandler's model of industrial empire building in the U.S. from the 1890s onward. Vertical and/or horizontal integration served to help the growing enterprise deal with the need to administer far-flung activities. Therefore, in many respects these entrepreneurs and enterprises were not unique. Notwithstanding, there was uniqueness in that the entrepreneurs and enterprises of the region reacted to market conditions in a cross-border setting. The existence of a cross-border client base meant that firms created organisational arrangements that transcended the frontier. This was true regardless of the size and structure of the firm.

This section has identified several organizational structures of the firm—the sole proprietorship, partnership and corporation—all of which possessed certain characteristics. Three trends in the structure of businesses may be identified. First, some of those businesses whose core activities were tied to the main activities identified in the previous section, seemed to have increased in scope and scale throughout the period, becoming vertically and horizontally integrated cross-border enterprises. Second, it is clear from the analysis that although there may have been a tendency toward growth, there was also a tendency toward specialisation, with corporations forming on a more speculative basis. Finally, the sole proprietorship survived throughout the period.

III

The purpose of this section is to provide a general overview of the obstacles encountered by entrepreneurs. These are not unique to the cross-border region. All entrepreneurs face some form of obstacle (or obstacles) that must be overcome in order to ensure profitability. Notwithstanding, the cross-border nature of the market made some issues more prominent than would otherwise have been important for a firm without cross-border client or production bases. Of particular importance to this discussion are tariff policies and political instability.

Chandler and Tedlow offered a model on the evolution of the firm in order to explain the way in which economies of scale were a form of problem-solving for the nineteenth century entrepreneur. The work of Casson on entrepreneurs and the logic behind their decisions offers a more detailed look at problem-solving at a micro level. This work is especially relevant to the retailing and wholesaling activities in the case of the cross-border market. However, the arguments made in support of these activities may also be extended to the overall practice of consolidating freight in the form of minerals and livestock, two other activities key to the regional economy. According to Casson, the obstacles normally encountered in retailing and wholesaling activities derive from the lack of information about the wants and needs of buyers and sellers, price setting, transportation and customer satisfaction.⁸⁰ In order to overcome these obstacles, the entrepreneur is forced to undertake either what Casson terms 'market-making' activities or internalisation.⁸¹ Market-making strategies are designed to reduce the costs arising from the obstacles in a given market as well as to overcome several obstacles at once, rather than just one in particular.⁸² In the case of retailing and wholesaling, bulk trading constitutes an important market-making activity that makes contact-making a fixed cost independent of the size and value of transaction cost. Closely associated with information gathering is reputation in order to make contacts. According to Casson, this intangible asset is an important factor influencing the ability of a trader to trade. Only a good reputation reduces transaction costs; a bad one increases them.⁸³ The disadvantage of bulk trade, from Casson's point of view, is that it makes sense only if there is a major geographical concentration of demand at one point and a major geographical concentration of supply at another. The conditions for making bulk trading efficient are that the goods being shipped must be durable so that bulk consignments can be accumulated at the point of supply, transported to the point of demand and then gradually distributed and used. In short, in order for bulk trading to be efficient, those demanding goods and suppliers

⁸⁰ M. Casson, *The Entrepreneur*, p. 164.

⁸¹ M. Casson, *Ibid*, p. 164 and 'Entrepreneurship and business culture,' p. 38.

⁸² M. Casson, *The Entrepreneur*, p. 175.

⁸³ M. Casson, *The Entrepreneur*, p. 175. See also A. Chandler, *Strategy and Structure* and A.D. Chandler and Tedlow, *Managerial Capitalism*.

must be located in separate places, and investments in substantial storage facilities must be made.⁸⁴ Internalization as a means of problem-solving involves the entrepreneur incorporating several of the functions otherwise performed by other entrepreneurs in the vertical chain of supply and demand. This, for example, entails the entrepreneur buying a good for himself or selling a good to himself. The advantages in internalizing part of the activities required to take the trade activity to its conclusion are that there is no problem in making contact, there is no need for negotiating prices nor is there a need to transport the goods to a third party in order to effect an exchange. The down side is that it narrows the benefit of specialization.⁸⁵

In the case of retail and wholesale activities in the C. Juárez-El Paso cross-border area, these were particularly well suited to the traditional import-export business in places where trade was meagre, capital requirements limited and the environment hostile.⁸⁶ Outside of the major metropolitan areas, most entrepreneurs found themselves dealing in small, isolated local markets rather than in a market with strong linkages to the regional and national economies. They faced many obstacles as a consequence of operating in a volatile and isolated environment including distance, hazardous roads, tariffs and the need for a far-reaching network of suppliers, correspondents and agents across the country. The sole proprietorship and partnership as early forms of operation were utilised to accommodate these conditions.⁸⁷

Prior to 1881, the inadequacy of transportation infrastructure and financing were perhaps the most significant obstacles to the smooth functioning of any business based on trade. The case of James Magoffin mentioned above, serves as an example to emphasise the inadequacy of trade and communication linkages. In order to obtain the necessary goods for his commission business, he first had to place an order with a St. Louis sales representative of New York suppliers. The shipment of goods was to be delivered at El Paso in May 1851;

⁸⁴ M. Casson, *Ibid*, p. 175.

⁸⁵ M. Casson, 'Entrepreneurship and business culture,' p. 38 and, *The Entrepreneur*, pp. 174-176.

⁸⁶ H.J. Heath, 'British Merchant Houses,' p. 266.

⁸⁷ In his study of Puebla, G.P.C. Thompson explains that the size of a firm was often determined by access to financing. See G.P.C. Thompson, *Puebla*, pp. 314-318.

it arrived in September, mainly because of the circuitous route it followed. The goods were loaded onto a ship along the Atlantic coast that proceeded with the three-month journey to the port of Indianola in the Gulf of Mexico where the packages were transferred onto wagon trains destined for El Paso *via* San Antonio. As was already noted, the journey from San Antonio took at least 36 days. It is no wonder then, that upon arrival, Magoffin found a significant portion of the cargo spoilt and damaged beyond use. He claimed that the final value of goods received, in some instance had to be reduced by 25 percent, which he promptly deducted from his invoice.⁸⁸ In the case of financial obstacles, the case of Magoffin and Skillman mentioned above as an informal partnership also serves as an example of problem-solving given the obstacle of scarce credit and unstable transportation linkages. They utilised a lease contract in order to ensure that Skillman could remain in business as a supplier of transport services.

The subject of internalisation warrants a few more words of discussion. In the above section on the formation of partnerships and corporations, a complex web of interests emerged in the cross-border region, most of them focussing on three main activities retailing and wholesaling, commercial mining and agriculture and transportation. Several of them demonstrated a degree of vertical and horizontal integration. The most significant of these examples was Krakaur Zork and Moyer. Given the above model developed by Casson, the growing diversity of this particular business can now be understood as a means of overcoming the obstacles presented by the business environment. The means by which cross-border companies sought to organise their internal operations, in the sense of Chandler and Tedlow, are the very same means by which they overcame the obstacles they encountered, according to Casson. Business did not come to a stand still, rather it marched on in the form of a more complex network of interlocking relationships. The distinguishing feature is that, in this case, these interlocking relationships transcended an international border.

Interestingly enough, in Casson's analysis of obstacles and their solutions, the impact of the political policies of both nation-states with respect to internal and external tariff policies is bundled with transportation and administration concerns. Here is where Casson's work is less applicable, because it clearly examines the functioning of entrepreneurs within

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EPCDR, Records Book A (1850), p. 201.

the nation-state and not in a cross-border setting. Obviously for the cross-border entrepreneur these types of policies played a role in regional commercial activity. It is important to mention the fact that the internal tariff system in Mexico and the protectionist tendencies of both countries hindered international trade-related activities.⁸⁹ The result of these often conflicting national policies was price differentials. Frontier enterprises responded in a variety of ways including migrating across the frontier, smuggling or lobbying government for policies that would equalise the conditions under which business took place.⁹⁰

One particularly salient example is Mexico's *Zona Libre*, mentioned in Chapter 3. This was a 'duty free' commercial zone along Mexico's northern frontier.⁹¹ Established in 1857, the *Zona Libre* was an attempt by local interests in the Mexican State of Tamaulipas to equalise what it perceived as a commercial balances between the two sides of the border. The U.S. imposed no taxes on internal trade, while Mexico still laboured under the burden of the *alcabala*. Additionally, the U.S. passed an act in 1852 that allowed for foreign goods to be sent in bond to Mexico over certain specified routes. This allowed Americans to store merchandise in bonded warehouses along the border until an opportunity to transport them into Mexico appeared.⁹² Local Mexican interests responded by creating a 'duty free' zone. In 1861, the *Zona Libre* was extended by President Juárez to a larger part of the northern frontier, creating a 20-kilometre zone in which tariffs were greatly reduced, although if the

⁸⁹ See Chapter 7, section II.

⁹⁰ State of Chihuahua, *Chihuahua: Textos de Su Historia, 1824-1921*, eds. G. Altamirano and G. Villa (Chihuahua, 1988), p. 244; S.E. Bell and J.M. Smallwood, *The Zona Libre, 1858 - 1905* (El Paso 1982), p. 1; and U.S. House of Representatives, Fifty-fifth Congress, Second Session, House Report No. 702, *The Mexican Zone* (11 March 1898), p. 4.

⁹¹ S.E. Bell and J.M. Smallwood, *Zona Libre, 1858 - 1905*, p. 1 and *The Mexican Zone*, p. 4. March 11, 1898. See also O.J. Martínez, *Border Boom Town*.

⁹² U.S. House of Representatives, Forty-first Congress, Senate Report No. 166, *Zona Libre*, Second Session, p. 1. The records of the U.S. House and Senate contain documents that shed more light on the subject of drawbacks. Listed here are several key entries, more may be found in the Bibliography. U.S. House of Representatives, Twenty-seventh Congress, First Session House Executive Document No. 328, 'Extending Privileged of Drawback;' House Report No. 328, 'Drawbacks on inland trade to Mexico and Texas and Canada'; U. S. Senate, Eighteenth Congress, Second Session, Senate Doc. 7, 'Answers of Augustus Storr, of Missouri, to Certain Queries upon the Origin, Present State and future Prospect of Trade and Intercourse Between Missouri and the Internal Provinces of Mexico,' Twenty-first Congress, First Session, 'Message of the President on trade between Missouri and Mexico,' Twenty-first Congress, Second Session, Senate Doc No. 90, 'Message from the President of the United States in compliance with a resolution of the Senate concerning the Fur Trade, Inland Trade of Mexico.'

goods were destined for the interior, they were expected to pay the full tariff rate. President Díaz extended the zone the entire length of the northern frontier in 1884. However, increasing pressure from domestic interests and abroad led to its repeal in 1905, the rational being that the special conditions that had once existed along the Mexico's northern frontier had ceased to exist.⁹³

The main point is that while the *Zone Libre* functioned, some El Paso merchants felt disadvantaged. As one merchant stated, 'I cannot compete with merchants on the other side, who buy their goods in Europe and then ship them through the United States without paying customs duties...pay less taxes and consequently...undersell me.'⁹⁴ Still, because of the provisions limiting foreign ownership in the zone were easily skirted by the formation of partnerships, these disadvantages could be converted into gains for enterprises functioning on both sides of the border. In short, the paradoxical nature of national policy did influence the cross-border environment. However, it did not determine the direction of development, and entrepreneurial initiative more than government intervention dominated the local business landscape.

Another area not covered by Casson's study is political upheaval, which was also a problem, particularly during the Mexican Revolution. This circumstance could work to the benefit or detriment of local businesses. For example, at the end of January 1912, Pascual Orozco led a revolt of the C. Juárez garrison under his command, rampaging through the city and sacking any commercial establishments that had not closed upon hearing the news of his revolt. The Kettelsen and Degetau establishment was looted and then burned to the ground, sustaining a loss of US\$ 200,000.⁹⁵ On the other hand, the primary military asset regarding control of C. Juárez was its proximity to potential suppliers and allies.⁹⁶ Firms such as Krakaur, Zork and Moye sympathised with and supplied Orozco, while Shelton-Payne Arms

⁹³ S.E. Bell and J. M. Smallwood, *The Zona Libre*, pp. 45-58.

⁹⁴ O.J. Martínez, *Border Boom Town*, p. 30 and pp. 25-26.

⁹⁵ *Ibid*, pp. 40 - 43.

⁹⁶ Chapter 3 mentioned that C. Juárez was a key city for Revolutionaries because of its position as a regional rail hub and its proximity to the U.S.

Company supplied Madero.⁹⁷ The Corralitos Company was subjected to forced loans by competing factions.⁹⁸ Finally, the aftermath of the Revolution afforded an opportunity to entrepreneurs to renew ties severed by the conflict, although these were mitigated by the damages to the transportation infrastructure. Banditry continued in Chihuahua and federal troops still used rolling stock to move throughout the territory through the 1920s, and only a limited distribution of supplies could be undertaken.⁹⁹ The point being that political upheaval represented both an opportunity and a cost, and it remained for the cross-border entrepreneur to react accordingly.

This section has utilised Casson's micro level study of entrepreneurs to frame a discussion on the obstacles encountered by entrepreneurs in the cross-border market. Additionally, it is shown that in a sense, the geographical configuration of the area was particularly well suited to retailing and wholesale activities or activities of consolidation. This is important as the discussion moves into the next chapter. Finally, this section has briefly brought attention to the uniqueness of the cross-border entrepreneur and the problems encountered from political externalities, which did not stop business but forced companies to adjust to the business environment.

IV

The existence of a cross-border market for entrepreneurs derives from the fact that the regional economy was organised around three main activities retailing and wholesaling, transportation and primary production. Prior to the Mexico-U.S. War, retailing and wholesaling were the most important entrepreneurial activities. This is because in a small market with limited potential, apart from subsistence production, these were the only viable options. After 1848, early entrepreneurs continued to rely on retailing and wholesaling but because of the volatile nature of trade, they were forced to depend on a combination of government contracts, activities such as transport and related services along with general merchandising in order to ensure solvency. As time progressed and the area experienced increasing internal and external integration and new opportunities arose. The extension of

⁹⁷ 'The Underside of the Mexican Revolution,' *Americas*, July 1982, pp. 67-83, R. Estrada M., 'Border Revolution', pp. 59 and 96.

⁹⁸ *Thomas Wentworth Pierce Papers* and M. Bernstein, *Mexican Mining*, pp. 97-100.

⁹⁹ GEP CC, *Power House*, June 1920, p. 27.

transportation networks into the region precipitated the need for conveyance services, which in turn gave rise to the need for ancillary services. Once transportation networks were consolidated, large-scale primary production activities could be undertaken, leading to further specialisation and opportunities for support services. Better transportation and communication services fostered extended cross-border relationships.

Enterprises employed a number of organisational structures in pursuing their activities. The evolution of regional businesses demonstrates that entrepreneurs tended to respond in much the same way as their counterparts in either country. However, by virtue of their existence along the international boundary, their day-to-day interactions had a unavoidably cross-border character. This makes them unique in respect of those entrepreneurs who extended their empires to the international scene, but found their business activities limited by water distances. The fact that Mexico and the U.S. are contiguous made international business relations a regular feature of the day-to-day life of the entrepreneur.

The sole proprietorship was important prior to 1848. Kinship-based or informal partnerships began to appear after that time, and in this early stage, the formation of cross-border networks was already apparent (Mills and Zubirán). After 1881, the scope of the market increased, fostering specialisation and promoting more complex networks of partnerships and corporations directly dependent upon the nature of economic activity in the contiguous regions. Some of these larger organisations emerged from the already existing pool of businesses. Others were created by mergers and acquisitions designed to form horizontal, and forward and backward linkages. The ability to grow, in some instances, depended upon the enterprises' ability to adjust to the bi-national character of the regional market. Thus, over time the landscape for entrepreneurs came to include a mix of cross-border sole proprietors, partnerships and corporations.

Finally, the obstacles encountered by entrepreneurs consisted of a lack of information on the wants and needs of buyers and sellers, price setting and transportation costs. These were overcome by internalising certain aspects of their endeavours previously external to the business in question. The obstacles that presented unique problems were tariff policies and political crises. However, in an creative twist, the response of local firms was the emergence of companies such as Krakaur Zork and Moyer, whose organisational structure transcended the boundary. The cross-border nature of businesses led to a regional demand for labour.

CHAPTER SIX

THE CROSS-BORDER LABOUR MARKET

The entrepreneurial activities described in the previous chapter and their organisational structures gave rise to a need for labour as the economy of the cross-border region expanded and developed. Labour constituted a very important factor because it was scarce. In this regard, the pooling of this resource in the C. Juárez-El Paso area was linked to industrial development.¹ This chapter analyses the labour requirements of the cross-border market.² It is divided into four sections. The first surveys the production patterns emerging from the resource base and market activities described in the previous chapters. The second presents evidence of labour mobility, in both a spatial and occupational context. Both the U.S. and Mexico experienced shifts in the location of population (labour) between 1870 and 1920; immigrant labour was particularly important in the U.S. In Mexico, the process of development led to the dislocation of population in the centre of the country, creating a pool of migrant labour. These two trends found a mutual point of convergence in the El Paso-C. Juárez area. Section three examines the occupational structure of the cross-border market, resulting from labour mobility and provides data on wage rates. Mobility in this case was facilitated by the completion of the railways and fomented by labour recruitment agencies. The final section offers a brief conclusion on the internal cohesion of the cross-border labour market. Throughout the entire period between 1848 and 1920, few obstacles in the form of immigration restrictions applied to labour, whether it attempted to move

¹ S. Pollard, 'Regional Markets and National Development,' in M. Berg, *Markets and manufacture in early industrial Europe* (London, 1990), p. 35.

² Regional market should be understood to mean C. Juárez-El Paso urban area and hinterlands.

north or south through the region. In this respect, the international boundary was non-existent or obviated to serve the needs of local and regional interests.

I

The detail on the resource base, transportation infrastructure and entrepreneurial activities, can now be utilised to draw a picture of the cross-border economy. The pattern of economic activity found in the C. Juárez-El Paso area was, to some extent, an outcome of the geographical context and resource base as well as the entrepreneurial activity. That is, C. Juárez-El Paso functioned as a consolidation point for a vast hinterlands. It is therefore instructive to review the formation of the cross-border market, giving it a broader context and highlighting the features that played a role in determining the pattern of economic activity.

Early on, the transportation system consisted of overland trade routes, which permitted the movement of goods and population, albeit in a limited way. However, these routes did not serve as a transmission mechanism for technology and capital, which would have aided in developing the region's economic pursuits and certainly improved productivity in activities such as mining and agriculture. Thus, prior to 1881 economic activity consisted mainly of subsistence pursuits. A small trade-based sector emerged from the migration to and through the region after 1848. This activity relied a great deal on overland transportation for provisioning and did not generate a significant demand for labour because of the organizational structure of overland trade, which was based on the individual. Concomitantly, trade tended to be unstable in that overland travel was arduous as well as hazardous. Even the formation of formal and informal partnerships to help mitigate risk did not translate into a great demand for labour prior to the 1880s.

The construction of the railways throughout the area brought C. Juárez-El Paso into more regularised contact with other market centres such as Chihuahua and San Antonio, as well as forged more stable linkages between the eastern U.S. and California, and Northern Mexico and Mexico City. The railways rendered relatively isolated regions more accessible and made even more remote regions serviceable. This rejuvenated decaying mining sites, facilitated the exploitation of new mineral deposits, and permitted large-scale agricultural pursuits. As these proved more profitable, entrepreneurs invested capital in additional transportation linkages, enlarging their interests, as well as the scope of the cross-border market's range of influence and

dependence (hinterlands).³ The best examples of this process are Krakaur, Zork and Moyer, the Corralitos Land and Cattle Company and the El Paso Electric Company, all elaborated upon in the previous chapter, and the major international and national railways. The main point is that a great deal of investment and business consolidation occurred, allowing economic pursuits to reach the proportions that the various industries achieved. In each of the cases mentioned above, the need to construct and maintain the railways was the first foundation of the regional economy.

The second foundation was the exploitation of mineral deposits. The emergence of large-scale economic pursuits was inextricably linked to the growing economies of the U.S. and Western Europe, both of which provided markets for primary products such as minerals and cattle.⁴ Thus, very early on linkages with the world were a factor in the development of the C. Juárez-El Paso cross-border market. However, it remains imperative to reiterate that the domestic Mexican economy also constituted an important market. Consequently, the construction of railway linkages throughout the U.S. Southwest and Northern Mexico served to better articulate cross-border economic pursuits with other regional markets further south and north. Some of these articulations were with primary product markets, whilst others were with intermediate and end markets.⁵ Large-scale exploitation gave rise to an increasing demand for labour. However, this did not emerge until after 1880 and more significantly after 1900, when improved transportation facilities and a greater articulation of markets permitted the movement of capital and labour as well as output.

The exploitation of mineral deposits had formed an integral part of the original Spanish settlement of the region. **Figure 4.1** displays the major mineral deposits in the area c1910. From

³ Foreign (U.S.) investors played a crucial role in Chihuahua, which received the most non-railroad foreign investment of all the Mexican states in the period leading up to 1910. M. Wasserman, *Capitalists, Caciques and Revolution, The Native Elite and Foreign Enterprise in Chihuahua, 1854-1911* (Chapel Hill, 1984), p. 5. See also M. Wasserman, 'Foreign Investment in Mexico, 1876-1910: A Case study of the role of Regional Elites', *The Americas* 36 (1979)1, pp. 5-6 and M. Cerutti, 'El gran norte oriental y la formación del mercado nacional en México a finales del siglo XIX,' *Siglo XIX*, 2 (1987) 4.

⁴ M. Wasserman, *Capitalists*, p. 73.

⁵ R. C. Sheck, 'Transportation,' in *Borderland Sourcebook: A Guide to Literature on Northern Mexican and the American Southwest*, ed. E. Stoddard, et. al. (Norman, 1983), p. 168 and V. S. Clark, 'Mexican Labor in the United States,' *Bulletin of the Bureau of Labor*, No. 78 (Washington D.C., 1908), pp. 470-477. See also *The Growth of the International Economy, 1820-1920*, ed. A.G. Kennwood and A. L Loughheed (London, 3rd edition, 1992).

this representation, it can be seen that the mines in and around the Chihuahua area and in the Sonora-Arizona desert represented important mining sites at various times during the period under study. Generally speaking, during the early Mexican period, there was little change in the pattern of mineral exploitation as a result of political instability.⁶ After 1848, the westward expansion and industrialisation of the U.S. brought renewed interest in mining, although it was after 1881 that the availability of technology, capital, increasing population and transportation, permitted massive mining endeavours such as Cananea in Sonora and Arizona to dominate the economic landscape.⁷ By 1900, the insertion of the region into the international economy resulted in mining pursuits of global significance.⁸ The American Smelting and Refining Company (ASARCO) was one example of a mining, smelting and refining interest that was prominent at the regional and international levels. The Candelaria Mining Company, which emerged from a publically quoted regional ranching enterprise, became a major international mining enterprise with ore concentration facilities in C. Juárez and a regional railway network.⁹ The relationship between mining and the railways was one of mutual dependence; as smelting and concentration activities increased, additional railway lines had to be built.¹⁰ The general trend was for C. Juárez-El Paso to function as a consolidation point for mineral extraction and processing. Railway construction and the opening of new mineral deposits were particularly labour-intensive. However, while the operation of railways required fewer workers, their construction along with smelting and refining operations needed large pool of labourers.

The final cornerstone of the regional economy was agriculture cattle ranching , in

⁶ P. W. Christiansen, 'Mining' in *Borderlands Sourcebook*, p. 126.

⁷ For example, in 1905 Mexico ranked second to the U.S. in world copper production. It ranked first in silver, sixth in gold and first in antimony. P. W. Christiansen, 'Mining' in *Borderlands Sourcebook*, p. 126.

⁸ *Catálogo de los ejemplares que existen en la exposición minera permanente clasificados por Jorge Griggs, B.S.*, Director de la exposición minera permanente (Chihuahua, 1906).

⁹ *Thomas Wentworth Pierce Papers - The Corralitos Company*, Nettie Lee Benson Collection, University of Texas, Austin, n.p. See also Chapter 3. J.M. Day, 'El Paso: Mining Hub for Northern Mexico, 1880-1920' *Password* 24 (1979)1, pp. 21-3 and 25, P.W. Christiansen, 'Mining,' p. 126.

¹⁰ J.M. Day, ' Mining Hub,' p. 25. This is also true in C. Juárez where a smelting industry arose as one of the outcomes of the McKinnely tariff. See Chapters 3 and 5.

particular. Toward the end of the Spanish colonial period, the vast majority of the C. Juárez-El Paso population was engaged in subsistence agriculture. Primitive irrigated farming techniques permitted the production of corn, wheat flour, beans, and grapes, while ranchers grazed cattle and sheep.¹¹ At mid-century, official reports suggest that agriculture continued to be the principal occupation of the inhabitants. A continued reliance on primitive techniques simple irrigation ditches, hand seeding and the use of wooden ploughs meant production was barely sufficient to support the community and supplies were imported from places such as Chihuahua.¹² During the 1870s, irregular and inadequate supplies of water plagued the area and made agricultural pursuits unstable.¹³ As late as 1880, there were only 279 farms in El Paso county, with a total of 19,931 acres under cultivation.¹⁴ Almost two decades after the completion of the railway linkages (1900), there were 318 farms totaling 925,105 acres.¹⁵ In 1910, the number of farms in El Paso county was 669, covering 2,340,829 acres. After the completion of Elephant Butte dam (1915), although the total number of farms and acreage had declined to 624, and 2,181,764 respectively, the important feature remained a 100-fold increase in acreage and two-fold increase

¹¹ C. Calleros, *Queen of the Missions* (El Paso, 1952), p. 9. *Census of Ysleta*, introduction, p. iii; T. Hall, *Social Change in the Southwest, 1350-1880* (Kansas, 1989), p. 88; C. W. Hackett, 'The Retreat of the Spaniards from New Mexico in 1860 and the beginning of El Paso,' *Southwestern Historical Quarterly*, 2 (1912) 16, p. 137; A.E. Hughes, 'The Beginning of Spanish Settlement in the El Paso District,' unpublished Master thesis, University of California-Berkeley, 1914, pp. 295-297; and N.L. Hammonds, 'A History of El Paso County, Texas to 1900,' unpublished Masters thesis, University of Texas-El Paso, 1942, pp. 25-26, R.B. Kent, 'Agriculture and Ranching,' in *Borderlands Sourcebook*, p. 142.

¹² U.S. Senate, Thirty-First Congress, First Session, Executive Document 64, *Report of Reconnaissances, pt. 1, Route from San Antonio to El Paso, Report of R.B. March and Report of S.G. French*, 21 December 1849, p. 49. U.S. House of Representatives, Thirty-fourth Congress, First Session, Executive Document No. 135, *Reports of William H. Emory, Major First Calvary and U.S. Commissioner*, p. 49.

¹³ The only payrolls of any consequence were those associated with the National of Mexico and Rio Grande, Sierra Madre and Pacific railroads. U.S. Department of State, *Commercial Relations of the United States with Foreign Countries*, 'Consular Reports' for 1877 (hereafter Consular Reports), p. 897.

¹⁴ U.S. Department of Commerce, Bureau of the Census, *Tenth Census of the United States*. All subsequent references to this and other census material will appear simply as the corresponding census (e.g. *Tenth Census*).

¹⁵ *Twelfth Census*, 'Agriculture,' p. 638.

in number of farms over that recorded in 1880.¹⁶ The decline in the number of farms may be attributed to the process of rationalisation taking place as a result of land reclamation projects and the growth of corporate farming.

Just as the acreage utilised for agricultural pursuits had increased, so did the value of these activities. In 1880 the total value of farm investments (land, buildings and implements) in El Paso county was US\$ 239,059. By 1900, the figure had increased to US\$ 1,406,810. Ten years later, the value of investments had reached US\$ 10,660,590, and in 1920, the value was recorded as US\$16,815,767.¹⁷ General rather than specialised farming and ranching prevailed in the region: foodstuffs such as alfalfa, timothy, millet, onion, grapes, and animal products such as cattle, sheep, horses, mules, hogs, and goats were produced mainly for extra-regional trade.¹⁸ Despite the trend towards 'capital-intensive' commercial farming suggested by increases in the value of farm investments, the growth of irrigated acreage and the prevalence of general farming also created a greater demand for labour.¹⁹

Comparable data on the number of farms and their value over time were not available for C. Juárez, but tax rolls imply that the community exhibited the same range of agricultural activity.²⁰ Municipal tax documents suggest a hierarchy of landholdings, referring to *fincas rústicas* and *fincas urbanas*, but the distinction was unclear.²¹ While commercialisation and irrigation led to an increase in farm size in El Paso, the C. Juárez tax roster demonstrates a

¹⁶ In 1911 a large portion of El Paso County was utilised to form Culberson County. Again, in 1917, Hudspeth County was formed from a portion of El Paso County. This explains the decline in total acreage from 1910 to 1920. This figure includes all three counties. The farms had an approximate value of US \$7.4 million. *Thirteenth Census*, 'Agriculture' p. 638 and *Fourteenth Census*, 'Irrigation and Drainage,' p. 299. Previous editions of the census did not contain the same detailed information by volumes.

¹⁷ *Fourteenth Census*, 'Irrigation and Drainage,' p. 299.

¹⁸ N. Hammonds, 'History of El Paso County,' p. 122.

¹⁹ In fact, the Census reported that the average farm size had increased to 2.9 acres from 1.9 in 1900. *Thirteenth Census*, 'Irrigation and Drainage', p. 638.

²⁰ Archivos del Ayuntamiento de Paso del Norte (ACJ), Microfilm Series 495, C.L. Sonnichsen Special Collection, University of Texas-El Paso, Special Collection, r. 51, ff. 237-239. Subsequent citations will appear as ACJ (495) followed by roll and frame numbers.

²¹ This is a summary of a detailed review of the yearly tax rosters for the years 1850 to 1900 found in ACJ (495).

growth in the number of small, labour-intensive farms. The prevalence of these *minifundios* points to a tendency towards subsistence production. However, it may also be interpreted as an incentive to seek wage employment opportunities to supplement insufficient production. As the same crops were produced on both sides of the river, labour skill requirements would have been similar, and so facilitated worker mobility. The growth in the number of small farms also supports the position that landlord-peasant models are not necessarily applicable to this case study. The shortcomings of Dependency Theory (and Marxist models) were rejected because the great hacienda with dept peonage was not a universal characteristic of the C. Juárez-El Paso cross-border region. This point should not be confused with the existence of large agricultural estates with peasant workers that existed further south from C. Juárez-El Paso. As has been mentioned numerous times in previous chapters, the Terrazas family of Chihuahua operated a number of large estates on which dept peonage was a feature.²² The important issue here is that labour was scarce, and wages were higher in the cross-border region, rendering moot an analysis strictly based on Dependency Theory.

Improved transportation facilitated regionalisation in the agricultural sector. The livestock industry relied on ranches within a 700 mile radius of C. Juárez-El Paso and became increasingly integrated. Breeding, fattening and marketing were conducted on a regional basis. For example, between 1900 and 1910 Terrazas holdings in Chihuahua shipped an average of 70,000 calves annually to the U.S. where they were either slaughtered in El Paso or sent to estates as far off as Kansas for fattening.²³ Other estates, among them the Palomas Land and Cattle Company, Corralitos Land and Cattle Company and Babícora, operated along similar lines. The agricultural census in 1902 showed that in Coahuila, Chihuahua, Durango, Nuevo Leon and Sonora, there existed over one-million head of cattle, with a value of over MN\$12 million (US\$6 million), far in excess of the needs of the local market.²⁴ The growth in ranching

²² See M. Wasserman, *Capitalists*.

²³ M. Wasserman, *Capitalists*, p. 48 and M. Machado, *The North Mexican Cattle Industry, 1910-1959 Ideology, Conflict and Change* (College Station, 1981), pp. 5-8.

²⁴ M. Machado, *Cattle Industry*, pp. 5-8.

and the movement of cattle across the region created increased demand for labour on and off estates, particularly in ancillary activities such as stockyards and slaughterhouses.

Given the above discussion, the pattern of economic activity up to 1920 may be characterised as follows: to the west, copper mining along the Arizona-Sonora border accounted for one-fourth of total world production; south of the border, large silver, timber, and beef cattle producers supplied a vast hinterland; and east and north, large tracts of land produced agricultural products including significant amounts of cotton after 1917. At the hub of the cross-border region was the El Paso-C. Juárez urban centre, with railway links radiating in all directions: the National of Mexico and Mexican Northwestern railway served the south; the north-east was served by the Southern Pacific and the Galveston, Harrisburg and San Antonio; and the north and north-west, by the Santa Fe and the El Paso and Southwestern.²⁵ This set of economic activities generated a significant regional demand for labour. The railways required unskilled and semi-skilled workers, as did mining, smelting and refining, and commercial agriculture.

II

The interdependence of the Mexican and U.S. labour markets has been the subject of great interest to both countries. It has generated the greatest amount of work in the literature. This section will review, in brief, Mexico-U.S. labour market interdependence, in order to give a better context to the factors underpinning the argument for the existence of a cross-border labour market. Three factors are particularly important to this discussion: (1) scarcity of labour within the region in quantitative terms; (2) the match between skills and production requirements; and (3) information on the part of employers on the availability of cheap labour and by workers about job opportunities. Before embarking on the arguments supporting the existence of a cross-border labour market, it is useful to delve a little deeper into the issue of Mexico-U.S. labour market interdependence and the way in which it has been treated in academic writings. Much of the literature acknowledges that the overall binational relationship

²⁵

Auxiliary spokes such as the Kansas City, Mexico & Oriente Railway passed rich mines and farms on the way to Chihuahua and back toward the border at the Rio Conchos, crossing at Presidio, Texas. This description was adapted from a similar characterization put forward by the Greater El Paso Chamber of Commerce in 'Greater El Paso, The Power House of the Southwest' 1 (1920), pp. 39-4.

is asymmetrical in many areas.²⁶ Without a doubt, geographic proximity has played an important part in this phenomenon. For many observers, both countries have moved towards a more liberalised trade and foreign investment regime in recent years. However, as this study endeavours to prove, the roots of this relationship date much further back.

The machinations of the labour market have been one of the largest arenas of binational linkage, both in terms of economic magnitude and socio-political ramifications.²⁷ For the most part, the study of labour migration has been disaggregated into two periods, 1900-1930 and post 1940. Furthermore, the literature has tended to treat Mexican labour migration as a negative exogenous shock to the U.S. economy, and the latter has inevitably been portrayed as the victim. However, as Bustamante points out, recent academic work is demonstrating a trend that depicts the international migration between Mexico and the U.S. as the product of an international labour market in which the pattern of labour demand in the U.S. is just as important as the pattern of labour supply in Mexico.²⁸ This stands in contrast to earlier models that emphasised that, the presence of undocumented workers in the U.S. was mainly due to the political and economic environment in Mexico. According to Bustamante, 'the Mexican economy, expressed in terms of poverty and unemployment, in and of itself does not explain migration of labour... Wage differentials are not the only and most important factor in determining the flow. Neither does proximity, given that most of the migrants have come from west-central Mexico to the border.'²⁹ U.S. demographics, Bustamante suggests, have played a vital part in the equation. As such, he proposes to recast the interdependence debate as the interaction of two variables: (1) the state of the U.S. economy and the political situation in Mexico.³⁰ In this study, the movement of Mexican workers to the U.S. is linked to the economic development of the U.S. Southwest and

²⁶ *U.S.-Mexico Labour Market Interdependence*, eds. J.A. Bustamante, C.W. Reynolds and R. Hinojosa (Stanford, 1992), p. 25.

²⁷ *Labour Market Interdependence*, ed. J.A. Bustamante, *et. al.*, Introduction.

²⁸ J.S.A. Bustamante, 'Interdependence, Undocumented Migration and national Security,' in *Labour Market Interdependence*, p. 25.

²⁹ *Ibid*, p. 27.

³⁰ *Ibid*, p. 31.

Northern Mexico as a whole, and not as two separate entities. Furthermore, the Mexico-U.S. labour market interdependence acknowledged increasingly in the recent literature is recast as the formation of a cross-border market with its origins in the late nineteenth century. Finally, the study of labour movement presented herein extends the periodisation of general migration studies to include 1880 to 1900.

Bustamante's interdependence equation falls short in its formulation because it does not include development of the Northern Mexico economy *vis a vis* the domestic market. Clearly, the question of labour scarcity must be understood within several broader contexts: the migration of labour in the region; the east-to-west movement of labour within the U.S.; and a south-to-north movement to border regions in Mexico. California was particularly attractive to migrants because of the development of natural resources and the increasing prosperity of the state, notably between 1900-1910. The economic development of Northern Mexico was also attractive due to the emergence of large-scale economic pursuits, many of which were labour intensive, such as mineral extraction, smelting and refining, agriculture and the construction and maintenance of the transportation network. However, the region as a whole was under-populated and the *quasi*-subsistence nature of local production meant that potential labour was dividing its time between self sufficient agricultural pursuits and wage labour activities. Consequently, labour often had to be imported.

The years leading up to 1880 were characterised by little immigration for the reasons listed above geography, inadequacy of the transportation infrastructure and lack of economic opportunities. The geography of the region included imposing barriers such as mountains and desert. Additionally, the early transportation system relied on the entrepreneurial efforts of a limited number of individuals with little resources. Settlers, in particular Anglo-Americans, were at first somewhat reluctant to reside in the Southwest because the region was isolated and arid.³¹ The most salient example of the labour scarcity issue for the region was the *fatiga* system utilised in C. Juárez in order to ensure that the community had a regular supply of water.³² The *fatiga* was set forth in the city's *reglamento económico* (economic charter) in which citizens

³¹ C. McWilliams, *North from Mexico*, p. 56.

³² C.L. Sonnichsen, *Pass of the North*, p. 135.

Table 6.1

**Comparison of the Percentage Change in population Growth for
El Paso, Texas and C. Juárez, Chihuahua with State and Country, 1850-1920**

Year	El Paso	Texas	US	C. Juárez	Chihuahua	Mexico
1850				-42*		
1855						3.47
1857				225		
1860	114**	183**	36**			
1865						7.85
1870	78	35	27			
1873				-23***		
1875						0.96
1880	-3	94	26			
1885						18
1887				90 ⁺		
1890	1311	40	26	-57**	32	
1895				-125		18.6
1900	53	36	21	-31	23	19.9
1910	146	28	21	29	24	11.4
1920	97	20	15	83	-0.98	-5.5

Sources: Calculations are based on data found in the City of El Paso Industrial Development Board, *Statistical Abstract of El Paso, 1988*; *United States-Mexico Border Statistics Since 1900*, ed. D. Lorey (Los Angeles, 1990) and *International Historical Statistics, The Americas 1750-1993*, ed. B.R. Mitchell (London, 4th edition, 1998). All values have been rounded to the nearest tenth. See Chapter 1, Table 1.1 for population figures.

*The previous population census clearly showed a larger number of residents in the country. Depopulation may be attributed to the wars for Independence as well as the battles between rival political factions that mired the country until 1876.

**The changes were calculated from 20,000-29,000 in 1887 and 12,000 in 1890. The significant changes in population may also be attributed to the way statistics were reported or the redrawing of the political boundaries of the community.

**Texas did not become part of the U.S. until the 1840s. The baseline for calculating percentage changes was 1850.

*The Calculation for Mexico is based on 1845 population figures listed in Chapter 1.

***The calculation for C. Juárez is for the period 1857 to 1873.

*The calculation for C. Juárez is for the period 1873 to 1887.

Table 6.2
Comparison of Populations and percentage change, 1880-1920

Year	C. Juárez-El Paso	%	Chihuahua	%	Texas	%
	urban area	change		change		change
1880	12,736	-----	225,610	-----	1,519,749	-----
1890	17,555	40	298,073	32	2,235,527	40
1900	24,576	40	327,784	23	3,048,710	36
1910	51,060	107	405,707	24	3,876,542	28
1920	102,451	100	401,622	-1	4,663,228	20

Source: **Table 1.1** and City of El Paso, Industrial Development Corporation, *Statistical Abstract of El Paso* (El Paso, 1986) and *Statistical Abstract of the United States-Mexico Borderlands*, ed. D.E. Lorey (Los Angeles, 1990).

Table 6.3
Comparison of origin of residents in Chihuahua and Texas, 1880-1920.

	Number of Foreign-born residents in State of Chihuahua	Number of Residents of Mexican Origin in State of Texas
1880	na	43,161
1890	na	51,559
1900	na	71,062
1910	6,641	125,016
1920	5,323	251,870

Source: *Statistical Abstract of the United States-Mexico Borderlands*, ed. D.E. Lorey (Los Angeles, 1990), pp. 35 and 40.

were divided into classes, with each classification corresponding to a certain number of work days each week. The schedules were based on the amount of harvest personal lands yielded, or the amount of agricultural product personal *carretas* could hold. Classification appears to have taken place once a year under the auspices of a committee led by a Water Warden. All *vecinos* who possessed land were required to participate in person with their agricultural instruments in all forms required to maintain the city water supply whenever needed. Those individuals who were employers could send someone in his or her place. Exempted individuals retained their status as long as reasons were justifiable or persisted, such as illness. After such time, they were required to participate as all others. Individuals who acquired property after classification took place were required to present themselves for *fatiga* obligations immediately after assuming control of the land, regardless of whether or not they resided in the district.³³ While it is tempting to label this system forced labour, by the same token, residents relied heavily on the Rio Grande for water. It is not unreasonable, then, to suggest that they acquiesced in order to secure their own futures. More importantly, this example of the *fatiga* emphasises the fact that labour was scarce in the region. So much so, that local residents were mustered into perform civil services. A census of the *fatigueros* for the five principal districts of C. Juárez in 1851 totalled 949, out of a population of more than 8,000. Here again, the scarcity of labour is also apparent.

Table 6.1 displays a comparison of the population growth rates for C. Juárez and El Paso with their respective states, Chihuahua and Texas, and countries. In the case of El Paso, except for the year 1880 when the rate of growth of the regional population was less than that in the state of Texas and the U.S., the El Paso urban area experienced a greater population growth rate relative to the other two cases. This may be attributed to the flow of labour to the region, as has

³³ ACJ (495) r. 44, fr. 1108 (c1854). In the case of land owners, every person harvesting eight *almudes* who possessed the ability to work was expected to participate. Those individuals who produced between half a *fanega* and seven *almudes* had to present themselves for manual work on Monday of every week. Those producing five *almudes* would report on Tuesday; four *almudes* on Wednesday; three on Thursday, and those producing only one on Saturday. Individuals producing half an *almud* presented themselves on Saturday every two weeks. Producers of *cauretones* (quarter of an *almud*) were required to work one day a week and Saturday. All of those who qualified for service as *carreteros* (carriers, carter), for every eight *almudes* of harvest that their carts would hold, were required to report for one day a week with their *carretas* (long narrow cart). If the amount was 16 *almudes*, two days a week; two *fanegas*, then three days per week; 32 *almudes*, four days per week; and 40 *almudes* then five days a week; and if 40 *fanegas* then they were to report weekly. See also C.L. Sonnichsen, *Pass of the North*, p. 135.

been argued herein.³⁴ In the case of C. Juárez, the instances pooling of regional labour resources is less obvious. However, this does not mean that the same process was not taking place. The fact that population statistics are piecemeal and unreliable makes a comparison to the case of El Paso almost impossible. Still, it is important to note that between 1900 and 1920, the beginnings of a trend of faster urbanisation in C. Juárez, relative to the state of Chihuahua or Mexico as a whole, may be discerned.

Table 6.2 takes the population of C. Juárez-El Paso as a cross-border whole and places it in comparative perspective to the states in which these cities are found. Here, the process of urbanisation is even more apparent. Except for in 1890, when the entire State of Texas experienced a slightly higher percentage change in population, the C. Juárez-El Paso cross-border area urbanised at a much faster rate than both states. In fact, Chihuahua lagged behind both Texas and C. Juárez-El Paso in terms of the percentage change in population. The growth rates also compare more than favourably with those of Mexico. For example, the rates of change in population for Mexico in the years 1900, 1910 and 1920, were 19.9, 11.4 and -5.5, respectively. In terms of regional population changes, Chihuahua certainly out paced the national experience, consistent with the argument that Northern Mexico grew rapidly. In a further refinement, **Table 6.3** presents information on the number of foreign-born residents in the respective states. The population in Texas saw an increasing number of residents of Mexican origin, particularly after 1900, when the numbers increased more than three-fold in the span of twenty years. This pattern is entirely consistent with the fundamental argument of this chapter that Mexican labour played a major role in the regional economy. The number of foreign born residents in the state of Chihuahua does not appear to tell a similar story as in the case of Texas. This is consistent with the point that Mexico did not benefit from great waves of immigration, as experienced by the U.S. Additionally, it must be borne in mind that because of the Revolution between 1910 and 1920, foreigners would certainly not have flocked to Chihuahua during that time. Still, Chihuahua did attract foreigners many of whom were Americans. In short, all three tables point to the increasing pooling of labour resources in the C. Juárez-El Paso area.

³⁴

In fact, according to Cardoso, the open-door policy of the U.S. with regard to Mexican labour contributed to the growth in population along the Mexico-U.S. border. See L. Cardoso, *Mexican Emigration to the United States* (Tucson, 1980).

Figure 6.1
Mexican National Crossing the Rio Grande³⁶



³⁶

Photograph courtesy of the Southwest Room, El Paso Public Library.

Additionally, they substantiate the argument that, on a regional level, the process was more intense than at the respective state and national levels. The strong Mexican component of population growth in Texas adds qualitative support to the theory that labour, in particular Mexican labour, was being drawn into the region. The movement of this resource, and its pooling at the frontier, would serve as another impetus for the formation of a cross-border labour market.

The factors mobilising labour may be divided into political and economic. The political push factors are not the main focus of this discussion, however a mention is necessary. **Figure 6.1** depicts Mexican nationals crossing the Rio Grande at C. Juárez at the time of the Mexican Revolution (c1911). The movement of population typified by this photograph is the culmination of 30 years of Porifian rule. In Mexico, the centralised, as well as modernised, state fomented by Porfirio Díaz contributed to a concomitant development of Northern Mexico. After 1910, the Mexican Revolution pushed many Mexicans northward. However, political refugees may be traced to the early 1900s, with political extremists seeking a safe haven from political persecution.³⁶ The borderlands provided refuge for, and supplied a rallying ground for Mexicans affected by the Revolution. With the onset of the Revolution, the stream of political refugees became more constant.³⁷ The mobilisation for World War I in U.S. resulted in out-migration of the local population from the U.S. Southwest to the northeast, and a decline in European immigration, both of which re-enforced the need for Mexican labour.³⁸ The porous nature of the international boundary facilitated cross-border movements. Additionally, it was not uncommon for agriculturalists and industrialists to pressure the U.S. government for special dispensations to recruit south of the border. Mexicans were also exempted from the draft during WWI. Although officials assumed that temporary workers would no longer be needed after the War,

³⁶ As was discussed in the case of the Flores Magón Brothers and their Partido Liberal. See Chapter 3.

³⁷ Border cities had harboured numerous political refugees at that time, and it was well known in El Paso that Madero enjoyed support from local Mexican ex-patriots and El Pasoans. See O.J. Martinez, *Border Boom Town, C. Juárez Since 1848* (Austin, 1975) M.T. García, *Desert Immigrants, The Mexicans of El Paso, 1880-1920* (New Haven, 1981), P. Limeick, *The Legacy of Conquest, The Unbroken Past of the American West* (New York, 1988).

³⁸ L. Cardoso, *Mexican Emigration*, pp. 45-46.

business interests maintained that there was a continuing labour shortage and successfully prevented attempts to deport Mexicans.³⁹

Opportunity was a key economic pull factor early on. It was associated with the development of large-scale commercial agriculture, mining and transportation, across the region, and captured by the growth of population shown in **Table 6.1**, and in the disproportionate growth in the number of labourers. As Sánchez-Albornoz explains, the process of attracting population to the north of Mexico was slow and resulted from the excess of population from the centre and south-east.⁴⁰ The construction of the railways throughout Mexico, and in particular in the north, generated a demand for unskilled and semi-skilled labourers, attracting migrants from states such as Jalisco, Guanajuato, Aguas Calientes, Zacatecas.⁴¹ This translated into a growth in number of labourers present in the cross-border market. For example, the 1910 U.S. Census lists 13,027 workers as residing in El Paso, or 49 percent of the total population.⁴² By 1920, there were 39,483 labourers who made up 65 percent of the total population.⁴³ Comparable data are not available for C. Juárez. However, statistics for the State of Chihuahua demonstrate that in 1895, there were 101,205 workers; in 1900, 122,725; and in 1910, 145,479.⁴⁴ These figures suggest that the demand for labour was expanding rapidly on both sides of border, albeit at a faster rate on the northern side.

³⁹ P. Morales, *Indocumentados Mexicanos, Causas y razones de la migración laboral* (Mexico, 1989), pp. 82-4.

⁴⁰ N. Sánchez-Albornoz, 'Population,' in *Latin American: Economy and Society, 1870-1930*, ed. L. Bethell (Cambridge, 1989). The articles in the collection originally appeared in the *Cambridge History of Latin America*, ed. L. Bethell.

⁴¹ Labourers moved northward over the National Railroad of Mexico to Laredo and Eagle Pass, Texas, but the larger portion of migration was along the National of Mexico Railway to El Paso. V.S. Clark, 'Mexican Labor,' pp. 466-9.

⁴² Early increases in the labour force were definitely dependent upon male workers. In 1910, for example, of the 13,027 labours, 12,012 were males over 10 years of age, approximately 80 percent of the labour force. *Thirteenth Census, 'Occupations,'* p. 226.

⁴³ In 1920, the percentage of males in work force had declined to 60 percent, signalling the increasing presence of women. *Fourteenth Census, 'Occupations,'* p. 258.

⁴⁴ M. Wasserman, *Capitalists*, p. 120.

Knowledge of requirements of the market on the part of the labour as well as employers was also key. Regional businesses such as the railways imported labour to build the north-south railway linkages. In fact, Mexican workers played a vital part in the development of a transportation network in the U.S. Southwest from its inception. In the closing decade of the nineteenth and early twentieth centuries, they were employed to help construct the track of the Southern Pacific and Santa Fe. This was possible because higher wages attracted approximately 300,000 Mexicans, mainly displaced peasants, to northern Mexico between 1877 and 1910, creating a pool for onward migration to the U.S.⁴⁵ At first, migration was centred on the area contiguous to the international border. Prior to 1900, Mexican immigrant labour was seldom found more than 100 miles from it. However, later they could be found working as unskilled labourers and as section hands on the railways as far north-east as Chicago and Iowa, Wyoming and west as San Francisco.⁴⁶ According to the U.S. Department of Labor, the number of industries dependent upon Mexican labour had increased significantly by 1908, and Mexicans had begun to replace other sources of unskilled labour such as the Japanese, Greeks and Italians in some occupations. The Department noted, that with exception in Texas and California, few Mexicans became permanent residents and even in those two states, labour was transient.⁴⁷ For U.S. employers, 'nearness' meant the flexibility both to hire and fire. Mexicans workers were also low cost; this was confirmed by the Dillingham Commission, a U.S. congressional committee established to explore the impact of all ethnic and racial groups living and working in the U.S. in 1909.⁴⁸ However, from the perspective of Mexican workers, wages in the U.S.

⁴⁵ Katz maintains they tended to be displaced peasants and artisans from central and southern Mexico, hoping for better opportunities. He clarifies that the region's elite were not displaced by this migration until perhaps after 1910. F. Katz, 'The Liberal Republic and the Porfiriato,' in *Mexico Since Independence*, ed. L. Bethell (Cambridge, 1991), p. 89. See also *Cambridge History of Latin America*, vol. 4.

⁴⁶ See P. Limerick, *Legacy*, p. 244, M.T. Garcia, *Desert Immigrants*, p. 1 and V.S. Clark, 'Mexican Labor,' pp. 470- 477. See A. Monto, *The Roots of Mexican Labor Migration* (Westport, 1994), L. Cardoso, *Mexican Immigration to the U.S. 1897-1931* (Tucson, 1980), J. McC. Hyman, *Life and Labor on the Border: Working People of Northeastern Sonora, Mexico, 1886-1986* (Tucson, 1991), M. Gatélum Gaxiola, *Migracion de Trabajadores Mexicanos Indocumentados a Los Estados Unidos* (Mexico City, 1991).

⁴⁷ V. S. Clark, 'Mexican Labor,' p. 466.

⁴⁸ L. Cardoso, *Mexican Emigration*, p. 44.

were usually higher than in Mexico, but if wages fell or conditions became intolerable, it was easy to go home.⁴⁹ Therefore, although Bustamante has suggested that proximity was not a key factor, it was in terms of labour market flexibility.

Labour availability in the regional market was also facilitated by labour recruitment agents, who provided information on employment opportunities in the U.S. The agencies brought labour to the frontier; despite laws prohibiting contract labour.⁵⁰ In fact, the U.S. Immigration Service worked in conjunction with the U.S. Employment Service to move large numbers of immigrants to jobs throughout the U.S. Southwest.⁵¹ Representatives of large labour contracting companies regularly supplied entire railway systems, or many of its divisions, with all their labour needs. Private agents also recruited workers, looking for smaller groups of men for special sections, or simply speculating in labour contracts. It was not uncommon for agents to combine the business of recruiting and provisioning labour. There were instances of agencies furnishing workers to railways without a commission, in return for the privilege of keeping the commissary to supply workers with clothing and foodstuffs.⁵²

The permeability of the frontier was another key factor. The movement of workers was certainly related to the labour needs of the cross-border market, but it was also facilitated by a lack of immigration controls. Until the late nineteenth century, the U.S. had no laws restricting immigration.⁵³ Although in 1885, the importation of contracted labour was prohibited, as explained above, even the U.S. Employment Service facilitated the recruitment of temporary workers from Mexico.⁵⁴ Mexican immigration was slowed as a result of the 1917

⁴⁹ P. Limerick, *Legacy*, pp. 244- 245. See also *The Oxford History of the American West*, eds C.A. Milner, C.A. O'Connor, and M.A. Sandweiss (Oxford, 1996)

⁵⁰ *Ibid.*, p. 471.

⁵¹ L. Cardoso, *Mexican Emigration*, p. 44.

⁵² V.S. Clark, 'Mexican Labor,' p. 476. See also M. Reisler, *By the Sweat of Their Brow: Mexican Immigrant labor in the United States, 1900-1940* (Westport, 1976).

⁵³ It was not until 1921 that immigration quotas were imposed. T. Hatton and J.G. Williamson, 'National Migration and World Development: A Historical Perspective,' NBER Working Papers Services on Historical Factors in Long Run Growth, No. 41. National Bureau of Economic Research (Cambridge, 1992).

⁵⁴ L. Cardoso, *Mexican Emigration*, p. 44.

Table 6.4
Comparison of Migrants entering on Seasonal Work Permits and Legal
Immigration from Mexico to the US, 1870-1920

	Seasonal Work Permits	Total Legal Immigrants
1870		463
1880		492
1890		na
1900		237
1907	26,000*	
1910		17,760
1917		16,438
1918		17,602
1919	29,563**	28,884
1920		51,042
1921	42,437***	

Source: *United States Mexico Border Statistics Since 1900*, ed. D. Lorey (Los Angeles, 1990), p. 206 and L. Cardoso, *Mexican Emigration to the United States, 1897-1931, Socio-economic Patterns* (Tucson, 1980), p. 53. The figures are for the years ending 30 June.

*This figure is for the period January - September 1907.

**This figure for the years 1917-1919.

***This figures if the net after subtracting the total for 1917-1919 from 72,000 as cited in Cardoso.

Immigration Act, which imposed a head tax of US\$8 on immigrants and required adults to pass a literacy tests. However, the Secretary of Labour was allowed to make special provisions for seasonal workers, a facility that was applied extensively to Mexicans.

Table 6.4 places the number of Mexican labours who entered the U.S. as part of the work permit scheme alongside the total number of legal Mexican immigrants entering the U.S. between 1870 and 1910. There are several striking features in this table. One is that legal immigration figures are surprisingly low between 1870 and 1900. This is explained by the fact that most Mexicans crossed the open border, while the data list immigrants landing at principal seaports. Another striking feature is the disparities between the number of immigrants and seasonal workers for subsequent years. In 1910, for example, total legal immigration was 17,760. This figure is 68 percent of the number of temporary workers crossing the land border during a nine month period in 1909. Similarly, in 1919, over 29,000 seasonal workers entered the U.S. compared with 28,000 immigrants. The discrepancies apparent in these data with regard to permanent Mexican immigrants and temporary Mexican workers may be attributed to the ambivalence of the U.S. towards Mexicans. This is a key point that relates to the role of institutions in the development of the C. Juárez-El Paso cross-border market. The willingness of U.S. officials to loosen immigration requirements in respect of Mexican labour contributed to development, however the general requirements of the cross-border market dictated its internal cohesion. This is evident in migration and direct and indirection recruitment of labour.

By contrast, U.S. migration southward is difficult to quantify given that the U.S. did not enumerate individuals leaving the country and Mexican officials were relatively lax in recording the arrival of foreigners across the land border. Nevertheless, there appears to have been some movement of U.S. managers, technicians, and merchants southward, consistent with the general discussion on foreign immigration to Mexico. The existence of cross-border entrepreneurial networks and large concerns, such as mining and railway enterprises, also moved skilled labour across the border. In 1886 there were only 13 American-owned mining companies in all of Mexico, but by 1907 there were approximately 870.⁵⁵ In 1909, 28 American and 3 British firms

⁵⁵

J.M. Day, 'Mining Hub,' p. 18.

operated in Chihuahua, and together they employed close to 7,000.⁵⁶ Wasserman maintains that the Terrazas family tended to employ foreign managers for the day-to-day management of its vast empire.⁵⁷ The Mexico Northwestern Railway, under the control of F.S. Pearson, staffed its regional headquarters in Chihuahua almost exclusively with U.S. administrators and employed 250 skilled workers from the U.S.⁵⁸ On the eve of the Revolution, over 1,000 U.S. citizens worked at Madera, Chihuahua, serving as engineers, mechanics, conductors, planers, filers, loader men, hoist men, skidders and various clerical/administrative positions.⁵⁹ The industrial and mercantile census for C. Juárez lists three proprietors of industrial firms with non-Spanish surnames and 18 out of 162 merchant-houses headed by individuals with non-Spanish surnames. This also suggests entrepreneurial immigration from the north.⁶⁰ In short, while Mexican labour was very important, U.S. labour also participated in the development of the cross-border market.

The pattern of regional development created a large area in which the similarity of skills undoubtedly facilitated the movement of labour. The main characteristics of the labour market were determined by a growing demand for unskilled and semi-skilled workers in railways, mining and agricultural sectors, supplied largely by immigration from the south. However, there is evidence of a movement of managers and entrepreneurs from north to south, meaning that the flow of labour was not simply the flow of Mexican workers into the U.S. The weak application of institutional controls contributed to the formation of a cross-border market, but this did not dictate the process, as businesses responded to labour shortages without depending solely on government programs.

⁵⁶ M Wasserman, *Capitalists and Caciques and Revolution* (Chapel Hill, 1984), p. 81.

⁵⁷ Wasserman maintains that in the mining sector, between 1880 and 1910, foreigners were employed as managers. M. Wasserman, *Capitalists*, p. 65

⁵⁸ Obviously, the Revolution prompted them to leave. However, after the Madero success, it appears that 1,200 returned to work in Madera W.E. French, 'Business as Usual; Mexico North Western Railway Managers Confront the Mexican Revolution,' *Mexican Studies/Estudios Mexicanos*, 5 (1989) 2, p. 228

⁵⁹ *Ibid.*

⁶⁰ 'giros mercantiles,' np.

Table 6.5
Occupational Structure of El Paso in 1910 and 1920

Occupation	1910		1920	
	Number	Percentage	Number	Percentage
Agriculture, forestry, and animal husbandry (including fisheries)	254	1.70%	354	1.20%
Extraction	199	1.30%	322	1.10%
Manufacturing and mechanical	4,409	29.30%	7,767	26.30%
Transportation (and communication)	2,261	15.00%	3,890	13.20%
Trade (and Commerce)	2,512	16.70%	5,664	19.20%
Public service	348	2.30%	1,185	4.00%
Professional services	1,136	7.60%	2,164	7.30%
Domestic and personal services	2,708	18.0%	4,176	16.00%
Clerical	1,200	8.00%	4,176	11.70%
Total	15,027	100.00%	29,515	100.00%

Source: U.S. Department of Commerce, Bureau of The Census, *Thirteenth Census (1910) and Fourteenth Census (1920) of U.S. Population*, and O.J. Martinez, *Border Boom Town*, Appendix Table 7, p. 164.

III

This section will single out specific occupations and corresponding wage rates in order to demonstrate the internal cohesion of the C. Juárez-El Paso cross-border market. It is useful at this point to revisit the issue of factor price homogeneity. As was explained in Chapter 2, factor price equalization (convergence), would be the quantitative test of integration if C. Juárez and El Paso were studied as two separate communities. However, the focus of this study is intra-regional cohesion, and not international (Tinbergen) or inter-regional labour mobility (Richardson). Therefore, the test of internal cohesion is the homogeneity of factor prices within the cross-border market. In the previous chapters, this test has been applied in a qualitative sense because of the lack of quantitative data. In this section, a limited amount of wage data allows for a slightly more rigorous approach, although even this is far from precise.

Up until 1881, the vast majority of the population was engaged in agriculture, but not exclusively. For example, tax rosters for C. Juárez in 1851, occupations such as priest, carpenter, lawyer, painter, tailor, and shop owner can be found.⁶¹ A special census taken in 1860 in El Paso revealed a similar occupational structure to that of C. Juárez, consisting of professionals and artisans specifically, one judge, four lawyers, 15 merchants, a preacher, 45 labourers, and three stage drivers.⁶² But it was not until the coming of the railways, that a significant number of opportunities for unskilled and semi-skilled wage labour emerged. By the beginning of the twentieth century, there are more extensive and reliable data for the C. Juárez-El Paso urban area. These permit a rough assessment of the cross-border market occupational structure.

Table 6.5 displays information on the occupational structure of El Paso county. These data suggest that by 1910, and certainly by 1920, agriculture employed less labour than mining, in the county. This would seem to contradict previous sections, which suggested that agriculture was a significant draw for unskilled labour. However, a more detailed inspection of the 1910 census data reveals that farmers, farm labourers, stock raisers, herders, drovers and feeders, all classified as unskilled or semi-skilled, constituted 83 per cent (211) of the total number

⁶¹ ACJ, r. 36, ff. 58-59 (1851).

⁶² Interestingly, the census noted the existence of four 'gentlemen.' N.L. Hammonds, 'History of El Paso County,' p. 79.

employed in the sector.⁶³ In 1920, labourers comprised 63 per cent of the labour force.⁶⁴ Therefore, within the agriculture, the unskilled/semi-skilled represented a significant portion of the total, although its importance had declined by 1920. Another reason why, at first glance, employment in agriculture seemed insignificant, is the fact that most workers were migratory, moving throughout the region as crops came ready for harvest. Therefore, they would not necessarily have been present in the area at the time the census was taken. In the classification system utilised by the U.S. Census, differentiation between extraction, and smelting and refining activities, also appears to undermine the argument that mining was an important aspect of the local economy. Here again, it is instructive to look at the detail in order to determine the total number of skilled versus unskilled labourers. The extraction of minerals was relatively unimportant in the El Paso-C. Juárez area, a fact already recognised in earlier chapters. This, then, explains the relatively few number of workers in that industry. Nevertheless, unskilled labour/semi-skilled labour comprised 83 and 81 percent of the sectorial work forced in 1910 and 1920, respectively.⁶⁵ Smelting and refining on the other hand was an important aspect of the broader cross-border mining sector. Here, the U.S. Census details show that unskilled/semi-skilled labour comprised 97 percent of the sectoral labour force in 1910, and 94 percent in 1920.⁶⁶

⁶³ The explanations of the methodology of enumeration in the U.S. Census for 1910 states quite clearly that enumerators did not distinguish carefully between farmers and farm labourers, and therefore the data was spurious. The classification of skilled, semi-skilled and skilled may be inferred from the way in which the industries were grouped – professional, clerical, public service, etc. as well as by the occupational classification within each industry. The census data show who, for example, were managers, foremen, etc. See *Thirteenth Census*, pp. 17-19. The *Fourteenth Census of United States Population* contains a similar explanation in the section of methodology and classification.

⁶⁴ *Fourteenth Census*, p. 258. The percentages were calculated by adding all the individual occupations within the industry that do not carry with them ownership. For example farmer and dairy farmer versus dairy, farm and stock labourers. However, it is important to note numerous errors in the techniques of the enumerators, recognised by the bureau, mean these numbers flawed.

⁶⁵ *Thirteenth Census*, p. 226 and *Fourteenth Census*, p. 258.

⁶⁶ *Thirteenth Census*, p. 226 and *Fourteenth Census*, p. 658. The designation of unskilled and semi-skilled is quite ambiguous, given the census data do not employ such terms consistently. The term 'operative' was used to connote labourer. Comments or clarifications used generalization, such as labourers, to cover a wide range of tasks which would be considered skilled. For the purposes of these calculations, only those entries such as managers, apprentices or designated as skilled, were counted among in the skill category.

The table show that the largest sectors of employment in the C. Juárez-El Paso metropolitan area both in 1910 and 1920 were manufacturing, transportation and trade. A breakdown of the more important employment aspects of manufacturing and mechanical sector included occupations such as blacksmiths, forgemen and hammermen, butchers and dressers, builders and building hands, and iron and steel trade labourers such as machinists, millwrights and tool makers. In the transportation sector, railroad labourers, locomotive engineers and brakemen were the most important occupations. Clerks in stores, deliverymen, retail dealers were the largest single occupations in the trade sector.⁶⁷ Again in the detail for 1920, in the manufacturing and mechanical industries, the same categories are prominent. In transportation, road and street, and railroad transportation labourers, including boiler washers, brakemen, conductors, switchmen were the largest categories of employees. In trade, retail dealers, and salesmen and women were also the largest entries.⁶⁸ In short, the occupational structure of the C. Juárez-El Paso metropolitan area was a reflection of its function as an intermediate point for regional specialisation in primary production and the transport of these outputs. This is why the bulk of employment is found in support services to transportation, mining and cattle ranching. Furthermore, the Census data clearly demonstrate that semi and unskilled labour opportunities were created as a result of the economic activities that emerged in the regional market.

The 1904 State Census for Chihuahua revealed that, the C. Juárez *municipio* had a population of 8,780. Of this, 1,560 were classified as agriculturalists, 37 as miners, 30 as professionals, and the balance provided some form of service or trade, including merchants, masons, carpenters, bakers, etc. Approximately 2,145 were considered not economically active; these were young children.⁶⁹ Stated another way, of an economically active population of 6,635, approximately 24 percent of the population was engaged in agriculture, 0.5 percent were considered skilled and the balance were employed in semi and unskilled positions, meaning 76 percent of the population. Data found in the *Anuario Estadístico 1909* showed that the C. Juárez

⁶⁷ Thirteenth Census, pp. 226, p. 228, p. 230.

⁶⁸ Fourteenth Census, pp. 261 and 263.

⁶⁹ State of Chihuahua, Secretaría de Fomento, *Censos y División territorial del Estado de Chihuahua, Censo General de la República Mexicana* (Chihuahua, 1904), pp. 177, 219-224.

urban area possessed 162 mercantile establishments, employing a total of 135, excluding owners.⁷⁰ Most merchant establishments were small, consisting of one to three employees, but the largest establishment (Kettelson and Degetau) employed 20. In addition, there were 93 firms that had no employees, suggesting that these were extremely small-scale retail outlets.⁷¹ The industrial category lists 40 establishments, but provides no information about the number of employees.⁷² When compared with the population figures available for C. Juárez for 1910 (10,621), inferences may be made about the occupational structure of that labour market. The formal labour market represented by industrial and mercantile establishments afforded little opportunity. This suggests that either a large pool of unskilled labour was present in the region, or that much of the economically active population was engaged in self-sufficient pursuits, primarily agriculture, as late as 1910. The availability of a large pool of workers ties in with the growing labour requirements of the greater cross-border economy and the movement of Mexican labour northward. Given that Mexican labour was migratory, it is not unreasonable to suggest that many of the workers in C. Juárez found employment in El Paso. In fact, in a report issued by the U.S. Consul to C. Juárez, in 1888, nearly 30 percent of the C. Juárez population found daily employment in El Paso, and by 1907 nearly 50 percent did.⁷³

The occupational structure was reinforced by the hiring practices of the labour recruitment firms retained by major employers. This is particularly true in the case of the railways. As was mentioned above, the Southern Pacific system, in 1909, employed Mexicans almost exclusively as section hands on its southern route, whilst elsewhere various other races, as well as Asians, were employed. Except for the California division, the section hands on the southern railway ending at Los Angeles were for the most part Mexicans, though Chinese and

⁷⁰ ‘giros mercantiles,’ np.

⁷¹ *Ibid.*

⁷² ‘giros industriales,’ np.

⁷³ O.J. Martínez, *Border Boom Town*, p. 8.

Indians were employed for a time as were Japanese.⁷⁴ The El Paso and Southwestern used Mexicans only during its seven years of operation.⁷⁵ The 1909 investigation of the Dillingham Commission found that Mexicans had done most of the railroad construction in California, Arizona, New Mexico and Nevada. In the same year, nine western railroads employed about 6,000 Mexicans in their maintenance of way departments.⁷⁶ The most telling description of C. Juárez-El Paso as a labour consolidation point was put forward by the Dillingham Commission. The report read:

Of the border cities mentioned El Paso is the only one that is a real labour depot. San Antonio is probably the most important distributing point of Mexican labor for Texas proper. Kansas City, Missouri is given as their destination by many arrivals at El Paso, and that city is resorted to by them as an employment center. Los Angeles serves the same purpose for Southern California, and has a large colony from Old Mexico. Tucson, Arizona, and Trinidad and Denver, Colorado have agents that handle a fairly large number of Mexican laborers.⁷⁷

In short, the occupational structure of the cross-border market was based on a demand for skilled and semi-skilled labourers drawn from a very large geographical area.

If evidence could be found that similar wages were paid in each occupational category on both sides of the border, then this would further sustain the argument that, C. Juárez-El Paso formed a cross-border labour market. Here, wage homogeneity within the market is important. Moreover, if the 'regional rate for the job' was different from that in the respective national economies, this would also suggest the operation of a regional labour market. Robust series of wage data do not exist on either side of the border. The information is fragmented, making it difficult to construct a time series. Another complicating factor is the prevalence of 'ethnic' wages. Where a wage 'divergence' existed, this may be explained by social and cultural factors,

⁷⁴ U.S. Senate, 61st Congress, Document No. 633, *Report of the Immigration Commission, Immigrants in Industries*, Part 25: 'Japanese and other immigrant races in the Pacific coast and Rocky Mountain States' (hereafter 'Immigrants in Industries') (Washington, D.C. 1910), p. 13.

⁷⁵ 'Immigrants in Industries,' p. 17.

⁷⁶ M. Reisler, *By the Sweat of Their Brow*, pp. 3-4.

⁷⁷ V.S. Clark 'Mexican Labour,' *Bulletin of the Department of Labour*, 78 (September 1908), pp. 466-7.

Table 6.6
Daily Wage rates paid to Railway, Mining and Agricultural labourers
between 1900-1914
 (figures are expressed in US\$)

Year	Railways			Mining			Agriculture		
	<u>Mex.</u>	<u>CJ/ELP</u>	<u>US</u>	<u>Mex.</u>	<u>CJ/ELP</u>	<u>US</u>	<u>Mex</u>	<u>CJ/ELP</u>	<u>US</u>
1854								.20	
1900		1			.37-1.00		0.15-		0.50-3.50
							0.27		
1902				0.75	1	2	0.25		
1903							0.28	.50-.75	
1907	0.50-	1.25	1.5	1		2.46	0.23	1.00-1.25	
	0.87								
1908					1.25	1.25	0.23		
						-2.25			
1911								1.00-1.25	
1914					1.5	1.1			

Source: L. Cardoso, *Mexican Emigration to the United States*, p. 23, pp. 46-7, and U.S. Department of Labour, *Labor Department Reports*, p. 345 and Department of State, *Dispatches from U.S. Consuls in Ciudad Juárez (Paso del Norte)*, 1850 - 1906, vol. 1, Statement of Consul Diffenderfer for 1 June 1854 - 1 January 1855.

This daily wage was calculated based on eight Mexican pesos per month reported by Diffenderfer divided by 30 calendar days. The exchange rate used to calculate was MN1=US\$1.348. *Méjico in el Siglo XIX*, ed. E. Cardoso (Mexico, 3rd edition, 1983), p. 184.

as is shown below. Obviously, the wages paid to labour and their uniformity within the regional market applies, in this thesis, to the broad base of unskilled and semi-skilled workers.

Table 6.6 contains daily wage rate data for specific activities between 1854 and 1910. These data show that homogenous wage rates existed in the cross-border area. By all accounts, in 1854, the reconstructed wage rate for unskilled agricultural workers in El Paso and C. Juárez was the same, US\$ 0.20.⁷⁸ At the beginning of the century, wages for agricultural workers in Mexico were approximately US\$ 0.27 per day. The wages on farms in the Rio Grande Valley (southeastern Texas) were approximately US\$ 15.00 per month during the high season, equivalent to about US\$ 0.60 cents per day.⁷⁹ In 1903, Mexican farm hands could be hired for US\$ 0.50 to US\$ 0.75 a day. In 1907, they were paid US\$ 1.00 to US\$ 1.25 per day and higher. Rural wages in the Chihuahua area, according to Wasserman, were US\$ 0.50.⁸⁰

During the first decade of the twentieth century, unskilled and semi-skilled railway workers, on both sides of the border, earned US\$1.00 per day, up until 1907, when the rate increased to US\$1.25 (gold), perhaps owing to the demands of workers in the face a deteriorating economic environment mentioned in Chapter 3 and discussed in the following chapter.⁸¹ For example, in C. Juárez, the National of Mexico Railway paid labourers MN\$ 2.00, equivalent to US\$ 1.00. This was the same as the rate paid by many railways in the U.S. Southwest.⁸² Further away from the border, wages diverged. For example, the National Railroad of Mexico paid section hands south of Saltillo MN\$1.00 (US\$0.50). The Mexican Central Railway, in the neighbourhood of Chihuahua, paid section men MN\$1.50 a day and track layers

⁷⁸ This is true, for example, in the U.S. Department of State, *Dispatches from U.S. Consuls in Ciudad Juárez (Paso del Norte)*, 1850 - 1906, vol. 1, Statement of Consul Diffenderfer for 1 June 1854- 1 January 1855 and *Commercial Relations of the United States with All Foreign Nations*, Thirty-fourth Congress, First Session, House Executive Document No. 47, Consular Reports, vol. 3, p. 420. Statement of Consul Diffenderfer for 8 January 1855.

⁷⁹ Compared with US\$ 0.50 to \$3.50 per day in the U.S. V.S. Clark, 'Mexican Labour,' p. 482-3. See also L. Cardoso, *Mexican Emigration*, p. 11. P. Morales, *Indocumentados Mexicanos*, p. 64.

⁸⁰ M. Wasserman, *Capitalists*, p. 121.

⁸¹ M.T. Garcia, *Desert Immigrants*, p. 37 and V.S. Clark, 'Mexican Labour,' pp. 470-477.

⁸² V.S. Clark, 'Mexican Labour,' p. 478.

MN\$1.75, the equivalent of US\$0.75 to US\$ 0.871/2 cents.⁸³ These rates were obviously substantially lower than the wage rate prevailing in C. Juárez/El Paso. Northward, away from the border, wages paid to section hands rose. For example, the daily rate was US\$1.50. Finally, in the mining sector, smelters in Northern Mexico and the Southwestern U.S. paid unskilled workers a daily wage of US\$ 1.00 in 1902.⁸⁴ In 1908, the wage was US\$ 1.25, and in 1914, it reached US\$ 1.50.⁸⁵ This is compares favourably with the wages of US\$ 1.00 (3 pesos) paid near Chihuahua in 1907.⁸⁶

Mexicans and Mexican-Americans constituted the largest racial or ethnic minority among the workers of the U.S. Southwest, often times being discriminated against.⁸⁷ The rates paid to 'white' miners were standardised by custom and by union regulations and ranged from US\$ 3.00 to US\$ 5.00 per day. Mexicans, on the other hand, were offered a much lower rate, not exceeding US\$ 2.00 per day.⁸⁸ For example, on the Southern Pacific line near Bakersfield (CA) c1908 the rates were as follows: Mexicans, US\$1.25; Japanese, US\$1.45; and Greeks, US\$1.60.⁸⁹ According to railway foremen along the Bakersfield route, the discrimination in the wages was due solely to arbitrary orders issued from headquarters by, '...men who had no practical knowledge of the efficiency of different kinds of labourers.'⁹⁰ On the face of it, this clearly demonstrates that Mexicans received a lower monetary wage. However, it may be that, non-monetary payments may have offset part of the difference. As was indicated above, labour

⁸³ V.S. Clark, 'Mexican Labour,' p. 470 and p. 480. In 1900, the going wage rate was \$US 0.50 in Mexico, in general, compared with \$US 1.00 to 2.00 in the U.S. See P. Morales, *Indocumentados Mexicanos*, p. 64. See also L. Cardoso, *Mexican Emigration*.

⁸⁴ V.S. Clark, 'Mexican Labour,' p. 474.

⁸⁵ Most Mexican smelter employees listed in El Paso World War I draft records worked as labourers, in contrast to U.S. citizens who monopolised the limited skilled occupations in the labour-intensive industry. See M.T. Garcia, *Desert Immigrants*, pp. 52 and 66, and Chapter 5, footnote # 6.

⁸⁶ M. Wasserman, *Capitalists*, p. 121.

⁸⁷ *Oxford History*, pp. 441-2.

⁸⁸ V.C. Clark, 'Mexican Labour,' p. 486.

⁸⁹ *Ibid*, p. 478.

⁹⁰ *Ibid*, pp. 478-9.

recruitment agencies offered room and board to railway workers as part of their employment contract. Another example of non-monetary wage payments is the free return transport given by some U.S. railroads to Mexican labourers, if they worked regularly for three months. This benefit was paid by major railways operating out of C. Juárez-El Paso, but not the smaller lines or those distant from the frontier.⁹¹ These non-monetary payments were utilised to retain labour.

The peculiarities of the non-monetary element of wages paid to unskilled Mexican workers further supports the argument that there was an integrated regional labour market. As indicated above, many employers recruited unskilled workers from Mexico. The 'nearness' of Mexico made for flexibility. While there was a tendency for inter-continental migrants to pass through the region, Mexican workers were drawn into it. The examples of the Southern Pacific system and The El Paso and Southwestern above prove this point. There was a continuous movement of labour northward, inside of Mexico, to supply the growing demand in states such as Chihuahua and Sonora, which were losing labour to the border region.⁹² Thus, recruitment from the south made for an elasticity of labour supply in the region. This, in turn, accounted for distinct regional wage rates, which were higher than in Central Mexico and lower than elsewhere in the U.S. The preference of many large employers to fill unskilled jobs with Mexicans, gave the regional labour market yet another peculiar characteristic.

The foregoing discussion confirms the internal cohesion of the C. Juárez-El Paso cross-border; wage prices were homogenous in the area immediately adjacent to the international boundary. **Table 6.6** demonstrated that in the sectors singled out by this study, there were no differences between the wages paid in C. Juárez and El Paso. The persistence of an 'ethnic' wage, as mentioned above, may be construed as a lack of homogeneity, but such is not the case as it has been argued that the region possessed a peculiar characteristic, the predominance of Mexican low wage labour. In reality, the 'ethnic' wage was the norm, and not the exception.

IV

This chapter has argued that the pattern of economic activity in the cross-border market was similar throughout because of a reliance on agriculture and service-related industries that

⁹¹ *Ibid.*, p. 478.

⁹² *Oxford History*, p. 434 and V.S. Clark, 'Mexican Labour,' pp. 470-1.

existed in the immediate El Paso-C. Juárez vicinity. It has also argued that the similarity of the pattern of economic activity may be broadened to include a larger geographical sphere stretching from Chihuahua in the south, to Arizona-Sonora in the west and Santa Rita, New Mexico in the north and present day West Texas to the east. Industrialisation in the U.S. required a large supply of cheap labour in the Southwest and West, where development gave rise to a need for unskilled farm workers, railroad hands, mine and smelter labourers, and other forms of menial labour. Likewise in Northern Mexico, migrants also moved into the region not only because of its development, but also because of the policies of Porfirio Díaz, which dislocated a number of populations from their individual and communal lands. Thousands of dislocated peasants and artisans migrated to the northern states where they found employment in the mines, railways and ranches. The effects of the Mexican Revolution in 1910 further exacerbated this trend. Finally, it has been argued that the pattern of economic activity was limited to three major pursuits mining, agriculture and transportation and that these formed the foundations of the larger geographical network. Hence, there was a regional productive and labour specialisation.

The occupational structure that emerged as a result of this pattern of economic activity was a pyramid, with a base consisting of a large pool of unskilled and semi-skilled labour, and a narrow apex of skilled and professional labour. The nationality of the lower levels of the pyramid was definitely Mexican, while the upper levels tended to be American. Labour had to be extremely mobile in order to support the types of industries and the nature of their production processes. Mobility was spatial, in that, Mexican labour moved northward, at first, in a circumscribed geographical region. Some U.S. labour moving southward was also detected. However, mobility between occupations appeared to have been limited. This was due to the nature of labour utilisation. Noticeably absent from the period was the lack of immigration restrictions on either side of the border. Between 1880 and 1917 there existed unrestricted movement. It was not until 1917 that the U.S. Immigration Act limited work in specific industries, but this was designed to stem the flow of immigrants from Eastern and Southern Europe. There had been early qualitative measures designed to limit immigration, but Mexican labourers were exempted.

As the discussion on wage rates showed, there existed a wage gradient emerging from the El Paso-C. Juárez vicinity and radiating both northward and southward. From El Paso

northward, wages increased further from the border in all occupations. This provided a very strong pull factor for labour. Likewise, from C. Juárez southward, wages declined significantly. This, too, provided a strong push factor for labour to migrate northward out of southern Mexico. The extent to which the cross-border economy displayed homogeneity in labour prices was expressed by the equivalent wages found immediately south and north of the border in most occupations. Finally, it has been suggested that discriminatory practices contributed to the nature of the cross-border market. These manifested themselves in the wage rates paid to ethnic groups within the various sectors, but they did not constitute a generalised trend away from internal cohesion. This is important as this study turns to the financial and trade aspects of the cross-border market.

CHAPTER SEVEN

CROSS-BORDER FINANCIAL NETWORKS AND TRADE

The final production factor to be added to this analysis is capital. The first part of this chapter will provide evidence that a regional capital market existed by extrapolating on the development of cross-border businesses. The formation of cross-border financial networks is utilised as a proxy for capital because access to credit played an important role in facilitating the increasing volume of economic activities. Few banking records from the period survive, therefore it was necessary to rely on fragmentary references in the state, county and city notarial and deed records where available for the C. Juárez-El Paso area, coupled with data in the secondary literature. A schematic model will be utilised to show how financial institutions were linked together within the cross-border region.

The balance of the chapter is devoted to the movement of goods within the cross-border region. The fruits of the efforts of cross-border entrepreneurs, labour and capital are all brought together under one umbrella and labelled intra-regional trade (internal cohesion). It is important to reiterate that this analysis is designed to measure the internal cohesion of the C. Juárez-El Paso cross-border market because international trade data are here viewed as a partial proxy for the movement of products between units of the same business or enterprise. For example, cattle shipped from estates in the heart of Chihuahua to C. Juárez-El Paso were not simply exports from Mexico to the U.S., but rather the movement of livestock from the range to the slaughter and/or packing house located closer to the main railway lines, which happened to be at an international boundary. The primary product was shipped to an intermediate point for processing or consolidation before proceeding to other intermediate or final markets. Intra-regional trade took place within a vertically integrated business network that transcended the international boundary. Therefore, the analysis focuses on the areas of specialisation that have been very clearly delineated in the previous chapters agriculture, mineral exploitation and commerce (wholesale and retail). In a further refinement of the subject, the analysis of cattle and lead-ore exports from ranching estates and mining interests, respectively, and the shipment of steel and iron machinery and agricultural implements from wholesale and retail hardware suppliers are used as measures of internal exchange. The value of these items was gleaned from the U.S. import and export

data and will demonstrate an intensification in the monetary value of internal exchange.¹ The important point is that specialisation resulted in a reliance on a limited number of items of exchange, and vertical integration across the international boundary meant that the income generated by moving these goods throughout the region was divided among productive units of the same company or interest.

I

Cross-border financial networks evolved from personal relationships predicated on the caravan system to a mix of relationships based on more formal local, regional and national financial arrangements.² In the beginning, the individual entrepreneur was important in creating and extending financial linkages. After 1881, impersonal organizations including large banking institutions came to occupy the most prominent position in the cross-border financial market.

Financial networks along the northern periphery of New Spain initially took the shape of informal arrangements amongst entrepreneurs because of the shortage of specie (silver coins). This was not peculiar to the region, rather it was typical of a frontier economy where formal systems of credit were weak or nonexistent. Scarcity was exacerbated by the fact that silver functioned both as a means of payment and as a product for export.³ Merchants participating in the caravan system and troops stationed in the area sometimes served as suppliers of specie. However, because of the inefficiency of the transportation system on which they both depended, silver was always in short supply.⁴ Other types of metal coins, such as copper and nickel, enjoyed a limited circulation, but they were not universally accepted and seldom brought more than 10 percent of their face value.⁵

The endemic shortage of specie had two effects: (1) the concentration of credit in a limited number of hands; and (2) the emergence of barter-based exchanges. Firstly, the

¹ As explained in Chapter 2, complete data sets are available only after 1893 in *The Foreign Commerce and Navigation of the United States* (hereafter *Foreign Commerce*) prepared by the U.S. Department of Commerce, Bureau of Statistics.

² In this section the term 'formal' is interchanged with 'impersonal' and 'corporate.' Austin and Sugihara maintain that traditional sources of credit – moneylenders and rotating credit societies are considered informal while organised institutions are labeled formal. See *Local Suppliers of Credit in the Third World, 1750-1916*, ed. G. Austin and K. Sugihara (London, 1993).

³ See Chapter 3 for a brief discussion on the nature of Mexican exports. Section II also discusses the importance of silver to the Mexican economy.

⁴ In fact, according to Humboldt, the region did not come to know money until 1798. A. von Humboldt, *Political Essay on the Kingdom of New Spain*, John Black translation (London, 1813), p. 313 and *Descripciones económicas generales de Nueva España, 1784-1817*, 'Provincias del norte, 1790-1814,' vol 1., eds. E. Florescano and I. Gil (Mexico, 1976), p. 181. See Chapter 4 for a discussion of the transportation system.

⁵ M. Moorhead, *New Mexico's Royal Road: Trade and Travel on the Chihuahua Trail* (Norman, 1958), p. 83. See also F.C. Lister and R.H. Lister, *Chihuahua: Storehouse of Storms* (Albuquerque, 1966) and I. Herrera Canales, 'La circulación: transporte y comercio,' in *Méjico en el siglo XIX, Historia económica y de la estructura social*, ed. C. Cardoso (Mexico, 9th edition, 1990).

principal market activities in the region were wholesaling and retailing, dominated by monopoly concessions that utilised a far-reaching network of agents and peddlers to distribute goods. Agents functioning in the periphery tended to be small in comparison to their Mexico City and Chihuahua counterparts. Their primary trade was in a limited volume of local agricultural and artisan products, which commanded a low price relative to imported and domestic manufactured goods brought from the south, which tended to be higher in value. This exchange disadvantage meant that regional merchants needed some form of credit in order to continue to operate. However, credit was also monopolised by those managing the retailing and wholesaling network. Therefore, small-scale merchants were forced to borrow from larger interests, leaving the latter to dominate the credit market. This tendency was visible in the early nineteenth century (1803) when the official commerce of New Mexico was reported as being managed by only 12-15 people.⁶

The second outcome of a lack of specie was barter-based exchanges. Officially, the pricing and payment system was based on the silver peso.⁷ Several items became mediums of exchange, such as livestock, furniture and land, but their value was always expressed in terms of the peso.⁸ For example, an item priced in terms of a 'dollar of furniture', had the equivalent value of six *reales*, and 'a dollar of land' (*peso de tierra*) was valued at two *reales*. Items priced in silver pesos held the greatest value while those priced in 'dollars of land' were the cheapest and the most commonly traded.⁹ The pricing mechanism described above is better understood when placed within the context of time and space. During the early Mexican republic (1820s) land in Texas sold at approximately the equivalent of US\$ 0.10 per acre, as compared to US\$ 1.25 per acre for inferior quality land along the U.S. frontier.¹⁰ A purchase expressed in terms of land values, a 'dollar of land', meant that the value of the item was equated with the value of an acre of land, that is, the equivalent of US\$ 0.10. The system was based on specie, but actual transactions took the form of barter, and blankets, hides, livestock and land traded hands instead.

⁶ M. Moorhead, *Royal Road*, p. 51.

⁷ The Spanish peso was divided into eight *reales*. It was also known as a silver dollar or a 'piece of eight.' See D. G. López Rosado, *Historia del Peso Mexicano* (Mexico, 1975).

⁸ *The Oxford History of the American West*, eds. C.A. Milner, C. A. O'Connor, and M. A. Sandweiss (Oxford, 1996), pp. 241-2. See also G.P. Hammonds, 'Don Juan de Oñate and the Founding of New Mexico,' *Historical Society of New Mexico*, 11 (1927), pp. 19-23.

⁹ P. Horgan, *Great River. The Rio Grande in North American History* (Hanover, 1984), pp. 364-367. According to Moorehead, in New Mexico in the late 1700s, the barter system consisted of: (1) *peso de plata*, which was scarce, though it had a value of eight *reales* and was the standard later adopted by the U.S. for its silver dollar; (2) *peso a precios de proyecto* worth only six *reales*; (3) *peso a precios antiguos*, worth four *reales*; and (4) *peso de la tierra* worth only two *reales*. The last three were imaginary denominations employed for bookkeeping purposes. M. Moorehead, *Royal Road*, p. 51 and M.C. Meyers and W.L. Sherman, *The Course of Mexican History* (New York, 2nd., 1991), p. 335.

¹⁰ M.C. Meyers and W.L. Sherman, *Course*, p. 335.

After 1821, both Mexican and U.S. merchants involved in the expanding trade opportunities of the Santa Fe trail frequently functioned as informal suppliers of credit among themselves and did not hesitate to carry personal letters and money across the international frontier. As with many frontier economies, it was not uncommon for them to cash letters of credit, collect debts and liquidate stock for each other. The ability to secure credit, particularly from informal sources, was an important feature of overland trade activities. U.S. merchants participating in the Santa Fe trade generally purchased their wares from wholesalers in locations such as New York, Philadelphia, Boston and New Orleans. However, these suppliers often preferred payment-in-full prior to shipping orders. This practice, along with the lack of drawback privileges, raised the initial cost of trading overland.¹¹ A further complication was that Santa Fe traders could only make payments after having sold goods in the Mexican markets. Consequently, the inability to pay wholesale suppliers up front meant U.S. traders could not regularly procure goods without some form of credit. Likewise, Mexican merchants also required credit, which they obtained in the form of letters of exchange and other financial instruments. In this case, kinship networks played an important role in facilitating trade activities. However, credit was available primarily for wholesale activities, suggesting that only larger merchants, with commercial ties to the monopolies in Mexico City, could secure credit.¹² Hence, although the opening of the Santa Fe trail represented additional trade opportunities, the limited availability of credit rendered them ephemeral. Only those individuals with strong personal links to suppliers of credit could continue in the activity.

¹¹ As explained in Chapter 3, a drawback was the ability to import goods through the Atlantic ports to the frontier for re-export provided the packages remained unopened in the territorial U.S. The records of the U.S. Congress contain a very detailed discussion of the issue. The U.S. House of Representatives, documents include: Twenty-seventh Congress, Second Session, House Report No. 328, 'Extending Privilege of Drawback,' and Twenty-seventh Congress, Second Session, House Report No. 328, 'Drawbacks on inland trade to Mexico and Texas and Canada.' The U.S. Senate documents include: Eighteenth Congress, Second Session, Senate Doc. No. 7, 'Answers of Augustus Storr, of Missouri, to Certain Queries upon the Origin, Present State, and future Prospect, of Trade and Intercourse Between Missouri and the Internal Provinces of Mexico,' U.S. Senate, Twenty-first Congress, First Session, Senate Doc. 46, 'Presidential Protection of trade between Missouri and Mexico,' Twenty-first Congress, First Session, 'Message of the President on protection of trade between Missouri and Mexico,' Twenty-second Congress, Second Session, Senate Doc. No. 90, 'Message from the President of the United States in compliance with a resolution of the Senate concerning the Fur Trade, and Inland Trade of Mexico,' Twenty-fifth Congress, Third Session, Senate Doc. 225, 'Memorial of Assembly of Missouri establishment of a port of entry in Western part of the State,' Senate Doc 25, Third session, 'General assembly of Missouri praying establishment of port of entry of that State and allowances on Drawback in Merchandise Exported by land to Mexico.' Twenty-sixth Congress, First Session, Senate Doc. 472, 'Documents on bill to establish ports of entry in Arkansas and Missouri to allow Debenture on Foreign goods conveyed over land from such port in Mexico,' and Twenty-seventh Congress, Second Session, 'Drawback on inland trade to Mexico, Texas and Canada.'

¹² See Chapter 3 for brief discussion of capital formation in Mexico. I. Herrera Canales, 'transporte y comercio,' pp. 222-223, H.J. Heath, 'British Merchants Houses in Mexico 1821-1860: Confronting Business Practices and Ethics,' *Hispanic American Historical Review* 73 (1993) 3, pp. 270-271. See also E. Cárdenas, 'A Macroeconomic Interpretation of Nineteenth-Century Mexico,' and C. Marichal, 'Obstacles to the Development of Capital Markets in Nineteenth-Century Mexico,' in *How Latin America Fell Behind*, ed. S. Haber (Stanford, 1997), pp. 146-178.

Early accounts of entrepreneurial activity after 1848 contain many references to the continuing lack of currency and coins. Copper continued to function as an alternative medium of exchange, although it was heavily discounted and inconvenient one coined copper dollar weighed nine ounces. The mechanism for monetising exchanges continued to be the wagon trains originating in Chihuahua that brought specie because of the Chihuahua mint. As a result of westward expansion, U.S. paper money entered into circulation from sources such as the supply conveys for the U.S. military contingents stationed in the area. However, both proved to be irregular because of the inadequacy of the transportation system. A third source was the respective customs houses established in the region immediately after the Mexico-U.S. War, which obtained currency and specie from the duties charged on imports. However, here again, these were unpredictable because they relied on overland transportation. As in earlier periods, specie continued to be scarce, and barter and informal financial networks continued to play a significant role in facilitating trade.¹³

The entrepreneur, that is, the merchant-trader identified earlier, remained the most important source of credit immediately after the Mexico-U.S. War. It was not uncommon to see scrip in the form of odd pieces of paper issued to regional traders, which were later redeemed through banks in St. Louis, San Antonio or along the East coast.¹⁴ By the mid 1850s, a more formal network emerged with the extension of the national/international overland transportation linkages through the region by interests such as Wells Fargo, Butterfield, and Adams and Company. These companies offered 'banking' services such as accepting deposits of merchandise and issuing receipts.¹⁵ Still, even the transportation companies lived a precarious life. The case of Henry Skillman serves as an example to further emphasise the importance of informal and personal relationships to forging a regional financial network. As explained in the section on entrepreneurs Skillman offered transport services under contract to the U.S. government, as well as to the private sector. He was forced to enter into an arrangement with James Magoffin (another early entrepreneur) after his business began to suffer due to problems associated with overland transport. The agreement consisted of an arrangement whereby Magoffin purchased the mules and carriages used in Skillman's transportation business, and then leased back the equipment to Skillman

¹³ *Oxford History*, p. 230.

¹⁴ *J. W. Magoffin Papers*, Barker Collection, University of Texas-Austin, and U.S. Government, Department of Treasury, U.S. Customs, *Records of Accounts Current, 1854-1870*, U.S. National Archives and Records Administration, Fort Worth, Texas Federal Records Center, 342.027 EP 2. Both of these manuscript collections contained well-preserved, hand-written accounts of the means by which debts were settled locally.

¹⁵ L.P. Doti and L. Schweikant, *Banking in the American West From the Gold Rush to Deregulation* (Norman, 1991), pp. 26-27.

in order for him to carry on.¹⁶ The Skillman-Magoffin arrangement suggests a credit network among early entrepreneurs based on personal relationships. After 1860, and up until 1881, privately owned banks and mercantile or general merchandising stores became another source of credit. These included: Farrell & Muller, which was located in C. Juárez and maintained an office in El Paso; Kettelsen and Degetau, which had its main office in C. Juárez and maintained a branch in El Paso; and the H.L. Newman bank, which operated in El Paso.¹⁷

The ability to secure credit from local, regional or national suppliers depended to a great extent on the degree of trust existing between the actors.¹⁸ Early financial networks can be characterised as being based on personal and informal relationships, many of which were related to the wholesaling and retailing trade. As the region experienced increasing internal and external integration, transportation companies and specialised private interests (banks and merchant houses) emerged as additional sources of credit. However, as can be seen, credit was concentrated in a limited number of hands because of the hierarchical nature of the primary market activities retailing and wholesaling.

The landscape for beneficiaries and providers of credit changed in 1881 with the emergence of corporate financial institutions in the region. This does not mean that early informal suppliers of credit, such as merchants and private banks, ceased to exist. Some merchant houses continued to serve as creditors, such as Krakaur Zork and Moyer or Kettelsen and Degetau, but they were supplanted by large corporate banks.¹⁹ Between 1912 and 1917 money exchange houses (*Casas de Cambio*) also facilitated informal transactions.²⁰ However, not all of these entities were entirely separate from the formal market. In fact, both Kettelsen and Degetau, and Krakaur, Zork and Moyer, served as 'representatives' for or stockholders in formal institutions (discussed below).²¹ Therefore, while they may have maintained a presence in the informal sector, both companies aided in, and benefited from, the emergence of formal financial institutions. This may have permitted them to continue as informal suppliers of credit.

¹⁶ El Paso County Deed Records (EPCDR), Book C (1852), C.L. Sonnichsen Special Collection, University of Texas - El Paso, p. 31.

¹⁷ C. Calleros, 'Men Who Printed First Bank Notes Offered only 50 Pesos for Efforts,' *El Paso Times* 10, August 1952, n.p.

¹⁸ See Chapter 5 for a discussion of the difficulties encountered by early entrepreneurs.

¹⁹ *Zork Company Collection*, C.L. Sonnichsen Special Collection, University of Texas - El Paso, File 2a, n.p. The archival data show that several loans of up to US\$ 2,000 were made in May 1919.

²⁰ C. Calleros, 'Pioneer El Pasoans Developed Local Banks,' *El Paso Times*, 17 August 1952.

²¹ R. León G., 'Comerciantes Extranjeros en Chihuahua, La Casa Kettelsen y Degetau,' *Chamizal*, 4 (1991) 10, pp. 79-80, 'La banca chihuahuense durante el Porfiriato, *Silgo XIX*, 1 (1992) 2, pp. 32-3, 'Bancos Chihuahuenses durante el Porfiriato, 1880-1916', *Noesis* 2 (1990), p. 20.

The first corporate financial institutions in the cross-border region appeared in 1881. They were: the First National Bank, incorporated with US\$ 50,000; and the State National Bank, incorporated with US\$ 55,000²² The latter was the first El Paso bank to be granted a federal U.S. charter.²³ In July 1882, the Chihuahua State legislature authorised Inocente Ochoa of C. Juárez and a group of Chihuahua investors (Enrique C. Creel and Luis Terrazas, Carlos Zuloaga and Luis Terrazas, Jr.) to establish the Banco Minero Chihuahuense, with its headquarters in C. Juárez and a branch in Chihuahua city. The bank was incorporated with MN\$ 100,000 (approximately US\$ 100,000) in capital and a concession that permitted the emission of up to 300,000 pesos in bills of various denominations.²⁴ Although the bank was closed and moved to Chihuahua the following year, this was the first officially sanctioned financial institution in C. Juárez. Another bank emerging during the 'boom' of the 1880s was the El Paso National Bank (1886), chartered with US\$ 75,000 in capital.²⁵ By 1900, of the banks established during the 1880s boom, only two remained, the State National and the First National; the growth of the 1880s was offset by depression and pressures on the local market.²⁶ The financial sector experienced renewed growth in the 1900s: in 1911, there were seven banks.²⁷ A U.S. Federal Reserve bank branch was opened in El Paso in 1918, and at the end of the period under study, the Greater El Paso Chamber of Commerce reported that, within the trade area, there were 190 banks – 70 national, 100 state and 20 either private or based in Northern Mexico.²⁸

The appearance of formal, impersonal financial institutions coincided with the completion of several railway lines through the area. However, it is important to note that it was not the railway companies themselves that created these banking entities. In the case of the State National Bank, its founders obtained backing from St. Louis capitalists interested in mining opportunities in Arizona. When these prospects proved of little immediate

²² The First National Bank was originally the Bank of El Paso which was probably a private bank. C.L. Sonnichsen and M. G. McKinney, *The State National Since 1881: Pioneer Bank of El Paso* (El Paso, 1971), pp. 7-8 and 20. Greater El Paso Chamber of Commerce (GEPCC), 'The Power House,' (1919), p. 7. See also C. Calleros, *El Paso...Then and Now* (El Paso, 1954), p. 162 and C. Calleros, 'Local Banks.'

²³ GEPCC, 'Power House,' p. 7, C. Calleros, *Then and Now*, p. 162 and C. Calleros 'Local Banks.'

²⁴ In 1882 the exchange rate was approximately MN\$ 1.10 = US\$1.00. However, it is interesting to note that Wells Fargo utilised an exchange rate of 1:1. *Wells Fargo Collection*, MS049, Barker Collection, University Texas - Austin, p. 55. The bank was required to open a line of credit of up to 15,000 pesos to the State of Chihuahua. L.G. Labastida, *Estudio Histórico Y Filosófico sobre la legislación de los Bancos* (Mexico, 1889), pp. 406-407 and R. León G. 'Bancos Chihuahuenses,' p. 9 and p. 24.

²⁵ C.L. Sonnichsen and M.G. McKinney, *Pioneer Bank*, p. 27.

²⁶ 'El Paso Grows as Railroad Center,' *El Paso Herald*, 5 May 1926, pp. 25-26.

²⁷ GEPCC, 'Prosperity and Opportunities,' pp. 6-7.

²⁸ C. Calleros, 'Local Banks.'

potential, the capitalists opted to open a bank in El Paso.²⁹ In the case of the Banco Minero Chihuahuense, it can be inferred from the name that this bank not directly linked to railway activities. Therefore, in the evolution of cross-border financial networks, different, and not simply railway, interests formed key parts of the expanding regional economy.

The focal point of this study is the internal cohesion of the C. Juárez-El Paso cross-border market. Therefore, the task is to demonstrate the ways in which financial institutions (formal or informal) forged cross-border linkages with each other. The discussion on the general themes in the economic historiography of Mexico and the U.S. emphasised the fact that the perceived lack of growth promoting institutions a national financial market in Mexico was key. On the other hand, in the U.S. literature increasing financial resources were important. These different starting points are often cited as reasons why one country developed far more rapidly than the other, and subsequently diverged. As this is a study on the formation of cross-border markets, it is important to ascertain where, in the two presumably different development paths, Mexico and the U.S. 'converged'.

In their study of U.S. economic history, L. Davis, *et.al.*, maintained that the demand for capital tended to be highest in industries and regions experiencing rapid growth.³⁰ What evidence is there that the cross-border region demonstrated this tendency? The capital invested in businesses and deposits held in the various banking activities, as well as their proliferation over time, afford one measure of rapid growth. In 1890, the combined capital of the three principal banks in El Paso mentioned above was US\$ 425,000.³¹ This represented a more than two-fold increase over the US\$ 180,000 recorded in 1886. The deposits of the State National and First National Banks, in 1901, amounted to US\$ 2 million, and in 1911, the seven banks in the city held a combined total of US\$ 10 million, three-quarters of which were individual deposits and one-quarter in the form of trust deposits.³² Finally, by 1920, the combined deposits of the banks in the region were US\$ 85,000,000, of which 95 percent were held in El Paso.³³ Thus, between 1901 and 1920 deposits grew some 40-fold. This contrasts with the overall U.S. case in which the total amount of deposits held in commercial banks increased from US\$ 6.8 billion in 1901 to US\$ 30 billion, representing

²⁹ S. Cox, 'The State National Bank,' University of Texas - El Paso, History Seminar Papers, MF 283, r. 3, (no date), p. 14. See also, C.L. Sonnichsen and M.G. McKinney, *Pioneer Bank*.

³⁰ See 'Capital Mobilisation,' in *American Economic Growth: An Economist's History of the United States*, ed. L. Davis, *et. al.* (New York, 1972), pp. 324-339.

³¹ GEPCC, 'Prosperity and Opportunities in El Paso and El Paso's Territory,' Report (1911), pp. 6-7.

³² 'El Paso Grows as Railroad Center,' *El Paso Herald*, 5 May 1926, pp. 25-26 and GEPCC, 'Prosperity and Opportunities,' p. 6-7.

³³ GEPCC, 'Power House,' p. 9 and p. 16.

a five-fold increase over the same period.³⁴ According to James G. McNary, Vice President of the First National Bank, much of this growth was attributable to the relations and patronage of commercial, banking, cattle and mining interests in Arizona, New Mexico, West Texas and Mexico.³⁵

Two additional indicators are the capital investments made in the various sectors of the local economy and new business start-ups. It has been argued that until 1881, C. Juárez-El Paso possessed little, if any, industrial base. However, by 1910, there existed over 70 manufacturing plants with a total investment of US\$ 7 million and an output of US\$ 20 million per year.³⁶ The ongoing process of improving existing facilities such as those of the El Paso Electric Company, who reportedly made capital improvements of US\$ 150,000 in power and lighting and US\$ 200,000 in cross-border transportation facilities, or the El Paso Smelter, which made improvements to its holdings totalling US\$ 400,000, further underscores the need for financing.³⁷ The proliferation of entrepreneurial activities with cross-border linkages illustrates not only the increasing availability of capital, but also the ongoing development of the cross-border financial network. The first two decades of the twentieth century were particularly fertile for business start-ups. A short list of examples includes: Jockey Club, S.A. with US\$ 600,000; Juárez Land Company, S.A., US\$ 25,000; Garden City Development Company, US\$ 50,000; Senecú Reality Company, US\$ 5,000; Southwest Portland Cement, US\$ 1,000,000; the Juárez Coliseum, US\$ 15,000 in capital; and the Foreign Club S.A., incorporated with US\$ 10,000 in capital.³⁸ In each of these cases, the stockholders intended to undertake activities within the C. Juárez-El Paso area. Therefore, in the terms set forth by Davis, *et. al.*, the C. Juárez-El Paso region experienced a significant amount of growth in financial resources between 1881 and 1920. This is evidenced in the precipitous increase in deposits held by regional banks, the significant sums of funds invested by regional industries to modernise existing facilities, and the creation of new businesses to exploit emerging opportunities.

While the work of Davis, *et. al.*, focuses on development from the U.S. perspective, Marichal offers an explanation from the Mexican side. He points out that Northern Mexico was somewhat different from the rest of Mexico in terms of the evolution of financial

³⁴ U.S. Department of Commerce, Bureau of the Census, *Historical Statistics of the United States from Colonial Times to 1970* (Washington, D.C., 1975), p. 992.

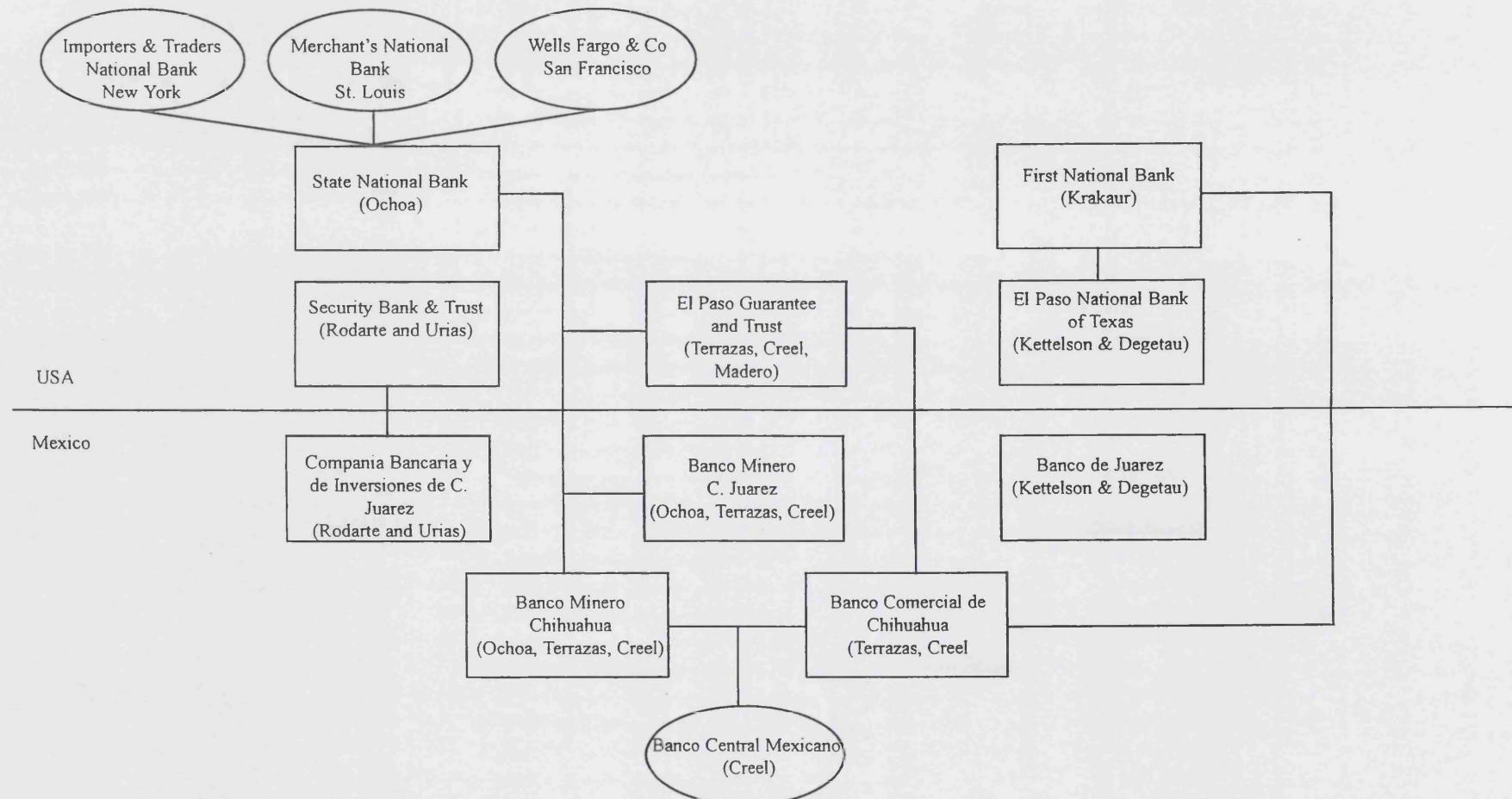
³⁵ GEPCC, 'Prosperity and Opportunities,' pp. 6-7.

³⁶ GEPCC, 'Power House,' p. 7.

³⁷ GEPCC, 'Prosperity and Opportunities,' pp. 6-7.

³⁸ State of Chihuahua, *Archivo Histórico del Notariado Público de la Propiedad del Estado* (AHNP), Record Books of Felix Leijas, 1890-1920, No. 1285 (1913) and No. 7 (1920). When the formation of a business involved start-up capital, the records included the total value and then amounts corresponding to each partner or stockholder.

Figure 7.1
Schematic Model of Cross-border Financial Network



Constructed using information contained in R. Leon G. 'Bancos Chihuahuenses' and 'La Banca', and C. L. Sonnichsen and M.G. McKinney, *Pioneer Bank*, and references in the Notarial Records of the State of Chihuahua and the El Paso County Deed Records, as referenced elsewhere in this chapter.

(capital) markets. The local merchant/financier was quite autonomous in that he was not beholden to a particular financial institution or arrangement based in Mexico City. Eventually, the informal/kinship networks that predominated along the periphery in earlier periods evolved into formal financial institutions such as the banks cited above. Additionally, because of the political instability and inadequacy of the national credit markets, it was not uncommon for entrepreneurs to seek accommodation across the frontier.³⁹ Expanding further on Marichal's argument, this section suggests that it was not uncommon for these same interests to establish their own extra-national financial institutions in an effort to both cope with domestic obstacles and as a response to increasing industrialisation in Northern Mexico, and consequently the formation of a cross-border capital market.

A salient example of the emergence of extra-national financial institutions of this nature in the C. Juárez-El Paso area is The Guaranty Trust and Banking Company of El Paso, which was created by Juan Creel, Luis Terrazas and Evaristo Madero of Coahuila. Forty percent of its stock was owned by Juan and Enrique Creel and another 14 percent by family members and friends.⁴⁰ It appears that this bank served as a necessary stepping stone for all capital flows, principally North American, interested in Chihuahua and held deposits from merchants, industrialists and mining interests from the state.⁴¹ This would seem logical given that most, if not all, important economic activities within the state required the approval, if not participation, of the Terrazas-Creel family network.⁴² The unwritten rule of their approval for foreign investments in the state meant that regional oligarchies such as the Terrazas-Creel family of Chihuahua could broaden their monopoly over state resources and production by manipulating credit policies. For example, in 1908, The Guarantee and Trust initiated an embargo against the activities of William C. Greene in Chihuahua (the Sierra Madre Land and Lumber Company) for not paying interest on a bond emission he made in 1905 for some US\$ 3 million. This signalled the beginning of the end for Greene in Chihuahua and also offered an opportunity to the Terrazas and Creel network to further their empire.⁴³ The point here is that there was a 'convergence' in the two financial development paths. Northern Mexican capitalists were equally interested in augmenting financial

³⁹ C. Marichal, 'Capital Markets,' p. 135. See also S. Haber, 'Financial Markets and Industrial Development,' in *How Latin America Fell Behind*, ed. S. Haber, pp. 157-161.

⁴⁰ As explained in Chapter 3, the Terrazas-Creel family dominated Chihuahuan economic and political life from the last half of the nineteenth century to the beginning of the Mexican Revolution. R. León G. 'Bancos Chihuahuenses,' p. 26 and 'La banca,' p. 32 and R. Estrada M., 'Border Revolution, the Mexican Revolution in the Ciudad Juarez-El Paso Areas, 1906-1915,' MA thesis, University of Texas-El Paso, 1975, pp. 16-19. See also M. Wasserman, *Capitalists*.

⁴¹ R. León G. 'Bancos Chihuahuenses,' p. 26.

⁴² See M. Wasserman, *Capitalists, Caciques and Revolution, The Native Elite and Foreign Enterprise in Chihuahua, Mexico, 1854-1911* (Chapel Hill, 1984) and *Persistent Oligarchs: Elites and Politics in Chihuahua, Mexico, 1910-1940* (Durham, 1993).

⁴³ R. León G. 'La banca,' p. 32.

resources to foster regional development, and C. Juárez-El Paso often emerged as a focal point.

A second means of substantiating internal cohesion is by showing the similarity of banking practices of institutions on either side of the frontier. These practices include general services offered, methods of collateralising loans and the interest rates charged for credit. The services offered by banks were normal practices. It is interesting to note that El Paso banks advertised themselves as 'serving and collecting' in Chihuahua, Mexico as well as West Texas, New Mexico and Arizona.⁴⁴ As institutions such as The Guaranty and Trust were conduits for U.S. resources entering Chihuahua, it seems reasonable to assume that banking services were similar throughout the region. In respect of loan collateral, offering the assets of a business was common practice in banking in general. In El Paso, although records are unavailable, newspaper reports suggest that creditors required collateral in the form of land and even livestock to secure loans.⁴⁵ In the above cited case of William C. Greene, his vast holdings served as collateral for his loans through The Guarantee and Trust.⁴⁶

Data on interest rates are non-existent. Such data may have permitted a more rigorous assessment of the similarity of interests rates as a way of substantiating the case for a cross-border market. Notwithstanding, an alternative means of demonstrating cross-border financial ties is to examine the list of stockholders of various banks, in order to ascertain how many local individuals or business concerns exercised control over the activities of banks, whether as a principal representative or significant stockholder. These individuals, it is assumed, were able to allocate credit by virtue of their position. **Figure 7.1** was constructed using information on the names of the principal stockholders of a small number of banks in the C. Juárez-El Paso area. The diagram shows the linkages between banks, forged by stockholders/principal representatives, who invested in or served the various banks. It also shows how local banks were tied to regional and national interests. The lines connecting each box or circle are not intended to show capital flows; they merely represent linkages forged by common shareholders.

For the purposes of this discussion on cross-border financial networks, it is useful to single out several banks listed in **Figure 7.1**. The list of stockholders representing the 550 shares issued by the State National Bank for its initial start up included Inocente Ochoa who

⁴⁴ See also S. Cox, 'State National,' p. 18.

⁴⁵ See C.L. Sonnichsen and M.G. McKinney, *Pioneer Bank*.

⁴⁶ The embargo on Greene's activities represented a golden opportunity for the Terrazas-Creel family to further their own holdings in the state of Chihuahua.

maintained a US\$ 5,000 stake. Only two other stockholders held a larger share in the bank.⁴⁷ Ochoa was also one of the founders of the Banco Minero Chihuahuense, thereby forging a financial link between the two institutions. In 1896, in addition to Ochoa, the list of stockholders in Banco Minero Chihuahuense included Krakaur Zork and Moye, who indicated that they resided in both C. Juárez and El Paso.⁴⁸ Adolf Krakaur is cited as one of the founders of the First National Bank. The Krakaur family was also listed as a major stockholder of Banco Comercial de Chihuahua, further strengthening cross-border ties.⁴⁹ The Juárez Banking and Investment Company, which was connected with the Security Bank and Trust of El Paso, operated in C. Juárez for an unknown period of time. The same two individuals (Rodarte and Urías), managed both offices.⁵⁰ Finally, the El Paso National Bank of Texas operated in C. Juárez as the Banco de Juárez for two years. Kettelsen and Degetau were listed as the local representatives, but little else is known about this enterprise.⁵¹

By no means exhaustive in its reach, this analysis and diagram show that formal regional financial institutions were forming cross-border linkages as early as 1882. The motivations for these linkages were several. First, Northern Mexico capitalists and entrepreneurs sought a stable financial framework to ensure their holdings and access to sources of credit. Concomitantly, El Paso and U.S. interests saw their southern counterparts as an important source of capital and necessary for their own activities in that country. The diagram also suggests that the cross-border was hierarchical in nature. The firstly, and perhaps most importantly, El Paso and Chihuahua banks tended to maintain correspondent relationships with larger financial institutions located in other regional and national financial centres. For example, the State National Bank advertised in local papers its correspondent relationships with the Importers and Traders National Bank in New York City, Merchant's National Bank, St. Louis; and Wells Fargo & Company Bank in San Francisco.⁵² The Banco Minero and Comercial de Chihuahua were linked to the Mexican Central Bank (Banco

⁴⁷ C.R. Moorhead, president and driving force behind the project, owned 110 shares and Henry L. Newman, director, 60 shares. Each share sold at US\$ 100.00. C.L. Sonnichsen and M.G. McKinney, *Pioneer Bank*, p. 11.

⁴⁸ The stockholders also included Edward Kelly of New York and the Lang brothers from Las Cruces, New Mexico. R. León G. 'Bancos Chihuahuenses,' p. 9 and p. 24.

⁴⁹ R. León G. includes a table of 'socios' for each of the banks formed in the State of Chihuahua during the Porfiriato. R. León G., 'Bancos Chihuahuenses,' p. 21.

⁵⁰ The bank was known as the *Compañía Bancaria y de Inversiones e Ciudad Juárez* and had a capital of U.S. \$100,000. GEPCC, 'Power House,' p. 30.

⁵¹ R. León G., 'Bancos Chihuahuenses,' p. 27.

⁵² 'State National Bank Building, 1883,' *El Paso Herald*, 12 May 1923.

Central) via Enrique Creel.⁵³ On another level, there existed banks functioning strictly between C. Juárez and El Paso, as in the case of Security Bank & Trust, Juarez Banking and Investment Company, or El Paso National Bank of Texas and Banco de Juárez, as shown in **Figure 7.1**. At this level the merchant-creditors who operated in early periods are still present. This supports the earlier assertion that they operated both in the formal and informal sectors. Not represented in **Figure 7.1**, but worthy of mention are the *Casas de Cambio*, which perhaps served as a bridge between the formal ('institutional') sector and informal sector.

The schematic model presented above and the subsequent discussion have shown that the impetus for the development of a cross-border financial network was both Northern Mexico and the U.S. In the south, the establishment of financial networks was the outcome of the entrepreneurial activities of the Terrazas-Creel family. In the north, the impetus appears to be linked to a diversity of interests. Their common ground was the emerging formal financial institutions, which they jointly formed in order to underwrite regional industrial growth.

The C. Juárez-El Paso cross-border financial market evolved from a series of informal individual-based relationships to a regional financial market anchored by formal (banking) financial institutions, with clear cross-border linkages. The increasing scale of these institutions, underwrote and benefited from, increasing regional development. However, it is important to note that informal or personal relationships did not disappear from the landscape. They continued to operate in the form of the large mercantile houses and money exchange houses that continued to function as local suppliers of credit.

II

The final aspect of this study deals with intra-regional trade as a partial measure of the internal cohesion of the C. Juárez-El Paso cross-border market. The word partial is significant for two reasons: (a) trade must take its place along side factor mobility and (b) the data (U.S. trade data and anecdotal contemporary accounts) used to construct the following analyses themselves represent only a portion of exchange through C. Juárez-El Paso. The main question to be answered is: Did cross-border trade intensify between 1822 and 1920? Intensification is here understood to mean growth in the value, and not in the number, of items traded within the cross-border area because one of the major themes of this study is that the region specialised in the production of cattle and mineral outputs, which in turn fomented the development of support industries such as wholesaling and distributing. Specialisation being the focus, this analysis does not look for an increase in the variety of goods moving across the international boundary to support the argument for internal cohesion. Indeed, as

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See M. Wasserman, *Capitalists*, pp. 44-48 and C. González H. and R. León G., 'El nuevo rostro de una economía regional. Enrique C. Creel y el desarrollo de Chihuahua, 1880-1910,' in *El poder y el dinero. Grupos y regiones mexicanos en el siglo XIX*, ed. B. Rojas (Mexico, 1994).

explained in the historical contexts, the types of items exchanged between Mexico and the U.S. during the period under study remained relatively constant: capital and manufactured U.S. goods in exchange for mineral products, primarily gold and silver, which constituted the largest part of this trade, agricultural products such as vegetable dyes and fibres, a distant second, and other products including cattle, which represented perhaps 10 percent of the total.⁵⁴ It stands to mention that Mexico's trade relationships with its other American counterparts were a very distant second to its relationship with the U.S., meaning that a comparative analysis of Mexico's southern border with its northern border for the period under study would lend little additional weight to this study.⁵⁵ All the trade tables in this section represent research on early C. Juárez-El Paso, and therefore Mexico-U.S. border, and Mexico-U.S., trade not found in any of the main texts mentioned in the literature surveys presented earlier, namely the Mexico-U.S. historical statistical abstracts compiled by Lorey, Riech or Stoddard. Therefore, they represent an important contribution to the development of historical data sets for the region, albeit requiring further refinements.

The differing sources of statistical information on trade for the entire period necessitated a division of the analysis into pre- and post-1893 segments, with the latter being the year in which the U.S. Congress required that overland trade figures be recorded in the official trade statistics. For the pre-1893 period, the lack of a continuous series of trade figures was a particularly limiting factor because of the great gaps in the information. Anecdotal references in travel diaries and contemporary accounts along with a very limited number of references in the official trade reports of consular officials and customs agents were the only sources available. In the case of contemporary accounts of early entrepreneurial retailing and wholesaling, these have been reformulated in order to help re-construct the value of goods exchanged in the cross-border region and to illustrate the evolution from subsistence and infrequent trade opportunities to increasing specialisation prior to 1893.

For the period 1893-1920 business records were again not readily available. These records would have permitted a detailed look at they way businesses transferred output between related units. Specifically, they would have shown that the shipment of primary products such as lead ore for smelting and refining or cattle for slaughter and packing, and the movement of factors (capital, labour and entrepreneurs) to support production, was in fact the transfer of resources within business units. In the absence of business records, the next available source for quantifying intra-regional trade was the U.S. trade data, which when taken as partial proxy for economic activity in and around C. Juárez-El Paso, could substitute

⁵⁴ See Chapter 3.

⁵⁵ Instituto Nacional de Estadística Geografía e Informática (INEGI) notes that Mexico's trade with its other American counterparts was a very distant second to the ones mentioned in this text. *Estadísticas Históricas de México*, (Mexico, 1990), Tomo II, p. 666.

for the business records. This assumption is further sustained by the relative isolation of C. Juárez-El Paso during this period. With this in mind, the annual reports of the U.S. Department of Commerce to Congress entitled *Foreign Commerce and Navigation of the United States with Foreign Countries* were consulted for information on Mexico-U.S. trade.⁵⁶ In the notes to each volume the statements of general imports and exports referred to articles entered at the El Paso customs house. The detailed import data, that is the movement of cattle and lead ore between business units, were generally found in three sets of tables in any given year Tables 3, 4 and 5 of the appropriate volume. These represented differing methods of portraying the same trade data; that is, trade by article, country and port of entry. Similarly, the statement of exports, the retailing and wholesaling of consumer and capital goods, were recorded in Tables 6, 7 or 8. The value of these were determined not only under the provisions of the revised U.S. Statutes prevailing at the time but also the market conditions.

It is important to emphasise that the use of U.S. trade data to represent local cross-border production cannot in any way be considered to represent the total output of the region. One serious shortcoming of this methodology is that the figures do not include output from enterprises situated north of the boundary that utilised C. Juárez-El Paso as a productive hub, nor do they include data regarding imports at other points along the international boundary also shipped to the area for the same purpose. For example, as explained in case of the McKinley Tariff, ores from as far away as Sonora, Mexico would have entered the U.S. along the Arizona-Mexico border, meaning that their value would not have been included in the record of imports at El Paso, despite the latter being a place for their smelting and refining. Secondly, these statistics do not contain information about shipments that might have been sent to C. Juárez for processing (fattening or slaughter in the case of cattle, and smelting in the case of lead-ore output), which were then re-exported to the interior of Mexico. In the chapter on entrepreneurial activities, it was noted that C. Juárez also benefited from a smelter, the product of which could have been shipped to El Paso for refining or sent somewhere else in Mexico. Finally, these data do not adequately capture the fact that as long as area firms produced, there was an ongoing demand for labour and capital, reinforcing the demand for area resources, which further strengthened the cross-border market. Since the tables are based on U.S. trade data, they cannot be considered more than a partial representation of cross-border specialization and exchange. It is worthwhile reiterating that comparable data sets were not available for C. Juárez.

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Generally published in the form of a House report or document for each year, the best finding aid for these reports is undoubtedly *U.S. Serial Set Indexes* produced by the Congressional Information Service, which collates information by year and subject matter, assigning each volume a number which locates it within the continuum of U.S. documents to the present.

Table 7.1
Exchange through C. Juárez-El Paso, 1822-1869 (in US\$)

Year	Northwards	Southwards
1822		15,000.00
1823		12,000.00
1824		35,000.00
1825	500.00	65,000.00
1826		90,000.00
1827		85,000.00
1828		150,000.00
1829		60,000.00
1830		120,000.00
1831		250,000.00
1832		140,000.00
1833		180,000.00
1834		150,000.00
1835		140,000.00
1836		130,000.00
1837		150,000.00
1838		90,000.00
1839		250,000.00
1840		50,000.00
1841		150,000.00
1842		160,000.00
1843		450,000.00
1851-53	150,000.00	
1853-1854	1,000.00	
late 1850s	100-500,000.00	70,000.00
1862	50,000.00	
1869	25,266.00	61,000.00

Source: J. Gregg, *The Commerce of the Prairies*, ed. M. Moorehead (Norman, 1954) p. 332, and M. Moorhead, *New Mexico's Royal Road, Trade and Travel on the Chihuahua Trail* (Norman, 1958), pp. 63-64, U.S. National Archives and Records Administration, Microcopies of Records, No. 184, *Dispatches from the U.S. Consuls in C. Juárez (Paso del Norte) 1850-1906*, 1 August 1853 through 1 January 1854, United States Department of Treasury, U.S. Customs, *Record of Accounts Current, 1854-1870*, Fort Worth Federal Records Center, National Archives and Records Administration, 342.02 7EP2.

The overall nature of the Mexico and the U.S. trade relationships was briefly discussed in Chapter 3. Here it is useful to restate that until the 1860's, Mexico's main trading partners were England, Germany, France and Spain. These trade relationships were characterised by the European countries supplying finished and capital goods, in exchange for primary products. In the first instance, this trade took place at the sea ports. Further distribution was *via* overland caravans radiating out from Mexico City. The commodities distributed through the networks of wholesalers, retailers and peddlers along the northern periphery of Mexico during the late colonial period consisted of items typical of a general merchandising operation – imported (European) and domestic finished goods such as woollens, tools and arms, fabrics, boots and shoes, chocolate, refined sugar, liquors, paper and ink, iron and steel, and mercury to work the mines located near Chihuahua city.⁵⁷ These items were exchanged for local primary products. In the case of Chihuahua city, weekly return mule trains transported silver and livestock to Mexico City. As a general rule, the finished consumer goods and capital inputs were exchanged for gold and silver, agriculture products, livestock and low-value artisan products.⁵⁸ As time progressed, the U.S. began to play a more important role in Mexico's trade relations and by 1870 it was the most important trading partner. With this as a backdrop, this analysis turns to exchange in the pre-1893 period.

Table 7.1 was constructed by piecing together the value of wholesale and retail packages transported by traders between 1822 and 1869. These packages were reported to consist of light consumer goods, foodstuffs, etc. carried into the region by wagon trains as described in the earlier references to Magoffin, Coonz and French and the larger commercial houses described in previous chapters. The information on trade between 1822 and 1843 (the Santa Fe trail period) was compiled from contemporary sources and are the best estimates of overland traders. Therefore, while the data offer a point of reference, they cannot be considered reliable. During the Santa Fe trail period, traders from the U.S. began to supply the same general merchandise as the European countries, partially filling the vacuum created by the breakdown of the colonial caravan system after Mexican Independence.⁵⁹ This is not to suggest that the Mexico-based trading caravan was not important. In fact, these caravans

⁵⁷ *Descripciones económicas*, pp. 225-229, *The Expedition of Zebulon Montgomery Pike*, ed. E. Covers (New York, 1895), pp. 739-740, P. Horgan, *Great River*, p. 363, M. Moorhead, *Royal Road*, p. 49. See also C.L. Sonnichsen, *Pass of the North, Four Centuries on the Rio Grande* (El Paso, 1968), Vol. 1 and W.H. Timmons, *El Paso, A Borderlands History* (El Paso, 1990).

⁵⁸ A. von Humboldt, *Political Essay on the Kingdom of New Spain, abridged* (Norman, 1990), p. 201 or A. von Humboldt, *Political essay on the Kingdom of New Spain*, John Black translation (London, 1813). See also P. Horgan *Great River*, M. Moorhead, *Royal Road*, F.C. and R.H. Lister, *Chihuahua, Storehouse of Storms* (Albuquerque, 1966), W.H. Timmons, *El Paso*, C.L. Sonnichsen, *Pass of the North*.

⁵⁹ U.S. National Records and Archives Administration, Microcopies Records, No. 184, *Dispatches from Consuls In C. Juarez (Paso del Norte), 1850-1906* (hereafter *Dispatches*), letter dated March 1854.

continued to enter the region, although on a more limited basis. After 1848, the establishment of 'permanent' sites such as the general store allowed business interests to hold inventories. This is exemplified by local entrepreneur William French, whose inventory included: 16 Spring Wagons, 4 wagons, harnesses complete for 214 mules, 148 mules and three horses, 18 large tents, 120 U.S. rifles, 100 Allen revolvers, 20,000 cartridges, 50 saddles and blankets, one portable forge and tools, one set of carpenter's tools, 300 pounds of flour, 200 pounds of iron, 175 beef cattle, 5,000 pounds of bacon, and 25 water bags.⁶⁰ The emphasis on transportation inputs (horses, wagons and mules) points to the importance of this activity in the C. Juárez-El Paso area. Furthermore, items such as tools, a portable forge and livestock also suggest the introduction of mechanisation and inputs for greater production in mining and ranching.⁶¹ This information reveals two very important points: (1) U.S. overland traders represented a new source of finished and capital goods as early as the 1820s; and (2) retailing and wholesaling sites were being established in this early period. Both point to the process of increasing trade within the region and growing overland trade between Mexico and the U.S.

The data available for the period 1850-1869 are based on an amalgam of U.S. Consular Reports and contemporary business accounts because these records often conflicted with each other. For example, the Consular Reports placed the aggregate value of exports from the U.S. into Mexico through C. Juárez-El Paso between 1851 and 1853 as US\$ 150,000, while estimates provided by independent traders of early post-U.S.-Mexico War yearly commerce through the region suggested that this trade was valued at US\$ 650,000 per year.⁶² Finally, for the 1860s, trade statistics were fragmentary and equally unreliable. For example, in 1862 just before the Confederate army seized El Paso during the U.S. Civil War, the U.S. Customs collector recorded US\$ 50,000 in imports and no exports. After that time, nothing was reported because of Confederate control of the point. It was not until 1864, when the Union re-took Fort Bliss, that a new U.S. customs collector noted that US\$ 595.00 was collected on imports without specifying the total value. These imports were attributed to the purchases of Union troops from Mexican merchants.⁶³ Despite the turmoil, it is difficult to imagine that exchanges ceased to take place. The more likely scenario was that 'private' or local cross-border trade was not recorded. This would explain why the only

⁶⁰ R. Strickland, *Six Who Came to El Paso: Pioneers of the 1840s*, (El Paso, 1963), pp. 21-22.

⁶¹ U.S. House of Representatives, Thirty-fourth Congress, First Session, House Executive Document No. 135, *Reports of William H. Emory, Major First Cavalry and U.S. Commissioner* (hereafter Emory Reports), p. 49.

⁶² *Emory Reports*, p. 49 and *Dispatches*, report for 1 August 1853 through 1 January 1854.

⁶³ See C.L. Sonnichsen, *Pass of the North*, W. H. Timmons, *El Paso*, and N. L. Hammonds, 'A History of El Paso County,' for discussions relating to activities of the Confederate and Union forces in the area during the U.S. Civil War.

entries in the Customs records were related to military purchases.

It is tempting to look at the data between 1822 and 1843 and attempt to explain 'banner' years in southward trade by trying to fit them into the nation-state contexts described in Chapter 3. For example, 1826, 1828, 1831, 1839 and 1843, are particularly significant in terms of the value of exchange. In 1823, Mexico pursued a policy of states' rights and regional self-government in a federal republic. This would have promoted trade, but by 1827 political turmoil brought an end to liberalism.⁶⁴ Therefore, the timing of these events does not coincide with particularly successful years in 1826 and 1828, because political turmoil would be expected to reduce trade. In the 1830s, Mexican Conservatives attempted to centralise power, which precipitated problems leading to the independence of Texas.⁶⁵ This would have served as a disincentive to trade. However, the C. Juárez-El Paso area never formed part of the new Republic of Texas; trade would not necessarily have been impacted. This event could not totally explain the severe downturns in trade reflected in the data. Similarly, the financial panic of 1837 and subsequent contraction in the U.S. money supply likewise would not have been expected to foster trade.⁶⁶ Therefore, 1839 would not have been a good year for such activities. In sum, as the C. Juárez-El Paso area was peripheral to both nations during these early years, it is reasonable to assume that political events that may have played out in the national arena had little impact on the region because it was isolated. A more viable argument is that these 'banner' years coincided with times in which the number of traders participating in the activity was particularly high because they were able to pool resources in order to undertake trade. In fact, for those years listed above, the total number of traders was significantly higher than in other years.⁶⁷ In this case, the discussion on financial networks offers a more tenable explanation.

There are considerable gaps in the information between 1843 and 1869, and disruptions in trade due to many factors are very apparent. Between 1843 and 1853 Mexico and the U.S. went to war and dealt with boundary disputes. Once the territorial expanse of the U.S. came to include Arizona, California, New Mexico and Texas, trade westward instead of southward took precedence because the growing size of the California market meant it was more lucrative. Additionally, California offered further trade opportunities with Asia. The

⁶⁴ See Chapter 2. See also J. Bazant, 'From Independence to the Liberal Republic, 1821-1867,' in *Mexico Since Independence*, ed. L. Bethell.

⁶⁵ *Ibid.*

⁶⁶ See *A New Economic View of American History*, ed. J. Atack and P. Passell (New York, 2nd edition, 1994), pp. 102-103.

⁶⁷ According to contemporary accounts, 60 traders participated in the Santa Fe trade in 1826. In 1828, 100 traders participated. In 1831 and 1839, there were 130, respectively, and in 1843, 250 traders travel participate in the Santa Fe Trade. In each of these cases, the total number of participants was higher than in years immediately before and after each 'banner' year. J. Gregg, *Commerce of the Prairies*, ed. M. Moorhead (Norman, 1954), p. 332 and M. Moorhead, *Royal Road*, pp. 63-64.

fact that significant deposits of gold had been discovered near San Francisco meant traders could more easily obtain specie for their own needs within the U.S. The availability of water transportation connections that were more reliable than overland wagon routes also influenced the decision to trade westward.⁶⁸ The figures available for the 1860s once again reflect the turmoil of the decade. Mexico suffered the Wars of the Reform and French occupation, while the U.S. faced a civil war.

The lack of information between 1870 and the early 1880s is also a reflection of the state of disenfranchisement suffered by the region. In the late 1870s, the U.S. Consul to C. Juárez reported that a litany of factors made commerce difficult: crop failures, smuggling, high import duties; the fact that most in-bond trade was travelling through either Galveston or San Antonio and then, by wagon train to Mexico; continued state-wide revolutions designed to unseat the governor of Chihuahua; and ongoing Indian raids. The Consul wrote, 'Commercial interests are on the decline but little activity is apparent in agriculture and mining interests as yet lacking vitality so necessary for improvement.'⁶⁹ Unfortunately, the importance of the railways as a leading force for cross-border development is lost for lack of data during the 1880s. However, the completion of the National Railways of Mexico and their linkage to the U.S. systems in 1884, as described in the historical contexts and resource chapters, represents an opportunity to extrapolate on the McKinley Tariff debate as a means of partially filling the gaps in the tables to 1890.

In the late 1880s, Colorado mining interests started to feel their monopolistic hold on smelting in the western U.S. slipping and began to pressure the Congress for protective tariffs. According to Bernstein, they felt that lead-rich Mexican silver ore, now more readily accessible because of the railway networks, was undercutting their monopoly.⁷⁰ In El Paso, the Board of Trade and the Southwestern Mining Association opposed such a tariff and published a lengthy text regarding lead production in the area, estimating the value of U.S. investments in Mexico (mainly Chihuahua and Sonora) at US\$1 million.⁷¹ The Board further explained that the chief ores being mined included gold, copper, zinc, silver and lead, with most being shipped to El Paso for smelting.

⁶⁸ Early chapters have explained that the primary routes to the west were *via* water and had more support from the government than the overland routes. Additionally, Chapters 1 and 3 contained a brief discussion on the expansion of U.S. population westward after 1848.

⁶⁹ *Commercial Relations*, 1877, p. 725.

⁷⁰ M. Bernstein, *Mexican Mining*, pp. 36-37 or *La Modernización de la Economía Minera*, in *Historia Económica de México*, ed. E. Cárdenas (Mexico, 1992), p. 247.

⁷¹ City of El Paso, *Statistical Information Regarding El Paso as a Military Point, 1890*, p. 7.

Table 7.2
U.S. Imports of Mexican Silver through C. Juárez- El Paso, 1884 - 1889
(expressed in U.S. \$)

Year	Ore (tons)	Value	Daily Average	Average value (tons)
1884	1815	260608	5	145
1885	8403	782275	23	94
1886	22045	1845774	60	84
1887	44773	2889093	123	65
1888	68212	3842358	187	56.5
1889	60256	3518894	167	74

Source: City of El Paso, *Statistical Information Regarding El Paso as a Military Point, 1890*, pp. 7-8.

Table 7.2 summarises the importance of mining to the area by showing the amount of silver ore (in tons) imported from Mexico into the U.S. *via* C. Juárez-El Paso, average daily production, and average value per ton between 1884 and 1889. The point of this extended interpretation of the McKinley tariff debate is that from 1884 (when the National Railway of Mexico was completed to C. Juárez) to 1889, silver ore imports through C. Juárez-El Paso increased some 33-fold. This is significant because prior to 1884 there are no recorded movements of the ore through the area. This substantiates that argument that silver ore was increasingly important and that C. Juárez-El Paso profited from this development as a smelting and refining site. Of course, the U.S. government also benefited through customs revenues. The beginning of these shipments of silver ore also represented the movement of output between units and the increasing demand for other factors of production. When seen in this light, this table may be added to the earlier table to partially fill the gaps to 1893.

Table 7.3
C. Juárez-El Paso Exchange, 1893-1920 (US\$)

Year	Imports	Exports	Total
1893	5,778,637.00	1,681,086.00	7,459,723.00
1894	4,161,351.00	2,324,373.00	6,485,724.00
1895	746,861.00	2,763,541.00	3,510,402.00
1896	1,330,996.00	3,726,232.00	5,057,228.00
1897	1,670,970.00	5,931,746.00	7,602,716.00
1898	1,492,890.00	4,027,818.00	5,520,708.00
1899	1,046,550.00	4,538,841.00	5,585,391.00
1900	1,258,565.00	1,519,819.00	2,778,384.00
1901	1,378,510.00	4,145,975.00	5,524,485.00
1902	1,174,655.00	7,004,800.00	8,179,455.00
1903	1,708,375.00	7,593,875.00	9,302,250.00
1904	1,224,080.00	9,316,953.00	10,541,033.00
1905	1,469,140.00	8,383,182.00	9,852,322.00
1906	1,815,560.00	12,662,468.00	14,478,028.00
1907	1,572,982.00	11,298,729.00	12,871,711.00
1908	2,389,396.00	7,959,817.00	10,349,213.00
1909	3,178,147.00	5,175,102.00	8,353,249.00
1910	4,453,689.00	6,879,979.00	11,333,668.00
1911	3,091,728.00	6,739,127.00	9,830,855.00
1912	4,633,396.00	5,989,195.00	10,622,591.00
1913	3,422,768.00	2,335,512.00	5,758,280.00
1914	6,689,572.00	3,048,811.00	9,738,383.00
1915	9,392,626.00	7,961,447.00	17,354,073.00
1916	5,564,398.00	3,629,061.00	9,193,459.00
1917	2,804,634.00	5,482,983.00	8,287,617.00
1918	2,034,366.00	5,551,014.00	7,585,380.00
1919	2,699,307.00	7,750,239.00	10,449,546.00
1920	5,113,839.00	12,165,044.00	17,278,883.00

Sources: U.S. Department of Commerce, *Foreign Commerce and Navigation of the United States, 1893-1920*.
 See also explanation in text on p. 231.

Table 7.4

Cattle, Lead Ore, Machinery and Agricultural Implements production or trade through C. Juárez,

Year	X-border Trade	Cattle	Cattle % of Total	Pb Ore	Pb % of Total	% Pb & Cattle of X-border	X-border Trade
<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>	<i>h</i>
1893 <i>p</i>	5,778,637	0	0	928059	16	16	1,681,086
1894 <i>p</i>	4,161,351	602	0	546,762	13	13	2,324,373
1895	746,861	350,230	47	289,633	39	86	2,763,541
1896 <i>p</i>	1,330,996	641,953	48	310,452	23	81	3,726,232
1897 <i>p,t</i>	1,670,970	951,092	57	161,123	10	67	5,931,746
1898	1,492,890	781,591	52	301,541	20	72	4,027,818
1899	1,046,550	425,694	41	273,863	26	67	4538841
1900	1,258,656	452,470	36	355,376	28	64	1519819
1901	1,378,510	507,491	37	474,586	34	71	4,145,975
1902 <i>p</i>	1,174,655	516,935	44	96235	8	52	7,004,800
1903	1,708,375	452,142	26	661224	39	65	7,593,875
1904	1,224,080	101,130	8	739796	60	68	9,316,953
1905 <i>p,t</i>	1,469,140	130,720	9	882,592	60	69	8,383,182
1906	1,815,560	188,954	10	775676	43	53	12,662,468
1907	1,572,982	154,578	10	548,096	35	45	11,298,729
1908 <i>p,t</i>	2,389,396	647,101	27	986,294	41	58	7,959,817
1909 <i>t</i>	3,178,147	306,411	10	817,308	26	36	5,175,102
1910	4,453,689	1,988,250	45	281,847	6	51	6,879,979
1911	3,091,728	1,334,573	43	250,149	8	53	6,739,127
1912	4,633,396	2,908,771	63	174,168	4	67	
1913 <i>p,r,t</i>	3,422,768	1,274,482	37	267,248	8	45	
1914 <i>r</i>	6,689,572	2,455,106	37	180,676	3	40	
1915 <i>r</i>	9,392,626	2,354,943	25	220,544	2	27	
1916	5,564,398	1,468,491	26	270,368	5	31	
1917	2,804,634	617,801	22	266,095	9	31	
1918	2,034,366	457,961	23	256,685	13	37	
1919	2,699,307	342861	13	186784	7	20	
1920	5113839	206,280	4	378,136	7	11	

Source: Legend: Pb=Lead ore; p=silver/peso devaluations, depressions or move to gold standard; t=tariff; and r=Pancho Villa. All figures are in current US\$ and h Department of Commerce, *Foreign Commerce and Navigation of the U.S.*, 1893-1920. Cattle means free cattle.

In **Table 7.1**, the early trade data emphasised the trading of packages consisting of light manufactures and foodstuffs (e.g. wholesaling and retailing), activities already described as requiring extended cross-border linkages. Between 1822 and 1843, trade increased almost six-fold, however after 1830, traded remained relatively steady until 1839 when trade plateaued at a higher level until 1843, by which time trade expanded some 30-fold. Overall, trade increased by a factor of 5.75 between 1822 and 1869. In the 1880s the railway connections were completed and mining began to taken on a greater importance (as evidenced in **Table 7.2**). However, without a continuous set of data on all trade through C. Juárez-El Paso during the pre-1893 period, this analysis falls short of its mark. A slightly less orthodox approach to the analysis that allows for further extrapolation on the subject presents itself if the two tables (**Tables 7.1 and 7.2**) are combined for 'argument's sake' to produce a longer-term series on intra-regional trade. In this case, a more general statement about cross-border exchange can be fashioned: Between 1822 (US\$ 15,000) and 1889 (US\$ 3,518,894) exchanges grew by over 200-fold, bearing in mind that these are partial figures. This clearly supports the case for increased retailing/wholesaling and mining within the cross-border region.

More robust data for the post-1893 period necessitates that this analysis be further divided into three sub-sections: (1) the overall value of internal exchange over the period; (2) the importance of cattle, mineral production and wholesaling and retailing to cross-border exchange; and (3) how cross-border specialisation links to the larger context. The first part focuses on the long-term expansion of internal exchange. **Table 7.3** is a reconstruction of the US\$ value of exchange through C. Juárez-El Paso from 1893 to 1920. The first important point is that C. Juárez-El Paso exchange increased from approximately US\$ 7.5 million in 1893 to US\$ 17.3 million in 1920, translating into a slightly greater than two-fold increase over the period. This figure is disappointing when compared with the over 200-fold increase experienced between 1822 to 1889. However, because the data for the earlier period are highly unreliable and very incomplete, the two figures are not entirely comparable. Setting aside these problems, a simple joining of the two subsets (pre- and post-1893) to form a longer trajectory highlights the fact that the value of exchanges grew (in current values) from US\$ 15,000 in 1822 to US\$ 17.5 million in 1920. This represents a phenomenal 1,166-fold expansion in exchanges over the period.⁷² Stated another way, exchange increased by nearly 12 percent per annum over the 98-year period. A similar long-term data set does not exist for the Mexico-U.S. case; trade data are absent for the early post-Independence period, and there are significant gaps and discrepancies to the end of the nineteenth century. Notwithstanding, based on the data gathered for this chapter Mexico-U.S. trade increased from US\$54 million in 1893 to US\$ 387 million in 1920, translating into a 7.1 factor

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These are current values taken directly from the tables.

expansion.⁷³ With so many gaps in the data, it is difficult to rely solely on them as a means of drawing a definitive conclusion on the comparison between the national and cross-border experiences. However, available information suggests that the local relationship was growing at a much faster rate than at the national level, meaning that apart from the natural expansion of trade, a very significant regional trade was also taking place.

The next task is to assess the importance of specialisation to growing exchange through C. Juárez-El Paso. In the first two sections of **Table 7.4**, cattle and lead imports (columns *c* and *e*) are compared to total U.S. imports (column *b*) through C. Juárez-El Paso. Why only U.S. imports? This disaggregation represents that part of regional primary production that was shipped to C. Juárez-El Paso for processing. Similarly, in the third part, steel machinery and agricultural implements (column *i*) have been added together and compared against U.S. exports (column *h*) because these figures partially represent the wholesaling and retailing of capital goods. Rails, engines and other materials needed to construct the railways are not included in this analysis because, as explained in the chapter on resources and transportation, this aspect of the regional economy has been subsumed in this analysis. It remains incumbent here to bear in mind that without a suitable transportation system, specialisation and overall regional development could not have expanded as it is here estimated. In order to facilitate an analysis of this table in respect of the national setting, symbols have been inserted next to the years during which tariffs (*t*), currency devaluations or other monetary events (*p*), and revolution (*r*) took place.

In the case of cattle (column *c* for current values, and *d* for percentage relative to total exports from Mexico), the industry was still in its infancy in 1893/1894. This is consistent with the description of cattle ranching in Northern Mexico presented earlier in the historical contexts. The pinnacle in the monetary value of cattle shipments through C. Juárez-El Paso seems to have been reached in 1912 when the total value of cattle exceeded US\$ 2.9 million. After that time the value declined slowly and then precipitously to close at slightly more than US\$ 206,000 in 1920. The initial value of cross-border exchange in cattle was zero. The fact that a value does not appear in the official U.S. trade statistics should not be taken to mean that cattle ranching did not exist in 1893. In fact, earlier analysis has already proved that such was not the case. Within the data there are short bursts of increased values such as the period 1896 -1897, during which the value of cattle increased, consistent with the contextual references to the nature of the regional economy. However, overall there is a generalised downward trend in the value of cattle shipped to C. Juárez-El Paso after 1897 followed by two years of widely fluctuating values in 1908 and 1909 before the onset of the Revolution, when values jump significantly. Additionally, within the time of the Revolution, 1914 and 1915 stand out as points at which there seemed to be a resurgence in cattle

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See Appendix tables for trade data. INEGI lists trade data in pesos for the period 1824 to 1910 with very significant gaps in the information. The expansion factor based on those statistics is 74. However, this would require some adjustments for the currency devaluations. *Estadísticas*, p. 683.

ranching. These internal anomalies in the data require explanations that are better understood when combined with the analysis of the other components of the table. Notwithstanding, it is interesting to note that on average cattle represented over 28 percent of total exchange through C. Juárez-El Paso for the period 1893-1920. This figure is significantly higher than the national average of 10 percent per annum of total trade mentioned in Chapter 3.

The value of lead ore (column *e* for current values, and *f* for percentage relative to total) shipped through C. Juárez-El Paso declined from US\$ 928,059 in 1893 to \$US 375,136 in 1920. This decline runs contrary to the argument that the cross-border economy was expanding. Apart from 1908, the highest value of lead ore production was recorded in 1893. From then on, the values declined precipitously to a low in 1902. Not even during the tumult of the Revolution did lead ore values fall as low as they did that year. Between 1893 and 1920 lead ore values contracted by a factor of 2.5. Within the time series, the values followed a cycle in which from 1893 to 1907 they contracted by a factor of 1.6, only to better 1893 values and start an even more precipitous decline from 1908, contracting by a factor of 2.6 in 1920. Again, these changes are better understood when taken in conjunction with the other trade data. In one final observation, cattle and lead ore have been grouped together and their relative significance in respect of the total of imports has been calculated and listed in (column *g*). Clearly, these two products dominated exchange through C. Juárez-El Paso during the period except in 1893-1894 and again the period of the Revolution. This fact supports the cattle and lead ore specialisation hypothesis advanced throughout this study.

Columns *h* represents U.S. exports to Mexico through C. Juárez-El Paso. In column *i* the value of agricultural implements and steel and iron machinery shipped through the same point are listed for the period 1893 and 1911. The series was cut short by the lack of adequate data after the onset of the Mexican Revolution, as will be explained below. Why agricultural implements and steel and iron machinery? On a regional level, wholesaling and retailing involved a broad mix of goods. However, as explained in the discussion on entrepreneurs, machinery and agricultural implements were marketed and sold by cross-border interests such as Kettelson and Degatau or Krakuer Zork and Moyer. Therefore, their quantification is here appropriate as a means of gauging the wholesaling and retailing trade. Together, the relative value of steel and iron machinery and agricultural implements (column *j*, expressed as a percentage) accounted for more than 10 percent of the total value of exchange through C. Juárez-El Paso except in 1897, 1905/6, 1908 and 1910/1911. Bearing in mind that U.S. exports through C. Juárez-El Paso are only a partial measure of the provisioning businesses within the cross-border area, it is immediately apparent that wholesaling and retailing did not enjoy the same success as cattle ranching and mining. These observations should not be taken to mean that wholesaling and retailing were not important, but rather that they are not adequately represented in the data. Upon closer inspection, wholesaling and retailing enjoyed some prosperous moments. From 1893 to 1896 values more than tripled, and from 1893 to 1900 values increased seven-fold. In the sub-

period 1900-1905, figures remained above US\$1 million, and in general for all the other years, except 1907, the value of steel machinery and agricultural implements stayed at between US\$ 1/2 to 3/4 million. Wholesaling and retailing in these two goods grew 2.4 times from 1892 to 1920. It is worthwhile mentioning that Northern Mexico did not, in relative terms, represent an important market for U.S. exports. Furthermore, the productive structure of the region was land intensive, as this was an abundant resource. The region did develop industries that helped supply its own productive needs, and in this way, although provisioning based in the U.S. was important, Northern Mexico was not entirely beholden to the U.S. Wholesaling and retailing interests North of the border that may have shipped southward through some other point along the boundary or through some other mechanism are not captured in these data.

How can the values of these three very important products exhibit decreasing trends when the overall picture described above and in the previous chapters was one of expansion and growth? First of all, it is clear that cattle ranching and mining were important components of the cross-border economy. Despite the fluctuations in the values in both cases, the fact remains that ranching and mining pursuits expanded greatly in the late nineteenth and early twentieth century. Wholesaling and retailing also grew in importance. Goods moved through the region in much the same way that the factors circulated. The fundamental point is that, despite the up and down cycles of specific sectors, these three activities grew in importance, drawing additional labour and capital into C. Juárez-El Paso, and thereby further fostering the development of a cross-border economic space. However, several mitigating factors appear to have slowed development. These factors pertain to the broader Mexico and U.S. contexts.

The final aspect of this analysis of the post 1893 period relates to the larger bi-national context. One linkage is through the long-term decline in the value of silver and Mexican peso (*p* in **Table 7.4**) because most would expect Mexican merchants to trade in pesos and U.S. businesses to rely on the dollar. Therefore the exchange rate could be an important factor.⁷⁴ Between 1870 and 1912, silver lost approximately 60 percent of its value in the international market. The Mexican domestic economy had depended to a great extent on silver production and its export since colonial times; silver constituted a significant portion of Mexican exports, including through C. Juárez-El Paso, as was shown in **Table 7.2** above. Between 1873 and 1876 the price of silver declined some 12 percent, and after a period of stability, prices experienced a renewed decline in 1885-86, when the value of an ounce of silver dropped. Looking again at **Table 7.2**, the average US\$ value per ton of silver declined between 1884 and 1889, despite increasing number of tons produced. By 1894,

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The U.S. also grappled with the question of silver. The McKinley Tariff and Sherman Silver Purchase of 1890 were attempts to balance the ongoing debate between competing interests. In 1900, the U.S. passed the Gold Standard Act bringing an end to the silver question. See *New Economic View*, ed. J. Attack and P. Passell, pp. 499-501.

prices had fallen again, and the silver ounce was worth only 28 pence.⁷⁵

The direct result of this long-term decline in the value of silver was a parallel decline in the value of the Mexican peso (See **Appendix Table 1**). In 1870, the peso traded at a rate of MN\$ 0.99 pesos to the U.S. dollar. After the decline of silver in 1873, the peso began a long-term downward trend. By 1890, the relationship had changed to MN\$ 0.83 pesos to the dollar. Between 1890 and 1894 a worldwide depression precipitated a sharp decline in the exchange position of the Mexican currency to MN\$ 0.51 to the dollar in 1894.⁷⁶ After that, the silver peso continued to fall to MN\$ 0.48 pesos in 1900 and MN\$ 0.39 pesos to the dollar in 1902.⁷⁷ In general, the decreasing value of the peso hindered Mexico's ability to import as well as precipitated some domestic capital flight, contributing to the establishment of Mexican-owned banks in places such as El Paso, as described in the previous section on financial networks. The increasing price of imports, decreasing value of exports and other problems forced the Mexican government to abandon silver and adopt the gold standard under the Ley Monetaria of 1905. (Mexico changed to the gold standard when the peso was basically at an unofficial 3:1 relationship with the U.S. dollar.)⁷⁸ The problems did not stop there as subsequent downturns in 1908 and 1913 in world silver prices further complicated the matter for mining interests, and the mining industry suffered a deepening depression while the value of cattle exports experienced a concomitant decline.⁷⁹

In **Table 7.4**, a small *p* has been placed next to those years in which some monetary event, generally speaking the decline of silver and the Mexican peso, took place. Based on the foregoing description of the process of devaluation, the table shows that in 1893-4, the depreciation had no impact on cattle, possibly a negative impact on lead-ore production, but no impact on the importation of machinery and equipment. In 1900 there are slight increases in the traded value of cattle and lead ore, and a slight decline in machinery and implements, however the same cannot be said of 1902, when lead-ore seemed to have been adversely impacted by the declining value of the peso. Mexico's switch to the gold standard in 1905

⁷⁵ See also J.A. Bátiz Vázquez and E.C. Sandoval, 'Aspectos financieros y monetarios (1880-1910)', *Méjico en el siglo XIX, Historia económica y de la estructura social*, ed. C. Cardoso (Mexico, 9th edition, 1990), p. 424 or O. Martínez, *Border Boom Town*, Appendix Table 11.

⁷⁶ P.J. Underwood, *Disorder and Progress; Borders, Power and Mexican Development* (Lincoln, 1981), p. 141.

⁷⁷ J.A. Bátiz Vázquez and E.C. Sandoval, 'Aspectos financieros,' p. 424. See also O. Martínez, *Border Boom Town*, Appendix Table 11.

⁷⁸ R. Ortiz Meno, *La moneda Mexicana: Análisis histórico de sus fluctuaciones, las depreciaciones y sus causas* (Méjico, D.F., 1942), p. 41 and J.A. Bátiz Vázquez and E.C. Sandoval, 'Aspectos financieros', p. 424 and F. Rosenzweig, 'El desarrollo económico de Méjico de 1877 a 1911,' in *Historia económica de Méjico*, ed. E. Cárdenas, pp. 64-5, M. A. Quintana, 'La Plata y la moneda del pueblo Mexicano,' *Revista de Economía*, 9 (1942) 2, p. 13.

⁷⁹ J. Womack, 'The Mexican Revolution, 1910-1920,' in *Méjico Since Independence*, ed. Bethell, p. 141 and p. 143, and M. Bernstein, *Economía Minera*, pp. 230-237 and J. Futino, 'Revolutionary Confrontation, 1913-1917, Regional Factions, Class conflicts and the New National State,' in *Provinces of the Revolution*, p. 49.

does not seem to have significantly affected trade, as the value of cattle and lead-ore increased slightly, while that of machinery decreased. The value of machinery and implements trade declined significantly in 1908, but not so cattle and lead ore. And in 1913, the value of cattle imports declined, while the value of lead-ore imports increased. Clearly, there was a long-term decline in the value of cattle and lead-ore, but not necessarily so for machinery and implements, with the exception of the years of the Revolution. This mixed bag of results in comparison to the long-term decline in the value of the Mexican peso, in some respects contradicts the statements made in earlier about the country's ability to import from the U.S, which in turn means that although the currency was important, other things and not simply national monetary policy were influencing the local cross-border economy.

One of the mitigating considerations in respect of the cross-border market and the exchange rates was the fact that the prices for cattle and lead-ore originating in Chihuahua were not set at the border nor were transactions involving this product necessarily settled in Mexican silver. In fact, cattle values were set in markets such as Chicago, St. Louis, New Orleans, Fort Worth and San Antonio, where the daily arrival of stock and its quality determined the price. This goes a long way toward explaining the annual fluctuations in value found in **Table 7.4.**⁸⁰ At the beginning of 1893, the prices for cattle in markets such as St. Louis ranged between US\$ 3-6.00 depending on the age and size of the animal.⁸¹ In 1905, cattle were trading in Chicago at between US\$ 2.75 and 5.25.⁸² On the eve of the Mexican Revolution cattle traded at between US\$ 3.00-5.50.⁸³ But by the end of the period, cattle had increased in value to between US\$ 10 and US\$ 19.75, again depending on the animal.⁸⁴ In the case of lead ore, the prices for regional productions were also set in the international market (New York). In 1893 the price for lead ore was US\$ 0.395, a price that did not fluctuate enormously, although by 1910 the value was US\$ 0.425. The point is that the prices of these commodities were not set locally, but rather in distant markets, therefore firms trading in these goods did not necessarily succumb to the long-term decline of the Mexican peso. More importantly, this also means that the respective prices for cattle and lead-ore were homogenous within the C. Juárez-El Paso market, fallings directly in line with the standard set for wages and capital activity 'convergence'. In the case of wholesaling and retailing, it was impossible to confirm the value of these goods through the merchant houses

⁸⁰ It is interesting to note that prior to 1910 the value of cattle in the San Antonio market was considerably higher than in the others trading at around US\$ 15 a head. However, this changed as the entire industry became more integrated. Generally speaking cattle traded in San Antonio and originating in Mexico would not have entered the U.S. at C. Juárez-El Paso. *San Antonio Daily Express*, 1 January 1893.

⁸¹ *San Antonio Daily Express*, 1 January 1893.

⁸² *San Antonio Express News*, 6 April 1905.

⁸³ *San Antonio Express News*, 2 January 1910.

⁸⁴ *San Antonio Daily Express*, 2 January 1920.

or their existing records.⁸⁵ However, if cross-border producers were earning U.S. dollar payments for their cattle and lead-ore, then it is reasonable to assume that they were able to buy finished and capital goods with this currency, which also meant that they did not feel the sting of the devaluation as strongly as those who traded in goods that were priced in U.S. dollars but paid in Mexican pesos. Perhaps this explains why there is less resonance between the data and the Mexican currency issue.

Another linkage between the C. Juárez-El Paso area and the broader Mexican context was the Mexican Revolution. ‘The taking of Juarez is of a very great military and political importance to the revolutionists and it assures us of a complete triumph in a very short time,’ said Madero.⁸⁶ As one of the major points-of-entry along the network of railroads, C. Juárez offered significant profitable opportunities through the exchange of goods and access to sympathisers.⁸⁷ For example, between 1913-1915, Pancho Villa controlled both C. Juárez and Chihuahua. He established an administrative framework complete with taxes in order to ensure that C. Juárez continued to serve as a key trading centre, thereby financing his effort to control Northern Mexico.⁸⁸ Looking at Table 7.4, 1914 and 1915 coincide with noticeable increases in the value of cattle, possibly attributable to Villa’s policies, but probably driven by increased demand from the U.S. for its war efforts in Europe given that the price in the cattle markets of the U.S. was spiralling upward. However, in 1913 the cattle trade did not benefit from Villa’s presence. After 1915, despite the stability that Villa’s imparted on commerce, the exploitative underlying current of his tactics eventually resulted in decline. The methods Villas used to ensure stability included forced loans and confiscations of cattle. For example, the Corralitos Company experienced the confiscation of its entire saddle horses stock, prompting the company to ship horses to the U.S. to be held in bond in case of emergency. Additionally, in 1913, Corralitos was notified that they must pay US\$ 10,000 per month contribution to the provisional state government.⁸⁹ Both sides of the Revolution resorted to pillage and seizure of cattle from these haciendas in order to supply troops and

⁸⁵ I’d like to thank Dr. John M. Hart, University of Houston, for his assistance in trying to locate some of these data.

⁸⁶ *El Paso Morning Times*, 11 May 1911.

⁸⁷ R. Estrada, ‘Border Revolution, the Mexican Revolution in the Ciudad Juarez-El Paso Areas, 1906-1915,’ MA thesis, University of Texas-El Paso, 1975, p. 86, *Historia Gráfica de la Revolución*, vol 1, No. 3, p. 208. See also, I. Esparza Marín, *Monografía Histórica de Ciudad Juárez*, Tomo No 2 (C. Juárez, 1991) and F.R. Almada, ‘Cd. Juárez a Través de la Revolución Mexicana,’ *Boletín de la Sociedad Chihuahuense de Estudios Históricos*, 4 (1946) 1.

⁸⁸ M. Machado, Jr., *Centaur of the North, Francisco Villa, the Mexican Revolution and Northern Mexico* (Austin, 1988), p. 40, R. Estrada M., ‘Border Revolution,’ p. 22 and *El Paso Morning Times*, 19 July 1915 p. 1.

⁸⁹ The comments of Francisco Madero regarding revolt at C. Juárez, *El Paso Morning Times*, 11 May 1911. *Thomas Wentworth Pierce, Jr. Papers*, The Corralitos Company, Nettie Lee Bentson Collection, University of Texas - Austin, n.p.

as a means of earning cash with which to purchase guns and ammunition.⁹⁰

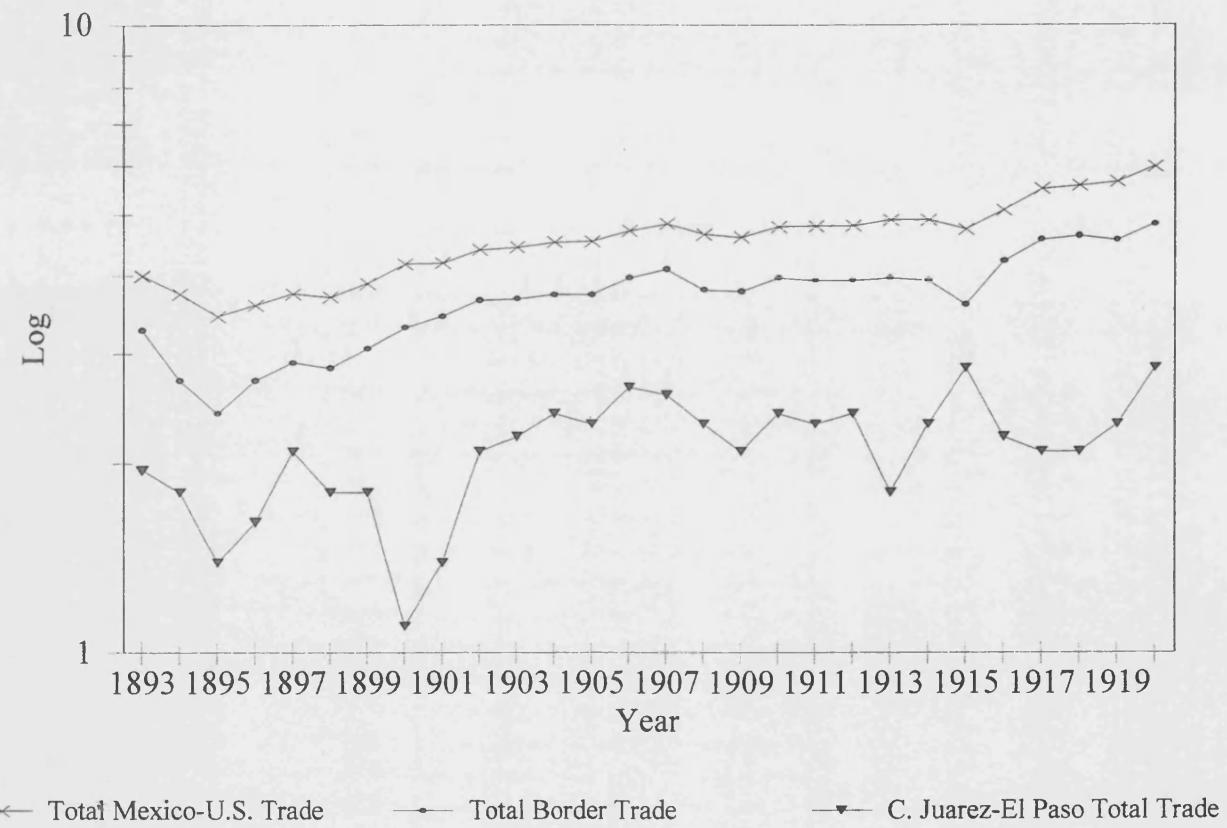
During the period of the Revolution (in **Table 7.4**), Mexico's total exports of lead ore to the U.S. through C. Juárez declined, meaning that internal hostilities impacted the various mining regions differently, causing some to stop production, while others, such as C. Juárez-El Paso remained open. The value of lead-ore exports alternates between an increase from 1912 to 1913, to a decline in 1914, followed by an increased in 1915. The interesting point is that in 1913, the same years as a peso devaluation and the imposition of Villa in Chihuahua, the value of lead-ore exports increased. The self-interest of the local political factions kept the industry afloat because exporting the ore meant an influx of revenue. Unlike cattle, which served to feed troops as well as generate income, all available lead ore had to be exported for cash because of the economies of scale were only viable if the flow of raw materials was constant enough to keep the business at capacity. If the flows stopped or lessened, then the disadvantages of creating a larger enterprise became more apparent.

In the case of tariffs, changes in respective national policies would be expected to offer a partial explanation for fluctuations in the value of exchange. Chapter 3 noted that Mexican duties on imports items fell between 1891 and 1905 and transportation barriers were partially remedied by the completion of the railways. In short, the cost of trade fell as the Mexican government simplified trade-related policies and utilised its tariff policy to encourage domestic economic growth. Capital, equipment machinery, engines, tools and parts all benefited from very low tariffs. Therefore, there is very little in the way of tariff considerations that might significantly have impacted nature of exchange through C. Juárez-El Paso. Looking at **Table 7.4**, the value of machinery and implements imported into Mexico declined significantly in 1897, coincidental with the imposition of the tariff, but also at the same time as a peso devaluation. Mexico's switch to the gold standard and elimination of the Zona Libre policy in 1905 is a year in which the value of machinery declines. This runs contrary to the expected outcome of higher values with the elimination of the tariff and policy. Finally, 1909 was singled-out as a watershed in Mexico tariff policy. According to **Table 7.4**, the value of steel machinery and agricultural implements increased almost 100 percent from 1908 to 1909. However this seems incommensurate with the modest changes made in trade policy.

In the case of the U.S., the Dingley Tariff (1896) increased duties on lead and lead ore appears to have impacted the shipments sent across the international boundary. This is clearly evident in the precipitous drop in value of lead-ore shipments through C. Juárez-El Paso between 1896 and 1897. However, this negative impact was short-lived because the

⁹⁰ As the cohesion of the Madero revolution began to come undone, federalists troops resorted to acquiring cattle and horses by illicit and licit means. Pascual Orozco's soldiers stole cattle from hacendados and sold them in the U.S. for ordinance. In the case of mining interests, Victoriano Huerta exacted forced loans from businessmen, as was the case with ASARCO when it paid US\$12,500. M. Machado, *The North Mexican Cattle Industry, 1910-1950: Ideology, Conflict and Change* (College Station, 1981), pp. 9-10 and M. Bernstein, *Mexican Mining*, pp. 97-100.

Figure 7.2
Comparison Trade Growth Rates



1899 value rebounded. The act also placed cattle on the free list. Interestingly, the value of cattle shipments increased from 1896 to 1897, but declined in 1898, perhaps meaning that the tariff had no immediate impact, or a delayed one, or perhaps that the fluctuations in values had nothing to do at all with the tariff, but rather with regional economic conditions. In 1913, a new tariff act expanded the list of free items and in **Table 7.4** there is a significant increase in cattle imports that year. However, given that cattle already benefited from a free status, this does not explain the increase in cattle import values. With so many considerations in 1913, it is difficult to gauge if this was in response to the tariff, monetary policy or the exigencies of war. In short, as no clear 'linkages' between national policies and the C. Juárez-El Paso cross-border market's development emerge from the above analysis, it is reasonable to assert that local forces were more instrumental in forging the cross-border economic whole.

All the considerations regarding the national contexts beg the question: How important was C. Juárez-El Paso to the larger border and bi-national trade relationships? To answer this question separate logarithms (logs) for the overall value of Mexico-U.S. trade through all ports, through the common land frontier points and through C. Juárez-El Paso for the period 1893-1920 have been calculated and graphed in **Figure 7.2**. The calculation of logs helped to smooth the data as well as place all three cases on a similar scale. C. Juárez-El Paso trade averaged 9.6 of the overall total relationship and 22.2 percent of the Border total for the 17-year period. The two lines representing Mexico-U.S. and frontier logs show that in relative terms, trade performance through their shared frontier increased, except for the noticeable declines in 1915 and 1919. In fact for the period 1893 to 1920, trade between Mexico and the U.S. increased by a factor of seven (see **Appendix Table 2** for trade statistics). In the case of Border trade (**Appendix Table 3**), the factor was 4.6. These figures overshadow the growth factor calculated above of 2.3 percent for C. Juárez-El Paso. However, given the myriad of circumstances described above in the previous chapters, this type of analogy is virtually incomparable and could lead to the wrong conclusions about the role of C. Juárez-El Paso in the larger process as well as completely obviate the importance of cross-border exchange to the development of a cross-border (regional) market.

Another perspective might be to compare the U.S.- Canada case with the Mexico-U.S. case. Over the period 1893 to 1920, Canada-U.S. trade increased by a factor of 11.⁹¹ The intensity of the Canada-U.S. relationship suggests that the process of exchange between the two countries was more advanced. However, without a more detailed analysis on the national and regional aspects of this trade, this type of comparison is *non sequitur* in respect of the present Mexico-U.S. borderlands study.⁹² Notwithstanding, gauging the nature of the larger

⁹¹ Based on Appendix Table 1.2 compiled from B.R. Mitchell, *International Historical Statistics, The Americas*, Table E2, External Trade with Main Trading Partners, p. 468.

⁹² In the Canada-Mexico case, neither of these two countries represented significant markets for each other. In fact, in works such as Mitchell's *International Historical Statistics*, neither country figures in the tables of key trading partners for each other during the period under study.

7.5

Comparison of Canada, Mexico, U.S. GDPs in 1990 International U.S. dollars(I\$)

Country	1870	1910	1913	Factor Change
Canada	1,620.00	2,758.00	4,213.00	2.6
Mexico	710.00	1,157.00	1,467.00	2.06
United States	2,457.00	4,096.00	5,307.00	2.15

Source: A. Maddison. *Monitoring the World Economy, 1820-1992* (Paris,1995), pp. 23-24.

trilateral relationship using a comparison of Gross Domestic Product (GDP) for Canada, Mexico and the U.S. might be useful. The source utilised is Maddison, whose work on tracing the global trends in the world economy have 'standardised' accounting measures such as GDP in such a way that general comparisons may be made. The alternative source, Mitchell, benefited from extensive national accounts tables, but recorded Gross National Product (GNP) in the current or adjusted prices of the national currency, which varied over time. Additionally, there were gaps in the sequential information for Mexico. Maddison's long-term trends in the world economy spanned a larger number of countries over a number of years and centuries using a standard of 1990 International U.S. Dollars (I\$). This data set proved better suited for this comparative analysis. An intermediate point of 1913 was selected to give a temporal context for the period. In Table 7.5, the GDP figures demonstrate that all three country's experienced economic growth between 1870 to 1913. In fact, they exhibit very similar factor changes. However, there still remained clear quantitative differences between the GDPs of Canada, Mexico and the U.S., which translated into significant differences in the qualitative experience in each instance. Therefore, this type of comparative analysis merely demonstrates that in all three countries the national economy was developing. The analysis does not address the question of integration at any level, if in fact it was taking place, nor do GDPs describe the qualitative differences within each national context. Furthermore, GDP says nothing about the micro experience of C. Juárez-El Paso in which a process of cross-border market formation or more generally regional integration between Mexico and the U.S. is clearly taking place.

III

In this chapter, the formation of cross-border financial networks has shown that access to credit played an important role in facilitating economic activities in the cross-border region. Early financial networks functioned on the basis of personal arrangements between individual entrepreneurs, given that currency and specie were scarce. These evolved into more formal relationships coincidental with the extension of transportation routes through the region. After 1881, the increasing scope and scale of business activities gave rise to a formal credit sector and corporate financial institutions with cross-border linkages as shown

in the schematic model. These linkages arose as a means of coping with the institutional environment and underwriting the extent of regional growth.

In terms of intra-regional exchange trade, from the 1820s to the 1880s, there was a definite expansion. Furthermore, the value of trade through El Paso-C. Juárez between 1893 and 1920 suggested an intensification of exchange between the U.S. and Mexico, albeit the data also exhibited a degree of volatility. This did not undermine the underlying trend that trade increased significantly through the period under study (**Figure 7.2**). The wide fluctuations in trade experienced through El Paso-C. Juárez meant that the region was more sensitive to the impact of external shocks after 1848. This is consistent with increased internal and external integration. Declines in trade, however, should not be understood to mean that the region was experiencing disintegration, but rather that external shocks had slowed the trend. The quick recovery after 1915 demonstrated the extent to which the regional economy was resilient due to its internal cohesion. Finally, the obvious comparison with the general Canadian-U.S. case did not yield much for the Mexico-U.S context because of the period under study. Interestingly, Mexico and Canada exhibit similar changes in GDP, which warrants further exploration.

CHAPTER 8

THE C. JUAREZ-EL PASO CROSS-BORDER MARKET

The purpose of this chapter is to summarise the findings of the foregoing analysis into a coherent statement about the formation of the C. Juárez-El Paso cross-border market, and by extension, Mexico-U.S. economic relations from a historical perspective. This is presented thematically by first recapping the findings of this study. The second section addresses the appropriateness of the theoretical methodology utilised and discusses the adequacy of the available sources. The final section places this study within the relevant literature, thereby offering suggestions as to a possible future research agenda for the analysis of the long-term economic integration between Mexico and the U.S.

I

At the beginning of Chapter 1, C. Juárez-El Paso was characterised as a cross-border metropolitan economy. This conceptualisation echoed a study by DRI/McGraw Hill of the city of El Paso that suggested that the C. Juárez, Chihuahua and El Paso, Texas must function as a single economic unit in order to improve their competitive position within their regional and bi-national economic realities. The notion of a cross-border metropolitan economy of the future was re-cast to one in which the cross-border economy has long historical roots that date back to the mid nineteenth century. The main hypothesis emerging from this construction was: that C. Juárez-El Paso form a cross-border market that has its origins in the nineteenth century. The sub-hypothesis is that Mexico and the U.S. were experiencing integration as early as the mid-nineteenth century. By framing the discussion in this way, this thesis emphasised two important arguments: (1) the dating of the integration between the two countries, and (2) the role of the common border area in this process. These broad themes represent a departure from conventional wisdom, which characterises the integration process as the Post-WWII era phenomenon and generally suggests that the borderlands are a paradox where the two countries interact in a symbiotic or interdependent way.

Two assumptions were made in order to ground the study. The first was that C. Juárez-El Paso formed part of a larger geographic whole. This was substantiated by employing the existing literature on the climatic and topographical characteristics of Northern Mexico and the Southwestern U.S. C. Juárez-El Paso was located at the heart of a larger geographic region extending from Chihuahua to Santa Fe, and circumscribed by imposing barriers such as the Rocky Mountains and Sierra Madre. This led to the conclusion that the centripetal forces operating in the region encouraged the development of C. Juárez-El Paso as the central point of a vast hinterlands where minerals and land were abundant. As such, the resources contained there in were assumed to be shared.

The second key assumption was that there existed a regional transportation infrastructure. This position derived in many ways from the first. Transportation interests operated in the region in order to service a large geographical expanse and the economies of scale required meant, again, that the most logical conceptualisation of the region was as a single area and not two distinct units simply because of the existence of an international political boundary. The origins of the transportation system date back to the Spanish colonial Camino Real, and while the Mexico-U.S. War resulted in a different political configuration for the region, the orientation of the transportation network was not greatly altered. Between 1848 and 1881, these links were typically overland wagon routes running north to south. After 1881, the construction of the railways changed the landscape for transportation by facilitating resource exploitation, allowing for the movement of large pools of labour and information, and expanding the directions of trade. The railways provided a mechanism for increased integration and allowed for inter-regional trade. The key points was that C. Juárez-El Paso occupied the only all-weather route across the continental divide that extended through the U.S. and into Mexico. It was therefore logical that transportation interests regardless of their nationality sought the easiest routes to intermediate and final markets in order to reduce transportation costs. The case of the Santa Fe railway was highlighted as an example of a regional business that clearly sought to unify the market as a means of ensuring freight. The final section of the chapter made a very important assertion that, in some instances, a regional freight rate operated. This further supported the argument that regional businesses viewed the area as a cross-border whole.

The activities of entrepreneurs and the organisational structure of their enterprises was the subject of Chapter 5. Did an integrated market for entrepreneurs exist? This question

was deconstructed into three components: the productive organisation of the regional economy; the opportunities present given the resource base; the organisational structure of the activities designed to exploit these opportunities and the obstacles encountered. It was argued that the regional economy was organised around three main activities retailing and wholesaling, transportation and primary production. Prior to 1881, retailing and wholesaling were the most important market activities. In a market limited by the small number of potential consumers and the unavailability of technological advances that would have permitted greater production apart from subsistence agriculture, retailing and wholesaling were the only viable options, although local entrepreneurs were seen to spread the risk of failure over a greater mix of retailing and wholesaling and self sufficiency. More importantly, the ephemeral nature of opportunities to undertake market activities fostered extended business relationships that were cross-border in nature. The extension of transportation networks into the region permitted specialisation on many levels. Better transportation and communication services fostered more extended cross-border relationships, some of which were directly dependent upon the nature of resource exploitation in the C. Juárez-El Paso hinterlands.

As the firm expanded, entrepreneurs adjusted to changes in market conditions by modifying the organisational structure of their enterprises. Several entrepreneurs were singled out as case studies. Cultural and familial ties, labelled as kinship networks or informal partnerships, were utilised early on to avoid uncertainty in the regional market. The chapter demonstrated that as early as 1848 regional entrepreneurs formed cross-border alliances. As the scope and scale of the regional market increased with the railways, specialization in entrepreneurial pursuits increased. This led to an increasing number of sole proprietorships and partnerships with more extended cross-border relationships, some of these grew or merged into larger corporate interests. The most salient examples of cross-border enterprises were Kettelson and Degetau and Krakaur Zork and Moye. Both of these firms demonstrated a degree of horizontal and vertical integration that transcended the international boundary. Others highlighted in this section included the El Paso Electric Company, whose energy grid spanned the boundary, and the ASARCO, who maintained operations on both sides of the border.

The obstacles encountered by entrepreneurs were typical of any business, and many of them were overcome by undertaking what Casson termed as 'market-making' activities.

This meant that entrepreneurs internalised certain aspects of their activities in order to reduce the transaction costs. The process of internalisation also contributed to the emergence of companies such as Krakaur Zork and Moye, whose complex organisational structure served as an example of how regional entrepreneurs overcame obstacles. In this instance, maintaining offices on either side of the border was one way to overcoming tariffs (Zona Libre) and avoiding political turmoil (Mexican Revolution). The imposition of the McKinley Tariff offered another salient example of entrepreneurial problem-solving in that companies such as ASARCO simply jumped the border, and smelted ores nearer to the source in Mexico in order to avoid the tariff on importing silver-bearing ore. After smelting, the material could be shipped to another part of their organisation in places like El Paso on the other side of the boundary for refining, thereby avoiding the tariff.

In terms of entrepreneurial activities, the nature of the region made it inevitable that businesses functioned in a cross-border market. The organisational structure of these activities was similar to those found in Chandler's study on scale and scope. In fact, the area's economy was inextricably linked to mining, ranching and transportation, all industries that Chandler singled out as benefiting from economies of scale and scope. Notwithstanding, entrepreneurs still exhibited a peculiarity because of the cross-border nature of the region. Therefore, entrepreneurs had to be mobile in a spatial sense. This was accomplished by either physical movements or extended networks.

What evidence is there that a cross-border labour market existed? Drawing closely on the mix of market activities pursued by entrepreneurs, Chapter 6 argued that the pattern of economic activity in the cross-border market was similar throughout a region that included a large geographical expanse stretching from Chihuahua in the south, to Arizona-Sonora in the west, Santa Rita, New Mexico in the north and present day West Texas to the east. Consequently, the demand for labour was similar throughout. The three key areas of mineral exploitation, agriculture and transportation services, as well as their related support industries, all depended on low wage, low skill workers. This chapter, therefore, further defined the nature of regional specialization. In many instances primary production represented a less-capital intensive segment of the production process, hence the need for large pools of unskilled and semi-skilled labour. Subsequent development, particularly in the U.S. Southwest, drew labour to the region. C. Juárez-El Paso came to be known as a regional depot for labour resources with a strong Mexican influence. This peculiarity derived

from several factors: (1) the changes in Mexico's internal economic organisation, which lead to the dislocation of peasants and artisans in the central and southern parts of the country, who then migrated to the northern states where they found employment in the mines, railways and ranches; (2) the nature of development in the U.S. Southwest, which was characterised by large-scale primary production sites that required a large number of workers with an ability to be mobile; and (3) the effects of the Mexican Revolution in 1910, which further exacerbated this trend.

As Chapter 6 explained, the occupational structure was a pyramid with a base consisting of a large pool of unskilled and semi-skilled labour and a narrow apex of skilled and professional labour. The nationality of the lower levels of the pyramid was Mexican, while Americans tended to occupy management levels. Regional development was characterised by the ever moving mining and agricultural frontiers and labour had to be extremely mobile. The spatial dynamics of labour flows was such that Mexican workers moved northward, while U.S. labour moved westward. There was some evidence that U.S. labour moved south but not to the extent seen in the opposite direction. Occupational mobility appeared to have been limited because of the nature of labour utilization. Unlike in the case of entrepreneurs, where obstacles such as tariff policies existed, labour faced few significant immigration restrictions. In fact, Mexican labour was actively recruited into the region by agencies and special dispensations allowed by the U.S. government in order to remedy shortages in the U.S. Southwest. It was not until 1917 that the U.S. Immigration Act limited work in specific industries, but this was designed to stem the flow of immigrants from Eastern and Southern Europe. Therefore, in a very real sense, the region was integrated because the political frontier did not represent a barrier to the movement of labour.

The most important feature of this chapter was the discussion on the existence of regional wages. Chapter 6 argued that there existed a wage gradient emerging from the El Paso-C. Juárez vicinity and radiating both northward and southward. Wages increased as labourers in all occupations moved north from the border. Concomitantly, wages decreased from C. Juárez southward. This 'convergence' in labour prices was expressed by the equivalent nominal wages found immediately south and north of the border in most occupations, particularly in the railways. Discriminatory practices within the labour market contributed to the nature of the cross-border market and manifested themselves in the wage rates paid to ethnic groups within the various sectors. However, these 'ethnic' or 'race

wages' did not constitute a generalised trend away from an integrated labour market. This chapter argued that C. Juárez-El Paso functioned as a consolidation point for labour.

Given that entrepreneurs and labour were mobile within the market, the next chapter asked: Did financial resources move freely throughout the region? The analysis of the formation of cross-border financial network explained that access to credit played an important role in facilitating economic activities. Early on personal arrangements between individual entrepreneurs figured largely, given that currency and specie were scarce. More formal relationships emerged with the extension of transportation routes through the region by large transportation interests that often served as bank-type institutions. The increasing scope and scale of business activities gave rise to a need for greater amounts of capital, leading to the formation of a formal credit sector with cross-border linkages. These linkages arose as a means of coping with the institutional environment and underwriting the extent of regional growth. The schematic model presented in this chapter demonstrated how regional banks were linked to each other and that these relationships transcended the international boundary in a number of instances. This model clearly showed that entrepreneurs were moving across the international border and actively developing a regional credit market. A key element of the discussion was the pre-disposition of Mexican financiers to seek accommodation across the frontier because of the volatility of the national market.

The final element of this study related to the internal cohesion of the C. Juárez-El Paso cross-border market as measured through the exchange of goods. This was accomplished by looking at the Mexico-U.S. trade statistics for the period under study. Was there increased intra-regional exchange in goods? The discussion began with an analysis of the composition of trade. Early on goods traded had a regional character; agricultural products were bartered for finished domestic goods brought into the region by wholesalers and retailers. This trade flowed along a north-south axis. After the Mexico-U.S. War and up until 1881, the north-south flow of goods was negatively impacted by the process of nation-state building in Mexico and the U.S. Notwithstanding, there was still evidence that trade persisted and involved the same kinds of goods. After 1881, the composition of goods expanded to one involving the southward movement of greater numbers of capital goods and inputs for large-scale production, and the resulting outputs moving northward. This pattern suggested that a great deal of the movements in either direction were intra-regional in character, particularly because C. Juárez-El Paso functioned as a consolidation point for

mining, agricultural and transportation activities. It was therefore inferred that much of this movement was between units of the same enterprise. For example, the chapter noted that inputs for the construction and maintenance of the railways were major components of the goods moving through the region. This meant, for example, that the major transportation companies that utilised C. Juárez-El Paso as a base for operations were shipping equipment to other sights along their networks. Likewise, significant numbers of cattle and ore were also shipped between the source and processing plants. The argument of vertically and horizontally integrated firms suggested that by internalising all or many aspects of the production process, these intra-industry, and even intra-firm, transfers were another source of integration.

The analysis of the value of goods traded through C. Juárez-El Paso between 1893 and 1920 demonstrated increasing exchanges of goods between the U.S. and Mexico. This was to be expected given the nature of the regional economy. Certainly, as labour and entrepreneurs were increasingly present in the region, their needs would have also increased demand for goods and services. Although there was a clear upward trend in the intensification process, there was also a great deal of volatility in the figures, which could be explained, in part, by the respective national institutional frameworks, but more specifically by the vicissitudes of the regional economy. Declines in trade were not understood to mean that the region was experiencing disintegration, but rather that external shocks had slowed the integration trend. The quick recovery after 1915 in trade shown in the **Figure 7.2** demonstrated the extent to which the regional economy was resilient due to its internal cohesion.

The conclusions drawn from the foregoing study were that the factors of production (entrepreneurs, capital and labour) moved 'freely' throughout the region, forming a cross-border market with C. Juárez-El Paso as its central point. Furthermore, because this was taking place as early as 1848, when the international boundary was drawn, this study has invalidated the notion that Mexico-U.S. integration is primarily a post-WWII phenomenon. Finally, based on the trade analysis, this study clearly shows that the Mexico-U.S. borderlands were at the leading edge of this process, since products such as cattle, and lead and silver-ore proved important in the overall trade relationship.

II

This section looks at the appropriateness of economic integration theory to the study of the Mexico-U.S. borderlands. As was explained in Chapter 2, integration means the combining parts into a whole. This process implies the elimination of economic barriers across which the movement of the factors of production and goods and service may be limited. According to the theory, integration is measured by the ability of the factors to move throughout a given geographic expanse and factor price equalisation is the measure of that ability. That is, in a free movement area, factor prices should be the same or converge over time. According to the theory, the stimuli for this process may be found in the sharing of technology and capital investments. These aspects of the theory have been utilised to frame this study.

In the case of C. Juárez-El Paso, the role of technological innovation – the advent of the railways and the mechanization and automation that this brought with it was crucial in the overall development of the region. Capital investment was also very important given that it directly underwrote the expansion of the railway network as mining and other interests sought more efficient means of moving their output to its final market. The discussion in Chapter 4 on the development of the regional infrastructure clearly emphasised this point. Additionally, Chapter 7 showed how corporate financial institutions emerged as an important source of credit in the region. From this discussion it is clear that the acquisition of newer means of exploiting regional resources and the financing to undertake this activities were important factors in the formation of the cross-border market. Therefore, in this regard, the theory afforded a viable explanation for the catalyst of integration.

In respect of the combining of two systems through the elimination of economic frontiers, the verdict on the explanatory powers of the theory must be mixed. On the one hand, the division of the study of economic integration theory into an analysis of markets and an analysis of policy is useful in that it has permitted a study such as the foregoing, one strictly based on markets and factors. But the dichotomy has also made it difficult to take into consideration political policies given that, in this case, they are not the starting point for the historical roots of integration. The biggest shortcoming is that integration according to theory is a programmed outcome. Clearly, in this case integration was not contrived by the actors because they never considered the region to be anything but a unit. Stated another way, the region never functioned as two separate entities. Integration occurred despite the

lack of a programme. This fact begs the question, does an agreement with guidelines for integration really change the path of integration, or do the markets continue to function based on their own logic? This study has suggested that the C. Juárez-El Paso cross-border market pursued its own logic despite political impositions such as changes in tariff policies. Furthermore, if it were argued that boundary polities are peripheral regions, then it may also be argued that their interests are the least important to the whole of the country. Consequently, tariff decisions must be considered as an external shock as they are generally taken not with the purpose of protecting the peripheral region, but rather promulgated as a means of ensuring that the internal markets of the country remain protected. Furthermore, if markets pursue their own logic, then what should be done with the forces of integration that existed prior to a political agreement to integrate? The theory of economic integration does not deal with these realities.

Factor price equalisation as a sure sign of complete integration is also problematic. This study has shown that up until 1920 there was a tendency toward 'convergence' in the labour market. It has also suggested the possibility of convergence in the financial sector and in the entrepreneurial markets. But the study had many limitations in a historical context due to the lack of data. Qualitative measures such as the formation of partnerships and the ease with which entrepreneurs formed alliances with cross-border linkages pointed to an underlying belief that the region was an economic whole. In the case of capital markets, again, the scarcity of information on interest rates and lending practices did not allow for a quantitative 'proof' of integration. However, the fact that many of the regional financial institutions utilised and depended on the inter-linkages of stockholders proved to be a qualitative measure of integration. Finally, in the case of the labour market, while only piecemeal wage information was available, it was clear that C. Juárez-El Paso was at the centre of the cross-border market where wages paid to workers were very close to being equal if not actually equal, as in the case of railway workers, despite the nuances in regional wages rates caused by factors such as ethnicity. In short, the over-reliance on quantitative measures on integration render the theory difficult to apply in a historical setting.

The intensification of the trade relationship presented another point at which the theory offered very little in the way of explanatory power due to the underlying assumptions and the unitary constraint of the nation-state. As was stated in Chapter 2, the degree of integration may also be measured by observing the extent to which trade intensifies due to

the reduction or elimination of import duties and quantitative restrictions. The language of this definition is charged with a bias toward the nation-state and its policy formulation activities. In this study, it was shown that very little co-ordination occurred between Mexico and the U.S. in terms of integrating their respective economies between 1848 and 1920. Chapter 7 showed that because of the regionalisation of production across a political boundary, trade increased as the regional market experienced increasing internal and external integration. All of this took place without the need for interference from the national government. The characterization of trade in this theory is one typical of the neoclassical model of comparative advantage. This obviates the very subtle caveat of trade between units of the same business, as was the case along the Mexico-U.S. border.

Regardless of the short falls of the theory, it did provide a useful means of conceptualising the subject matter. This has permitted a study which has shown that, in fact the Mexico-U.S. borderlands can be considered a single market. Economic integration theory also provides a useful way of disaggregating the market into its constituent parts. However, it is clear that economic integration theory is not a theory of long-term economic integration. It is a theory that relies on planned integration such as the project of the European Union.

III

While this study has presented a new way conceptualising the Mexico-U.S. borderlands, it has also revealed that there are many gaps in the corresponding literature that may be filled if the regional study is framed in a different way. The literature survey presented in Chapter 1 explained that in Boundary Studies, sovereignty and political considerations still dominate the writing. However, there is a growing body of literature on the role of local actors in developing a general policy and fostering integration. When viewed in this way, a study of local markets seems to offer a means of strengthening this research project.

In respect of Mexico-U.S. borderlands history, the adherence to methodologies based on disciplines, such as political science, continue to focus the discussion on sovereignty and political processes. The present study is unique as economic history is not a major discipline of the Mexico-U.S. borderlands historiography. Furthermore, the survey suggested that because the nation-state has often been the underlying point of reference for most studies, any level of analysis based on this concept has found itself facing internal contradictions, and hence, the two countries are often juxtaposed instead of being considered as one. Again, this

study has shown that these limitations may be overcome if the problem or issue is cast in a different light.

Economic studies have been the most difficult to undertake, and the biggest obstacle has been long term comparable data sets. This is where this study has contributed to the dialogue being pursued in Mexico-U.S. boundary studies because it has drawn from a number of sources in order to present data sets that were considered otherwise non-existent. Because of the real or perceived lack of long term data sets, quantitative historical analysis have fallen by the wayside. Still, data sets may be reconstructed. Therefore, one of the primary objects of a regional project should be to glean from the existing historical literature data that can be recast into reliable data sets representative of the region in the nineteenth century. This is a difficult task, but still attainable, given that a myriad of sources contain material that can be pieced together. Of particular significance are the notarial records at the local level, which may yield a wealth of information on local transactions that would otherwise not be found at the state or national level. Additionally, numerous local libraries and archives house information that with a little bit of mining will probably yield long-term datasets upon which to build a larger-scale study of the historical roots of Mexico-U.S. integration. Certainly, a series of case studies such as the one presented herein, on cities such as San Diego-Tijuana, Nogales, Nogales, McAllen-Matamoros and even San Antonio-Monterrey, may result in a larger statistical database than was previously thought impossible. When coupled with the wealth of historical work on political, cultural and social institutions, the study would provide a clearer picture of what the Mexico-U.S. borderlands require in terms of policy and infrastructure and dispel some of the notions of dependency and symbiosis so often found in the public and academic mind.

This study has clearly shown that there is a great need for a regional historiography rather than two separate historiographies that continue to emphasise differences rather than similarities and coherence. The literature demonstrates significant gaps in respect of entrepreneurial histories. Chapter 5 demonstrated that entrepreneurial activities took place at an early stage. Farmers were often merchants and were not necessarily two different economic actors with very different means of approaching production and its uses. Therefore, in looking back at the histories of local residents, could many more of these have been early entrepreneurs? How much did the economic environment affect or influence the way they perceived market opportunities? Did this contribute to the formation of a regional

market? Is there a way of determining profitability using qualitative measures? Was the firm truly a profit-maximising entity or did cultural practices and preferences lead entrepreneurs to deviate from the profit-maximising norm? Finally, the tenets of Chandler's study on the similarities between the U.S., the U.K. and German businesses might be applied to the evolution of firms along the Mexico-U.S. border. How many firms exhibit the scale and scope characteristics that made the above countries appear to be unique? If these countries are operating in a cross-border setting, does this mean that parts of Mexico were also unique in their development?

As regards the cross-border capital market. This topic is the least developed in the literature. There are many questions that have arisen out of the study presented herein, many of which may be answered by digging deeper into the archival material identified in this thesis as a potential source. What type of discussion can be drawn from the existence of a credit market that transcended the border? How much more can we elaborate on the gradual linking of credit markets? Can a history of the regional credit market be created in which the evolution of a standardization of credit practices can be identified? What were the true uses of credit? Did discounting take place? Did the peso or dollar serve as the currency of transaction? What were the methods for assessing credit risks? The schematic model presented in Chapter 7 implied that Mexican capitalists were the driving force in the region. Their importance needs to be further explored.

Finally, the discussion on the intensification of trade between Mexico and the U.S. has raised a very important issue. If, as this study has suggested, much of the exchange along the border was between units of the same enterprise, then should there be another measure of increasing integration? Although in Chandler's words, many of the units of a larger conglomerate often operated independently of each other, was this really the case along the Mexico-U.S. border? Shipping rails, locomotives or mining equipment from a unit north of the border to a sister unit south of the border does not appear to signal independence? Perhaps future research projects could gain access to the records of companies such as ASARCO or Krakaur Zork and Moye to find out what percentage of the goods shipped between units on either side of the frontier were actually intra-company transfers. Should the statistics on international trade between the two countries be disaggregated using what is known about the Zona Libre and its import restrictions to draw a more accurate picture of trade, between Mexico and the U.S., as well as along the border, in the nineteenth century?

What about trade in services? Little was said about trade in services in this study, although the existence of a cross-border financial market implies that there must have been trade in banking services. Is there a way of quantifying this activity? What other services were traded?

If we are to believe that boundaries, political and otherwise, are no longer relevant or may not have had as much importance as others would have, then another means of conceptualising the region must be found. Improved modes of transport and communication have made it increasingly difficult to draw the limits of a community solely based on cultural or linguistic traits. Perhaps using markets and their inter-linkages is better suited to the task of understanding the role and function of a community within the global market. Certainly, from the perspective of this study, the juxtaposition of Mexico and the U.S. in economic terms has to be questioned given the material presented herein, which clearly shows that integration does not necessarily require a programme, and that it continues to be, a long-term process.

Bibliography

PRIMARY MATERIAL

Travel Diaries and Memoirs

J. Babcock, 'San Antonio and El Paso Mail and its Connections,' transcription taken from Texas Almanac, 1870, Southwest Room, El Paso Public Library.

J.R Bartlett, *Personal Narrative of Incidents in Texas, New Mexico, California, Sonora and Chihuahua, 1850-1898* (Chicago, 1965).

Dowell Memoirs, 1870-1880, C.L. Special Collection - MS 031, University of Texas-El Paso.

S.E. Johnson, Reconnaissance of Routes from San Antonio to El Paso, 1848, C.L. Sonnichsen Special Collection, University of Texas -El Paso.

J. W. Magoffin Papers, 1850s, C.L. Sonnichsen Special Collection, University of Texas -El Paso.

J.F.K. Mansfield, *Mansfield on the Condition of Western Forts, 1853-1854*, ed. Robert W. Frazer (Norman, 1963).

W. W. Mills, *Forty Years at El Paso, 1858- 1898* (El Paso, 1962).

G.F.A. Ruxton, *Adventures in Mexico* (London, 1915).

Rex Strickland Papers, 1880-1900, C. L. Sonnichsen Special Collection -MS 131 University of Texas -El Paso.

Company Papers and Business Publications

Banco de Chihuahua, *Contrato de Concesión y Estatutos* (Chihuahua, 1889).

Chihuahua Enterprise, 9 July 1898.

S. Cox, 'The State National Bank', University of Texas -El Paso, History Seminar Papers, MF 281, r. 3.

El Paso Electric Company, *Annual Reports to Stockholders*, published by Stone and Webster.

Greater El Paso Chamber of Commerce, 'The El Paso Economy: A Diagnosis for Action, DRI/McGraw Hill (1994).

Moody's Manual of Railroads and Corporation Securities (New York, 1906).

The Stock Exchange Official Intelligence (London. 1910).

Thomas Wentworth Pierce Papers -The Corralitos Company, 1890-1920, Nettie Lee Bentson Collection. University of Texas -Austin.

Wells Fargo 1860-1890, C.L. Sonnichsen Special Collection - MS 49, University of Texas -El Paso.

B. Wilson. Secretary to the Superintendent of the El Paso Division of the Southern Pacific Lines, 'A Brief History of the El Paso Division.', c.1923

Zork Company Papers, MS 122, 1880-1920, C.L. Sonnichsen Special Collection. University of Texas -El Paso.

Mexican Documents

Archivo del Ayuntamiento de Paso del Norte, Microfilm Series 495 and Juarez Archives Notebook Collection Acc. No.917, 1800-1900.

Dirección General de Estadística, Alejandro de Humbolt, *Tablas Geográficas Políticas del reino de Nueva España y Correspondencia Mexicana* (Mexico,1970).

J. Griggs, B.S., Director de la exposición minera permanente, *Catálogo de los Ejemplares que Existen en La Exposición Minera Permanente Clasificados* (Chihuahua, 1906).

Secretaria de Fomento, Colonizacion e Industria, *Boletín de Agricultura, Minería e Industrias*, 1 (1891) 2.

Instituto Nacional de Estadística Geografía e Informatica, *Estadísticas Históricas de México* (Mexico, 1990), Tomo II.

Secretaria de Fomento, *Censo General de La República Mexicana*, 1900.

Secretaria de Fomento, *Anuario Estadístico*, 1895-1910.

Secretaria de Fomento, Colonización e Industrias, Oficina de Tipografía, *División Territorial de los Estados Unidos Mexicanos Formada por la Dirección General Estadística, Estados del Norte* (Mexico, 1904).

State of Chihuahua, Acta de la sesión ordinario del a 14 de Diciembre de 1907 del Ayuntamiento de Ciudad Juárez, *Periodico Oficial del Estado de Chihuahua*, vol. 29, no.4.

Colección de las Leyes Fundamentales que han regido en la República desde 1821 hasta 1856 (Mexico, 1856), Ministerio de Guerra y Marina, Jose Joaquin de Herrera, 15 July 1848, edict.

Comisión Internacional de Límites, Memoria de la sección Mexicana de la Comisión International de Límites entre México y Los Estados Unidos que restableció los monumentos de El Paso al Pacífico (New York, 1891).

State of Chihuahua, *Noticias Estadísticas del Estado de Chihuahua* (Chihuahua, 1834).

State of Chihuahua, Archivo Historico del Registro Público de la Propiedad del Estado; Próntocolo de Notarios, 1880-1910.

State of Chihuahua, Secretaria de Fomento, *Censos y División territorial del Estado de Chihuahua, Census General de la República Mexicana* (Chihuahua,1904).

State of Chihuahua, *Anuario Estadístico del Estado de Chihuahua*, (Chihuahua, 1906, 1908).

State of Chihuahua, Secretaria de Gobierno del Estado, Sección Estadística, 'Noticia de los giros mercantiles en el Distrito Bravos año 1909' (Chihuahua, 1909).

State of Chihuahua, Secretaria de Gobierno del Estado, Sección Estadística, 'Noticia de los giros industriales en el Distrito Bravos año 1909' (Chihuahua, 1909).

State of Chihuahua, Secretaria de Gobierno del Estado, Sección de Fomento, 'Memoria de la Administración Pública, Anexo No.55, Contrato en virtud de la ley de 21 del actual, celebra el Ejecutivo del Estado con El C. Dr. Mariano Samaniego, representante del la Compañia de tranvías de Paso del Norte: para la construcción y explotación de los vías fereas en aquella villa.' (Chihuahua, 1900).

State of Chihuahua, *Album al señor General Don Porfirio Díaz Presidente de la República Mexicana en recuerdo de su visita a la capital del estado* (Chihuahua, 1909).

United States Documents

City and County of El Paso, Texas, El Paso Bureau of Information 1886 -1888.

City of El Paso, Industrial Development Corporation, Statistical Abstract of El Paso (El Paso, 1986).

City of El Paso, Board of Trade, Commercial Council and the Southwest Mining Association of El Paso, A Compilation Resolutions, Statistics and Useful Information Pertinent to the Mexican Silver-Led Ore Question' (El Paso, 1889).

US, Department of Commerce, Bureau of the Census, Census of the United States, 1850- 1920.

US, Department of Commerce, Bureau of Statistics, The Foreign Commerce and Navigation of the United States, 1893-1920.

US, Department of Commerce, A Guide to the North American Free Trade Agreement: What it means for us Business (Washington, D.C., 1992).

U.S. Department of Labor, Bureau of Labor Statistics, *Nation-, State- and City-at-a-Glance* reports, September 2001.

US, Department of Labor, Bulletin of the Department of Commerce, 1896-1920 (Washington, D.C.)

US, Department of Labor, Reports of the Department of Labor, (Washington, D.C. 1913-1920).

US, Department of Interior, United States and Mexican Boundary Survey (Washington, D.C. ,1859).

US, Department of Treasury, Records of Accounts Current, 1854-1870, Customs, 342.027 EP2.

US, Department of State, Dispatches from U.S. Consuls in Ciudad Juarez (Paso del Norte) 1850-1906.

US, Department of State, Commercial Relations of the United States with Foreign Countries, 1850-1920.

El Paso Guides, 1880-1890, C.L. Sonnichsen Special Collection, University of Texas -El Paso.

El Paso City Council, Minute Book B, 1850.

El Paso County, County Deed Record Books, A-D, 1850-1865.

El Paso County Historical Society, Census of 1841 for Ysleta, Socorro and San Elizario (translated El Paso, 1988).

Greater El Paso Chamber of Commerce, Report for 1911, 'Prosperity and Opportunities in El Paso and El Paso's Territory.'

Greater El Paso Chamber of Commerce Year Book, Greater El Paso, The Power House of the Southwest, November, 1919.

Greater El Paso Chamber of Commerce Year Book, Greater El Paso, The Power House of the Southwest, January 1920.

Greater El Paso Chamber of Commerce Year Book, Greater El Paso, The Power House of the Southwest, March 1921.

US, House of Representatives, Thirty-fourth Congress, First Session, House Executive Document No.135, 'Reports of William H. Emory, Major First Calvary and U.S. Commissioner.'

US, House of Representatives, Twenty-seventh Congress, Second Session, House Report No.328, 'Extending Privilege of Drawback,'

US, House of Representative, Twenty-seventh Congress, Second Session, House Report No.328, 'Drawbacks on inland trade to Mexico and Texas and Canada.,'

US, House of Representatives, Thirty-fourth Congress, First Session, House Executive Doc. 135, 'Reports of William R Emory, Major First Calvary and US. Commissioner,' 1850.

US, House of Representatives, Fifty-fifth Congress, Second Session, House " Report No.702, 'Mexican Free Zone.'

US, Senate, Eighteenth Congress, Second Session, Senate Doc. No.7, Answers of Augustus Storr, of Missouri, to Certain Queries upon the Origin, Present State, and future Prospect, of Trade and Intercourse Between Missouri and the Internal Provinces of Mexico.'

US, Senate, Twenty-first Congress, First Session, Senate Doc. 46 'Presidential Protection of trade between Missouri and Mexico.'

US, Senate, Twenty-first Congress, First Session, 'Message of the President on protection of trade between Missouri and Mexico.'

US, Senate, Twenty-second Congress, Second Session, Senate Doc. No.90, 'Message from the President of the United States in compliance with a resolution of the Senate concerning the Fur Trade, and Inland Trade of Mexico.'

US, Senate, Twenty-fifth congress, Third Session, Senate Doc. 225, 'Memorial of Assembly of Missouri establishment of a port of entry in Western part of the State.'

US, Senate, Twenty-fifth congress, Third session, Senate Doc. 225, 'General assembly of Missouri praying establishment of port of entry of that State and allowances on Drawback in Merchandise Exported by land to Mexico.'

US, Senate, Twenty-sixth Congress, First Session, Senate Doc. 472, , 'Documents on bill to establish ports of entry in Arkansas and Missouri to allow Debenture on Foreign goods conveyed over land to such port in Mexico.'

US, Senate, Twenty-seventh Congress, Second Session, ' Drawback on inland trade to Mexico, Texas and Canada.'

US, Senate, Thirtieth Congress, Senate Executive Doc. 7, 'Lieutenant Emory Report: A print of W.H. Emory's Note on Military Reconnaissance.'

US, Senate, Thirty-first Congress, First Session, Senate Executive Document 64, Report of Reconnaissances, p. 1, Routes from San Antonio to El Paso, Report of R.B. Marcy, and Report of S.G. French.

US, Senate, Thirty-third Congress, First Session, Senate Executive Document 52, 'Report of Surveys to ascertain practicable routes for Railroad to Pacific Ocean.'

Senate, Thirty-third Congress, First Session, Senate Executive Document 29, Copies of all reports of engineers and other persons employed to explore and ascertain most practicable and economical route from Mississippi River to Pacific Ocean.

US, Senate, Forty-first Senate, Second Session, Senate Report No.166, 'To repeal all existing laws authorizing transportation and exportation of goods, wares and merchandise in bond to Mexico overland and by inland water.'

US, Senate, sixty-first Congress, First Session, Document No.633, 1910, Report of the Immigration Commission, Immigrants in Industries, Part 25: 'Japanese and other immigrant races in the Pacific coast and Rocky Mountain States.'

Texas Department of Commerce, The North America Free Trade Agreement (Austin, 1992).

Texas Almanac, 1859.

US Postmasters of El Paso County, 1881-1945, Acc. No.985, C.L. Sonnichsen Collection, University Texas -El Paso.

United States Statutes at Large, (Washington, D.C. 1969).

US, War Department, Office of the Adjutant General, 'Selected letters of Major Jefferson Van Home, 1848,' C.L. Sonnichsen Special Collection, University of Texas -El Paso.

DISSERTATIONS AND THESIS

J. V. Barton, 'El Paso 1890,' unpublished Masters thesis, University of Texas-El Paso, 1963.

R Estrada M., 'Border Revolution, the Mexican Revolution in the Ciudad Juarez-El Paso Areas, 1906-1915,' unpublished Masters thesis, University of Texas-El Paso, 1975.

P.N. Garber, 'The Gadsden Treaty,' unpublished Masters thesis, University of Pennsylvania, 1923.

C. Garna-Loy, 'Sword and Plowshare: The Symbiotic Development of Fort Bliss and El Paso, Texas, 1848-1918,' unpublished Masters thesis, Texas Tech University, 1977.

P.C. Haney, 'International Controversy over the Waters of the Upper Rio Grande,' unpublished Masters thesis, College of Mines and Metallurgy, 1949.

N. Hammonds, 'History of El Paso County, Texas to 1900,' unpublished Masters thesis, College of Mines and Metallurgy (University of Texas- El Paso) 1942.

A. Hughes, 'The Beginnings of Spanish Settlement in the El Paso District,' unpublished Masters thesis, University of California-Berkeley, 1914.

E. L. Langston, 'The Impact of Prohibition on the Mexican-U.S. Border, The Case of El Paso: Ciudad Juarez,' unpublished Ph.D. thesis, Texas Tech University, 1974.

M. A. Law, 'History of ASARCO in El Paso, 1887-1950,' unpublished Masters thesis, College of Mines and Metallurgy, 1960.

L.M. Parlee, 'Porfirio Diaz, Railroads, and Development in Northern Mexico: A Study of Government Policy Toward the Central and Mexican Railroads, 1876-1910,' unpublished Ph.D. dissertation, University of California-San Diego, 1981.

J.D. Simms, 'Convergence, endogenous growth and development in the regions of Europe,' unpublished Ph.D. dissertation, University of London, 1995.

BOOKS AND ARTICLES

D. Abad de Santillán, *Historia de la Revolución Mexicana* (Mexico, 1992).

C. Abel and C.M. Lewis eds., *Latin America, Economic Imperialism and the State: Political Economy of the External Connection from Independence to the Present* (London, 1985).

R. Acuña, *Occupied America; The Chicano's Struggle Toward Liberation* (San Francisco, 1972).

J. Adler, *Yankee Merchants and the Making of the West, The Rise and Fall of Antebellum, St. Louis* (Cambridge, 1991).

F.R. Almada, *Diccionario de História Geográfica y Biográfica Chihuahuense* (Chihuahua, 1979).

_____. *Resume Histórico del estado de Chihuahua* (Mexico, 1955).

_____. 'Cd. Juárez al Traves de la Revolución Mexicana,' *Boletín de la Sociedad Chihuahuense de Estudios Históricos*, 4 (1946) 1.

_____. 'La Fundación de la ciudad de Chihuahua,' *Boletín de la Sociedad Chihuahuense de Estudios Históricos*, 4 (1946) 1.

G. Altamirano and G. Villa eds., *Chihuahua: Textos de su Historia, 1824-1921* (Chihuahua, 1988).

J.R. Alvarez ed., *Enciclopedia de México* (Mexico, 1987).

T. Anaya, 'The Independence of Mexico and Central America, in *Cambridge History of Latin America*, ed. L. Bethell (Cambridge, 1985), vol. 3.

B. Anderton, R. Barrel and J. Willem in't Veld, 'Forward Looking Wages and the Analysis of Monetary Union,' in *Economic Convergence and Monetary Union in Europe*, ed. J. Barren (London, 1992).

M. Anderson ed., *Frontier Region: Frontier Regions in Western Europe* (London, 1983).

_____. *Frontiers: Territory and State Formation in the Modern World* (London, 1996).

Air Pollution along the U:S.-Mexico Border, eds. H.G. Applegate and C.R. Bath (El Paso, 1974).

D.D. Arreola and J.R. Curtis, *The Mexican Border Cities, Landscape Anatomy and Place Personality* (Tucson, 1993).

A.I. Asiwaju, 'Borders and borderlands as linchpins for regional integration in Africa,' in *World Boundaries*, Vol 1. Global Boundaries, ed. C. Schofield (Durham, 1994).

A.I. Asiwaju and P.O. Adeniyi eds., *Borderlands in Africa: A multi-disciplinary and Comparative Focus on Nigeria and West Africa* (Lagos, 1989).

P. Ashley, *Modern Tariff History* (London, 1920).

J. Atack and P. Passell, *A New Economic View of American History* (New York, 2nd edition, 1992).

Atlas of Traffic Maps (Chicago, 1924).

Atlas of Historical Geography of the United States (Baltimore, 1932).

W.R. Austerman, *Sharps Rifles and Spanish Mules, The San Antonio-El Paso Mail, 1851-1881* (College Station, 1985).

G. Austin and K Sugihara eds., *Local Suppliers of Credit in the Third World, 1750-1916* (London, 1993).

B. Balassa, *Economic Theory of Economic Integration* (Homewood, 1961).

H.H. Bancroft, *History of North Mexican States and Texas* (San Francisco, 1886).

J.F. Bannon, *Bolton and the Spanish Borderlands* (Norman, 1964).

E.C. Barker, *Mexico and Texas, 1821-1835* (New York, 1965).

R. Barrel, *Economic Convergence and Monetary Union in Europe* (London, 1992).

C.R. Bath and D.D.James, 'Dependency Analysis of Latin America: Some Criticisms, Some Suggestions,' *Latin American Research Review*, 11 (1976) 3.

J.A. Bátiz Vázquez and E.C. Sandoval, 'Aspectos financieros y monetarios (1880-1910),' *México en el siglo XIX, Historia económica y de la estructura social*, ed. C. Cardoso (Mexico, 9th edition, 1990).

K.J. Bauer, *The Mexican War* (New York, 1975).

J. Bazant, 'From Independence to the Liberal Republic, 1821-1867,' *Mexico Since Independence*, ed. Leslie Bethell (Cambridge, reprinted, 1992).

_____. *A Concise History of Mexico from Hidalgo to Cárdenas, 1805-1940* (Cambridge, 1977).

_____. Cinco Haciendas, *Tres Siglos de Vida en San Luis Potosí, 1600-1910* (Mexico, 1980).

_____. 'Origen de la Dueda Externa' in *História Económica de México*, ed. E. Cárdenas (Mexico, 1992).

_____. *História de al Deuda exterior de México (1823-1846)* (Mexico, 1968).

E. Beatty, *Institutions and Investments: The Political Basis of Industrialization in Mexico before 1911* (Stanford, 2001).

_____. 'The Structure of Protection in Mexico, 1890-1911: Import Tariffs and domestic Industry,' paper presented at the All-U.C. Group in Economic History Conference, Stanford University, November 1996.

B. Becker 'Nation-building in a 'newly industrialized country': reflections on the Brazilian Amazonia case', in R.J. Jonhston., D. Knight, and E. Kofman eds. *Nationalism and Self-determination and Political Geography* (London, 1988).

_____. 'Technology, Geopolitics and frontiers in Brazil,' in *World Boundaries*, Vol. 4, The Americas, ed. P. Girot. (London, 1994).

H.P. Beers, *Spanish and Mexican Records of the American Southwest: A Bibliographical Guide to Archive and Manuscript Sources* (Tucson, 1979).

S.E. Bell and J.M. Smallwood, *The Zona Libre, 1858-1905* (El Paso, 1982).

T. Benjamin and W. McNelly eds., *Other Mexicos, Essays on Regional Mexican History* (Albuquerque, 1984).

T. Benjamin and M. Wasserman eds., *Provinces of the Revolution: Essays on Regional Mexican History, 1910-1929* (Albuquerque, 1990).

M. Bernstein, *The Mexican Mining Industry, 1890-1950, A Study of the Interaction of Politics, Economics and Technology* New York (1964).

_____. 'La Modernización de la economía minera,' *Historia Económica de México*, ed. Enrique Cárdenas (Mexico, 1992).

L. Bethell ed., *Mexico Since Independence* (Cambridge, 1991).

_____. *Colonial Spanish America* (Cambridge, 1991).

_____. *Cambridge History of Latin America*, vols. 3, 4 and 7 (Cambridge, 1985, 1986, 1990).

_____. *Latin America: Economy and Society, 1870-1930* (Cambridge, 1989).

J.N. Bhagwati ed., *International trade: selected readings* (Cambridge, 1987).

P.W. Bidwell, *Tariff Policy of the United States, A Study of Recent Experience* (New York, 1933).

R.A. Billington, *Frederick Jackson Turner: Historian, Scholar, Teacher* (New York, 1973).

_____. *Far Western Frontier* (New York, 1956).

_____. *Westward Expansion: A History of the American Frontier* (New York, 1949).

_____. *Frontier and Section: Selected Essays of Frederick Jackson Turner* (Englewood Cliffs, 1961).

S. Binkerhoff and O. Faulk, *Lancers for the King, A Study of the Frontier Military System of Northern Spain* (Phoenix, 1965).

C.A. Bissell, 'Elephant Butte is largest Artificial Irrigation Project,' *New Reclamation Era*, July 1939.

M.J. Boddy, 'Structural approaches to industrial location', in W.F. Lever ed., *Industrial Change in the United Kingdom* (London, 1987).

S.W. Boggs and I. Bowman, *International Boundaries: A Study of Boundary Functions* (New York, 1940).

A.G. Bogue and M.G. Bogue, 'Profits and the Frontier land Speculator, in *Essays in American Economic History*, eds. A.W. Coats and R.M. Robertson (London, 1969).

H.E. Bonnon, *Texas in the Middle of the Eighteenth Century, Studies in Spanish Colonial History and Administration* (Berkeley, 1915).

G.H. Borts and J.L Stein, *Economic Growth in a Free Market* (New York, 1964).

J.J. Bowen, *The Ponce de Leon Land Grant* (El Paso, 1969).

G.M. Brack, *Mexico Views Manifest Destiny, 1821-1846* (Albuquerque, 1975).

D.A Brading, 'Liberal Patriotism and the Mexican Reforma,' *Journal of Latin American Studies*, 20 (1988).

_____. *Miners and Merchants in Bourbon Mexico, 1763-1810* (Cambridge, 1971).

J.T. Brannon and G. M. Joseph eds., *Land, labor and capital in modern Yucatan: essays in regional history and political economy* (Tuscaloosa, 1991).

P. Brogan ed., *The Penguin History of the United States of America* (London. 1990).

J. Brown and M.B. Rose eds., *Entrepreneurship, Networks and Modern Business* (Manchester, 1993).

L.A. Brown and J. Holmes, 'The Delimiting of Function Regions, Nodal Regions and Hierarchies by Function Distance Approaches,' *Journal of Regional Science*, 2 (1971)1.

P .G. Brown and H. Shue, *The Border That Joins: Mexican Immigrants and U.S. Responsibility* (Totowa, 1983).

W.E. Brown, *The Santa Fe Trail* (St. Louis, 1988).

W. W. Bridges, 'Rio Grande Boatman's Photograph Located,' *El Paso Times*, 2 September 1994.

T. Bryan, 'Dr. Samaniego Was Consultant In Franklin, Tex. But Did El Paso Ever Can I Another Name?' *El Paso Times*, 27 March 1964.

H. Buchholz, 'The Inner-German Border: Consequences of its establishment and abolition,' *World Boundaries*, Vol 3. Eurasia, ed. C. Grundy-Warr (London, 1994).

R. Buffington, 'Prohibition in the Borderlands National Government-Border Community Relations,' *Pacific Historical Review*, 1 (1994) 63.

V. Bulmer-Thomas, *The Economic History of Latin America Since Independence*, (Cambridge, 1994).

M.A. Burkholder and L.L. Johnson, *Colonial Latin America* (Oxford, 2nd edition. 1994).

J. Bustamante, *México-Estados Unidos: bibliografía general sobre estudios fronterizo* (Mexico, 1980).

_____. *Mexican Migration to the United States* (San Diego, 1989).

J.A. Bustamante, C. W. Reynolds, and R.A. Hinojosa Ojeda eds., *US.-Mexico Relation Labor Market Interdependence* (Stanford, 1992).

C. Calleros, 'International Bridge to Zaragoza Built in 1929 During Prohibition,' *El Paso Times*, 5 June 1955.

_____. *El Paso Then and Now* (El Paso, 1954).

_____. 'Pioneer El Pasoans Developed Local Banks,' *El Paso Times*, 17 August 1952.

_____. 'Men who printed First Bank Notes offered only 50 pesos for Efforts,' *El Paso Times*, 10 August 1952.

_____. *Queen of the Missions* (El Paso, 1952).

P. Calvert, *The Mexican Revolution. 1910-1914.. the Diplomacy of Anglo-American Conflict* (Cambridge, 1968).

E. Cárdenas, 'A Macroeconomic Interpretation of Nineteenth-Century Mexico,' in *How I Latin American Fell Behind*, ed. S. Haber (Stanford, 1997).

_____. *História económica de México* (Mexico, 1992).

L. Cardenas, 'The Municipality in Northern Mexico,' *Southwestern Studies*, 1 (1963) 2.

C. Cardoso, 'Las Industrias de transformación (1821-1880), in *México en el Siglo XIX: História económica y de la estructura social*, ed. C. Cardoso (Mexico, 9th edition, 1990).

_____. *México en el siglo XIX, História económica y de la estructura social* (Mexico, 9th edition, 1990).

L. Cardoso, *Mexican Emigration to the United States* (Tucson, 1980).

_____. 'Vamos al Norte: Causes of Mass Mexican Migration to the United States,' in *Immigrants and immigrants: Perspectives on Mexican Labor Migration to the United States*, ed. A.F. Corwin (Westport, 1978).

A.L. Carlson, *Monetary and Banking History of Texas* (Fort Worth, 1930).

F .A. Carlson, *Geography of Latin America* (New York, 1936).

M. Carmagnani, 'El Liberalismo, Los Impuestos Internos y el Estado Federal Mexicano, 1857-1911,' in *La Economía Mexicana*, ed. L. Marichal Salinas (Mexico, 1992).

A. Carroll, 'Chris Fox Comments on the El Paso Smelter's Beginnings, Growth, History, Perspective,' *El Paso Herald Post*, 11 April 1972.

J.E. Carroll, *Environmental Diplomacy: An Examination and a perspective of Canadian-U.S. Transboundary Environmental Relations* (Ann Arbor, 1983).

M. Casson, *The Entrepreneur: An Economic Theory* (Oxford, 1982).

_____. 'Entrepreneurship and business culture,' in *Entrepreneurship, Networks and Modern Business*, ed. J. Brown and M.B. Rose (Manchester, 1993).

P. Cecchini with M Catinat and A Jacquemin, *The European Challenge: 1992, Benefits of a Single Market* (Hants, 1988).

M. Cerutti, 'El gran norte oriental y la formación del mercado nacional en México del siglo XIX,' *Siglo XIX*, 4 (1987) 4.

_____. 'Poder estatal, actividad económica y burgesía regional en el norte de México, 1855-1910,' *Siglo XIX*, 1 (1988) 1.

A.D. Chandler, *Scale and Scope: the dynamics of industrial capitalism* (Cambridge, 1990).

_____. 'The Emergence of Managerial Capitalism,' *Business History Review*, 58 (1984) 4.

_____. 'The Coming of Big Business,' in *The Changing Economic Order: Readings in American business and economic history*, eds. A.D. Chandler, S. Bruchey, and L. Galambos (New York, 1968).

_____. *The Railroads: The Nation's First Big Business* (New York, 1963).

_____. *Strategy and Structure: chapters in the history of the industrial enterprise* (Cambridge, 1962).

A.D. Chandler, and S. Tedlow, eds., *The Coming of Managerial Capitalism: A casebook on the history of American economic institutions* (Homewood, 1985).

A.B. Chávez M., *História de Ciudad Juárez, Chihuahua* (C. Juarez, 1970).

_____. *Síntesis Gráfica de la História de Ciudad Juárez: Tricentenario de su fundación, 1659-1959* (Chihuahua, 1959).

_____. *La Villa de Paso del Norte de 1527 a 1700* (C. Juarez, 1948).

T.E. Chavez, *Manuel Alvarez, 1794-1856: A Southwest Biography* (Niwot, 1990).

B. Chapman, 'Fuss Over Bridge Tolls, Hours Not New; It Started When First Crossing Built,' *El Paso Times*, 16 July 1939.

_____. 'Feed Program on Farms here Urged As Help,' *El Paso Times*, 21 November 1937.

M. Chapman, 'Geography and the Study of Development,' *Journal of Developing Areas*, 3 (1969).

L.C. Chau, *China and Hong Kong: The Economic Nexus* (Oxford, 1983).

H.B. Chenery and M. Syrqui, *Patterns of Development, 1950-1970* (London, 1975).

H. Chenery and T.N. Srinivasan ed., *Handbook of development economics* (Amsterdam, 1989).

F. Chevalier, *Land and Society in Colonial Mexico: The Great Hacienda* (Berkeley, 1963).

R. I. Chorley and P. Haggett, *Socio-economic Models in Geography, Parts I and II of Models of Geography* (London, 1990).

W. Christaller, *Central Places in Southern Germany* (New Jersey, 1966).

P. W. Christiansen, 'Mining,' in *Borderland Sourcebook: A Guide to Literature on Northern Mexico and the US Southwest*, ed. E. Stoddard, et. al. (Norman, 1983).

C.M. Cipolla, *Between History and Economics: An Introduction to Economic History* (Oxford, 1991).

I.G. Clark, *Then Came the Railroads: The Century from Steam to Diesel in the Southwest* (Norman, 1958).

V.S. Clark, *History of Manufacturers in the United States, 1607-1860*, Carnegie Institute, (Washington, D.C., 1929).

_____. 'Mexican Labor in the United States,' *Bulletin of the Bureau of Labor*, 78 (Washington D.C., 1908).

N.C. Clement, et. al., eds., *North American Economic Integration, : Theory and Practice* (Northampton, 1999).

A. W. Coats and RM. Robertson eds., *Essays in American Economic History* (London, 1969).

J.H. Coatsworth, 'Notes on the Comparative Economic History of Latin America and the U.S.A.' in *Development and Underdevelopment in America*, ed. W.L. Bernecker and H. W. Tobler (New York, 1993).

_____. 'Características generales de la economía mexicana en el siglo XIX,' in *História Económica de México*, ed. E. Cárdenas (Mexico, 1992).

_____. *Growth Against Development: The Economic Impact of the Railroads in Porfirian Mexico* (Dekalb, 1981).

_____. 'Indispensable Railroads in a Backward Economy: The Case of Mexico,' *Journal of Economic History*, 39 (1979) 4.

_____. 'Obstacles to Economic Growth in 19th Century Mexico,' *American Historical Review*, 83 (1978) 1.

_____. 'Indispensable Railroads in a Backward Economy: The Case of Mexico,' *Journal of Economic History*, 39 (1979) 4. (Also published as, 'Los Ferrocarriles, Indispensables en una Economía Atrasada: El Caso de México,' in *Historia económica de México*, ed. E. Cárdenas).

R Cochran and T. Brewer eds., *Views of American Economic Growth* (New York, 1966).

T. Cochran, 'Did the Civil War Retard Industrialization?' in *Essays in American Economic History*, ed. A.W. Coats and R.M. Robertson (London, 1969).

A. W. Coats and R.M Robertson eds., *American Economic History* (London, 1969).

D. Cockcroft, *Mexico, Class Formation, Capital Accumulation and the State* (New York, 1983).

G. M. Coffin, *Silver From 1849 to 1892* (New York, 1969).

A.F. Corwin ed., *Immigrants and immigrants: Perspectives on Mexican Labor Migration to the United States* (Westport, 1978).

T.A.B. Corely, 'The Entrepreneur: the central issue in business history?' in *Entrepreneurs, networks and modern business*, ed. I. Brown and M.B. Rose (Manchester, 1993).

D. Cosio Villegas, *Historia General de México* (Mexico, 1977).

_____ *La Constitución de 1857 y sus criticos* (Mexico, 1957).

_____ *La cuestión arancelario de Mexico III: Historia de la política* (Mexico, 1931).

E. Covers ed., *The Expedition of Zebulon Montgomery Pike* (New York, 1895).

P. Covenington ed., *Latin American Frontiers: Border and Hinterlands: Research Needs and Resources*, Secretary General Library University of New Mexico (Albuquerque, 1982).

M.L. Crimmins, 'Gold Rush to California Brought First Attention to El Paso Settlements: War Department Made Reconnaissances and Established Military Post Here to Protect Emigrants from East, Says Col Crimmins,' *El Paso Times*, 22 November 1925.

C.I. Crouch, 'Old Butterfield Stage Line, Story of Race Between Coaches and Famous Ship Great Eastern Across the Continent for \$100,000,' *Dallas Morning News*, 26 September 1926.

D. Cutter and I. Engstrand, *Quest for Empire: Spanish Settlement in the Southwest* (Golden, 1996).

J.A. Dabbs, *The French Army in Mexico 1861-186: A study in Military government* (The Hague, 1963).

C.H. Danhoff, 'Economic Validity of the Safety-value doctrine' in *Essays in American Economic History*, ed. A. W. Coats and R.M. Robertson (London, 1969).

P.J. D'Anieri, *Economic Interdependence in Ukrainian-Russian Relations* (New York 1999).

J.M Day, 'El Paso: Mining Hub for Northern Mexico, 1880-1920,' *Password*, 24 (1979).

M.F. Davie, 'Demarcation Lines in contemporary Beirut,' in Middle East and North Africa in *World Boundaries*, Middle East and Africa, ed. M. Grundy-Warr (Durham, 1994).

D L. Davis, *et. al. eds.*, *American Economic Growth, An Economist's History of the United States* (New York, 1972).

J. Delgadillo Macías and F. Torres Torres, *Geografía regional de Mexico* (Mexico, 1930).

G. Delli Zotti, 'Trans-frontier cooperation at the external borders of the EU,' in *Borders, Nations and States*, eds. L. O'Dowd and T. M. Wilson (Aldershot, 1966).

S. Dillion, 'Sex Bias at Border Plants in Mexico Reported by US,' *New York Times*, 13 January 1998.

C.D. Dillman, 'Urban Growth along Mexico's Northern Border and the Mexican National Border Program,' *Journal of Development Studies*, 4 (1990) 4.

M.A. and R.W. Dimand. *A history of game theory* (London, 1996).

J. Frank Dobie, *Guide to Life and Literature of the Southwest* (Dallas, 1958).

T. Dos Santos, 'La crisis internacional del capitalismo y los nuevos modelos para el desarrollo,' translated by O. Castillo (Buenos Aires, 1987)

_____. *Dependencia y cambio social* (Caracas, 1974).

L.P. Dotti and L. Schwerkant, *Banking in the American West from Gold Rush to Deregulation* (Norman, 1991).

A.D. Drysdale, 'Transboundary Interaction and Political Conflict in the Central Middle East,' in *World Boundaries*, Middle East and Africa, ed. M. Grundy-Warr (Durham, 1994).

I.D. Duchacek, 'International competence of sub-national governments: borderlands and beyond,' in O.J. Martinez ed., *Across Boundaries: Transborder Interaction in Comparative Perspective* (El Paso, 1986).

R.A. Easterline, 'Influences in European Overseas emigration Before WWI,' in *The Reinterpretation of American Economic History*, ed. R. W. Fogel and S.L. Engerman (New York, 1971).

F. Egan, *The El Dorado Trail, The Story of the Gold Rush Routes Across Mexico* (London, 1980).

J.H. Elliot, 'The Spanish Conquest' in *Spanish Colonial America*, ed. L. Bethell (Cambridge, reprinted, 1993).

M. Ellman, *Collectivism, Convergence and Capitalism: Political Economy in a Divided World* (London, 1984).

S.L. Engerman, 'The Economic Impact of the Civil War,' in *The Reinterpretation of American Economic History*, ed. R W. Fogel and S.L. Engerman (New York, 1971).

I. Esparza Marin, *Monografía Histórica de Ciudad Juárez* (Ciudad Juarez, 1991).

J. Espinosa de los Reyes, *Relaciones económicas entre México y Estados Unidos, 1870-1910* (Mexico, 1951).

European Outline Convention on Transfrontier Cooperation between Territorial Communities or Authorities (Strasbourg, 1980).

M. Farr, *Vanishing Borders: The Rediscovery of Eastern Germany, Poland and Bohemia* (London, 1997).

O.B. Faulk, *Last Years of Spanish Texas, 1778-1821* (London, 1964).

_____. *Lancers for the King, A Study of the Frontier Military System of Northern New Spain* (Phoenix, 1965).

R Fernandez, *The Mexican-American Border Region: Issues and Trends* (Norte Dame, 1989).

_____. *The United States-Mexico Border, A Politico Economic Profile* (Norte Dame, 1977).

M.P. Fernandes-Kelly, *For we are sold I and my people: women and industry in Mexico's frontier* (Albany, 1983).

F. S. Fierman, *The Schwartz Family of El Paso: The Story of a Pioneer Jewish Family in the Southwest* (El Paso, 1980)

A. Fishlow, *Railroads and the Transformation of the Antebellum Economy* (Cambridge, 1965).

_____. *American Railroads and the Transformation of the Antebellum Economy* (Cambridge, 1965).

_____. 'The Dynamics of Railroad Extension into the West,' in *The Reinterpretation of American Economic History*, ed. R. W. Fogel and S.L. Engerman (New York, 1971).

A. Fishlow and R W. Fogel, 'Quantitative Economic History: An Interim Evaluation,' *Journal of Economic History*, 31 (1971).

R. Flores Caballero, *La Frontera entre México y Estados Unidos, Desarrollo histórico* (Monterrey, 1976).

E. Florescano and I. Gil Sánchez eds., *Descripciones económicas generales de Nueva España, 1784-1817, Provincias del norte, 1790-1814* (Mexico, 1976).

R. W. Fogel, *Railroads and American Economic Growth. Essay in Economic History* (Baltimore, 1964).

_____. *Without Consent or Contract, The Rise and Fall of American Slavery* (New York, 1989).

R. Fogel and S. Engerman eds., *The Reinterpretation of American Economic History* (New York, 1989).

C.P. Fox, 'The First Railroad Bridge Across the Rio Grande,' *Password*, 25 (1980) 2.

K. Fox and Kumar, 'The functional economic areas: delineation and implications for economic analysis and policy', *Papers and Proceedings, Regional Science Association*, 15 (1965).

A.G. Frank, *Capitalism and Underdevelopment in Latin America* (New York, 1967).

_____. *On capitalist underdevelopment* (New York, 1975).

W.E. French, 'Business as Usual: Mexico North Western Railway Mangers Confront the Mexican Revolution,' *Mexican Studies/Estudio Mexicanos*, 5 (1989) 2.

_____. *A Peaceful and Working People: Manners, Morals and Class Formation in Northern Mexico* (New Mexico, 1996).

S.J. Freudenthal, *El Paso Merchant and Civic Leader from the 1880s through the Mexican Revolution* (El Paso, 1965).

J. Friedman, N. Gardela and A. Pennik, 'The Politics of space; Five Centuries of regional Development in Mexico,' *International Journal of Research Reviews*, 4 (1980).

H.G. Frost, *Gentlemen's Club The Story of Prostitution in El Paso* (El Paso, 2nd Edition, 1987).

C. Furtado, *Economic Development of Latin America: Historical Background and Contemporary Problems* (Cambridge, 1976).

_____. *Development and Underdevelopment* (Berkeley, 1964).

_____. *Obstacles to Development in Latin America* (New York, 1970).

J. Futino, 'Revolutionary Confrontation, 1913-1917, Regional Factions, Class conflicts and the New National State,' in T. Benjamin and M. Wasserman, *Provinces of the Revolution: Essays on Regional Mexican History, 1910-1929* (Albuquerque, 1990).

M. Gamio, *Mexican Immigration to the United States, 1883-1960* (Chicago, 1969).

J.M. Gant and L.L. Crum, *The Development of State-Chartered Banking in Texas* (Austin, 1978).

M.T. García, *Desert Immigrants The Mexicans of El Paso, 1880-1920* (New Haven, 1981).

M. García y Griego, *Mexico and the United States: Migration, History and the Idea of Sovereignty*, Center for Inter American and Border Studies, University of Texas El Paso (El Paso, 1983).

M.L. Gardner, *The Mexican Road: Trade, Travel and Confrontation on the Santa Fe Trail* (Yuma, 1989).

R.L. Garner, *Economic Growth and Change in Bourbon Mexico*, with S.E. Stefanou (Gainesville, 1993).

M. Gastélum Gaxiola, *Migración de trabajadores mexicanos indocumentados a los Estados Unidos* (Mexico, 1991).

T.H. Gatton, *Texas Bankers Association, The First Century, 1885-1985* (Austin, 1984).

H.L. Gauthier, 'Geography, Transportation and Regional Development,' *Economic Geography*, 46 (1970).

E.D. Genovese, 'The Significance of the Slave Plantation for Southern Economic Development', in H.N. Scheiber, *United States Economic History* (New York, 1964).

M. Gersovitz, *et.al.*, *The Theory and Experience of Economic Development* (London, 1982).

G.R. Gibson, *Journal of a Soldier under Kearny* (Glendale, 1935).

C. Gómez and R. León, 'El Nuevo Rostro de una Economía Regional, Enrique Creel y el Desarrollo de Chihuahua 1880 -1910,' in *El Poder y el Dinero y Regiones en el Siglo XIX*, ed. B. Rojas (Mexico, 1994).

P. Goodstadt, 'Hong Kong-China Border,' in *World Boundaries*, Vol 3, Eurasia, ed. Grundy-Warr (Durham, 1994).

R Graham and P. Smith eds., *New Approaches to Latin American History* (Austin, 1974).

I B. Graves, 'Old Fort Bliss,' *Western American*, 31 October 1931.

S. Green, *The Mexican Republic, The First Decade, 1821-1832* (Pittsburgh, 1987).

J.G. Greenwood, 'Integration of Hong Kong and China' in J.A. Dorn and Wang Xi eds, *Economic Reform in China*, (Chicago, 1990).

I. Gregg, *Commerce of the Prairies*, ed. Max Moorehead (Norman, 1954).

R. Grinspan and M.A. Cameron eds., *The Political Economy of North American Free Trade* (New York, 1993).

R. Griwsold del Castillo, 'The Mexican War: Study in Causation,' *Pacific Historical Review*, 49 (1980).

_____. *The Los Angeles Barrio, 1850-1890: A Social History* (Berkeley, 1979).

E.O. Gutierrez López, *La Inversión Inglesa en La Minería Mexicana* (Mexico City, 1986).

W.C.G.M. Haack, 'The Selectivity of Economic Integration Theories,' *Journal of Common Market Studies*, 21 (1983) 4.

S. Haber, *Industry and Development, The Industrialization of Mexico, 1890-1940* (Stanford, 1989).

_____. 'La revolución y la industria manufacturera mexicana, 1910-1925,' in *Historia económica de México*, ed. E. Cárdenas (Mexico, 1992).

_____. 'Financial Markets and Industrial Development,' in *How Latin America Fell Behind*, ed. S. Haber.

_____. *How Latin America Fell Behind: Essays on the Economic Histories of Brazil and Mexico, 1800-1914*, ed. S. Haber (Stanford, 1997)

C.W. Hackett, 'The Retreat of the Spaniards from New Mexico in 1680 and the Beginnings of El Paso,' *Southwestern Historical Quarterly*, 16 (1912) 2, and 16 (1913)3.

L.R. Hafen, *The Overland Mail, 1848-1869* (Cleveland, 1929).

L.B. Hall, *Oil, banks, and politics: the United States and postrevolutionary Mexico, 1917-1924* (Austin, 1995).

T.D. Hall, *Social Change in the Southwest, 1350-1880* (Kansas, 1989).

L. Hamilton, *Border States of Mexico: Sonora, Sinaloa, Chihuahua, and Durango, a Complete Description of the Best Regions for the Settler, Miner and Advance Guard of American Civilization* (San Francisco, 1881).

G.P. Hammonds, *Don Juan de Oñate and the Founding of New Mexico*, Historical Society of New Mexico, October 1927.

L.H. Haney, *Congressional History of Railway in the United States, 1857-1887* (Madison, 1910).

N. Hansen, *The Border Economy: Regional Development in the Southwest* (Austin, 1981).

_____. *Border Region Development and Cooperation: Western Europe and the U.S. - Mexico in Comparative Perspective*, Center for Inter American and Border Studies, I University of Texas-El Paso (El Paso, 1985).

N. Hanson, *et.al.*, *Regional Policy and Regional Integration* (Cheltenham, 1996).

T. Hatton and J.G. Williamson, 'National Migration and World Development: a Historical Perspective,' NBER Working papers Services on Historical Factors in Long run Growth, No.41. National Bureau of Economic Research (Cambridge, 1992).

H.J. Heath, 'British Merchant Houses in Mexico, 1821-1860: Confronting Business Practices and Ethics,' *Hispanic American Historical Review*, 73 (1994)2

D.H. Heer, *Undocumented Mexicans in the U.S.* (Cambridge, 1990).

P.V.N. Henderson, *Mexican Exiles in the Borderlands-, 1910-1913*, Southwestern Studies Monograph, No.58, (El Paso, 1979).

_____. *The Frontier in Latin American History* (London, 1978).

A.O. Hero and M. Daneau eds., *Problems and Opportunities in U.S.-Quebec Relations* (Boulder, 1984).

I. Herrera Canales, 'La Composición de las importaciones y exportaciones,' in *Historia Económica de México*, ed. E. Cárdenas (Mexico, 1992).

_____. 'La circulación: transporte y comercio,' in *Méjico en el siglo XIX, Historia económica y de la estructura social*, ed. C. Cardoso (Mexico, 9th edition, 1990).

_____. *El Comercio Exterior de México* (Mexico, 1975).

L. Herzog, *Changing Boundaries in the Americas* (San Diego, 1992).

_____. *Where North Meets South: Cities, Space and Politics on the U.S.-Mexico Border* (Austin, 1990).

G. Hewings, *Regional Industrial Analysis and Development* (London, 1977).

J. McC. He-man, *Life and Labor on the Border: Working People of Northeastern Sonora, Mexico, 1886-1986* (Tucson, 1991).

B. Higgins, 'Economic Development of underdeveloped Areas, Past and Present,' *Land Economics*, 30 (1955) 3.

B. Higgins and D. Savoie ed., *Regional economic development: essays in honour of Francois Perroux* (Boston, 1988).

F.G. Hill, 'An Analysis of Regional Economic Development: The Case of California,' *Land Economics*, 31 (1956) 1.

R V. Hine, *The American West and Interpretive History* (Baltimore, 2nd edition, 1984).

A.O. Hirschman, *The strategy of economic development* (New Haven, 1958).

_____. *The Strategy of Economic Development* (New York, 1971).

W.A. Holmes, *Historical Atlas of Texas* (Norman, 1989).

P. Horgan, *Great River, The Rio Grande in North American History* (Hanover, 1984).

H.A Horsefall, 'The Railroad Systems of Northern Mexico,' *The Engineering and Mining Journal*, 3 (1909).

E.M. Hoover, *An Introduction to Regional Economics* (New York, 1971).

E.M. Hoover and J. Fischer, 'Research in Regional Economic Growth,' in *Problems in the Study of Economic Growth* (New York, 1949).

M. Hoover, *The Location of Economic Activity* (New York 1956).

J. House, *Frontier on the Rio Grande: A Political Geography of Development and Deprivation* (Oxford, 1982).

E.P. Hoyt, Jr. *Guggenheim and the American Dream* (New York, 1967).

A. von Humbolt, *Political Essay, abridged* (Norman, 1990).

_____. *Political essay on the Kingdom of New Spain*, John Black translation (London, 1813).

H. Hutchinson, *Money, Banking and the United States Economy* (New York, 1967).

J. Healy and B.W. Ilbery, *Location and Change: Perspectives on Economic Geography* (Oxford, 1990).

H.A. Innis, *Essays in Canadian Economic History* (Toronto, 1956).

_____. *Problems of staple production in Canada* (Toronto, 1933).

Instituto de História del Derecho Indiano, Trabajos del VI Congreso, *Estructuras, Gobierno y Agentes de la Administración en la American Española* (Valladolid, 1984).

U. Irigoyen, 'El Problema Económica de las Ciudades Fronterizas,' *El Boletin de la Sociedad Chihuahuenses de Estudios Historicos*, (Tomo 4, No.2) and (Tomo 4, no.3).

_____. *El Problema económica de las Fronteras Mexicanas, Tres Monografías, Zona Libre, Puertos Libres, y Perímetros Libres* (Mexico, 1935).

W. Isard, *Location and Space* (Cambridge, 1956).

_____. 'Distance Inputs and the Space Economy. Part I, The Conceptual Framework,' *Quarterly Journal of Economics*, LXV (1951), pp 188-98.

L.H. Jenks, 'Railroads as an Economic Force in American Development,' in *Views of American Economic Growth*, eds. R. Cochran and T. Brewer (New York, 1926).

J.A. Jimenez, *Proyecto para formar una Cía de Luz y Fuerza Mortríz en Ciudad de Juárez* (C. Juarez, 1925).

G. Joffé, 'Territory, State and Nation in the Middle East,' in *World Boundaries*, Vol. 2, The Middle East and North Africa (London, 1994)

S.E. John, 'Arabic-Speaking Immigration to the El Paso Area, 1900-1915,' *Password*, 38(1993) 4.

R.R. John, *Spreading the News* (Cambridge, 1995).

E.R. Johnson, *et. al.*, *History of Domestic and Foreign Commerce of the United States* (Washington, D.C., 1922).

M. Johnson, *Class and Client in Beirut: The Sunni Muslim Community and the Lebanese State, 1840-1985* (Beirut, 1986).

H.H. Jones ed., *El Paso, A Centennial Portrait* (El Paso, 1950).

M.A. Jones, *The Limits of Liberty: American History 1607-1992* (Oxford, 2nd edition, 1995).

_____. 'American Wars' in *The United States: A Companion to American Studies*, ed. D. Welland (London, 2nd edition, 1969).

G.M. Joseph, *Revolution from without : Yucatan, Mexico, and the United States, 1880-1924* (New York, 1982).

M.N. Jovanovi , *International Economic Integration* (London, 1992).

S. Khalaf, *Persistence and Change in 19th Century Lebanon. A Sociological Essay* (Beirut, 1979),

F. Katz, 'The Liberal Republic and the Porfiriato, 1867-1910,' in *Mexico Since Independence*, ed. L. Bethell (Cambridge, 1992).

_____. 'Condiciones de trabajo en las haciendas de México durante el Porfiriato: Modalidades y tendencias,' in *Historia económica de México*, ed. E. Cárdenas (Mexico, 1992).

_____. *The Secret War in Mexico: Europe and the United States and the Mexican Revolution* (Chicago, 1982).

R.B. Kent, 'Agriculture and Ranching,' in *Borderlands Sourcebook: A Guide to Literature on Northern Mexico and the US Southwest*, ed. E. Stoddard, et. al. (Norman, 1983).

A.G. Kenwood and A. L. Loughheed eds., *The Growth of the International Economy* (London, 3rd edition, 1992).

C. Kerr, *The Future of Industrial Societies, Convergence or Diversity?* (Cambridge, 1983).

T. King, *Mexico, Industrialization and Trade Policies Since 1940* (London, 1970).

P. Know and J. Agnew, *The Geography of the World Economy* (1989).

C. Knowton ed., American Association for the Advancement of Science, Southwestern and Rocky Mountain Division, Committee on Desert and Arid Zones Research, *International Water Law along the Mexican-American Border* (El Paso, 1968).

A.O. Kownslar, *Manifest Destiny and Expansionism in the 1840s* (Boston, 1967).

H. Konrad, 'North American Continental Relationships: Historical Trends and Antecedents,' in *NAFTA in Transition*, ed. S.J. Randall and H. Konrad (Calgary, 1985).

A. Knight, *US.-Mexico Relations, 1910-1940, An Interpretation*, Monograph Series 28, Center for U.S.-Mexican Studies, University of California-San Diego, 1987.

_____. *The Mexican Revolution* (Cambridge, 1986).

E. Kohlberg, *Letters of Ernest Kohlberg, 1875-1877*, translated by W.L. Kohlberg, Southwestern Studies Monograph, No.28, (El Paso, 1975).

A.O. Krueger ed. *Development with trade : LDCs and the international economy* (San Francisco, 1988).

_____. *Perspectives on trade and development* (Hemel Hempstead, 1989).

S. Kuznets, 'The contribution of Immigration to the Growth of the Labour Force,' in *The Reinterpretation of American Economic History*, ed. R W. Fogel and S.L. Engerman (New York, 1971).

_____. *Modern Economic Growth Rate, Structure and Spread* (New Haven, 1966).

S. Kuntz Ficker, *Empresa Extranjera y Mercado Interno, El Ferrocarril Central Mexicano, 1880-1907* (Mexico, 1995).

L.G. Labastida, *Estudio Histórico y Filosófico sobre la legislación de los Bancos* (Mexico, 1889).

P.D. Lack, *The Texas Revolutionary Experience: A Political and Social History, 1835-1836* (College Station, 1992).

D. La France, 'Many Causes, Movements and Failures, 1910-1913: The Regional Nature of Maderismo,' in *Provinces of the Revolution: Essays on Regional Mexican History, 1910-1929*, ed. T. Benjamin and M. Wasserman (Albuquerque, 1990).

A.C. Lanborn and S.P. Mumme, *Statecraft, Domestic Politics and Foreign Policy, Making the Chamizal Dispute* (Boulder, 1988).

W.B. Lang, *The First Overland Butterfield Mail St. Louis to San Francisco, 1858-1861* (St. Louis, 1940).

T.C. Langham, *Border Trails: Ricardo Flores Magón and the Mexican Liberals* (El Paso, 1981)

R.Z. Lawrence, *Regionalism, Multilateralism and Deeper Integration* (Washington, D.C. 1996).

J. Leach, 'Stage coach Through The Pass -The Butterfield Overland Mail Comes to El Paso,' *Password*, 3 (1959) 4.

L. Lefebre, *Allocation in Space: Production, Transport and Industrial Location* (Amsterdam, 1958).

R. León G. 'Comerciantes extranjeros en Chihuahua. La Casa Kettelson y Degatau' *Chamizal*, 5 (1991) 10.

_____. 'Bancos Chihuahuenses durante el Porfiriato, 1880-1916,' *Noesis*, 2 (1990)

_____. *Chihuahua Las Epocas y Los Hombres, Mariano Samaniego, Medio Siglo de Vida Fronteriza* (Ciudad Juárez, No Date).

F. Letamendia, G. Gómez Uranga, G. Etxebarria, 'Astride two states: Cross-border cooperation in the Basque Country,' in *Borders, Nations, and States*, ed. L. O'Dowd and T.M. Wilson (Aldershot, 1996).

W.A. Lewis, *Theory of Economic Growth* (London, 1955)

_____. *The Evolution of the International Economic Order* (Princeton, 1970).

J. Lloyd, *El Proceso de Modernización Capitalista en el Noroeste de Chihuahua* (Mexico, 1995).

W. Licht, *Industrializing America, The Nineteenth Century* (Baltimore, 1995).

P. Limerick, *The Legacy of Conquest, The Unbroken Past of The American West* (New York, 1988).

F.C. and RH. Lister, *Chihuahua, Storehouse of Storms* (Albuquerque, 1966).

D.G. López-Rosado, *Historia del Peso Mexicano* (Mexico, D.F., 1975).

_____. *Curso de Historia Económica de México* (Mexico, 1963).

D.E. Lorey, ed., *United States-Mexico Border Statistics since 1900* (Los Angeles, 1990).

G. López y Rivas, *The Chicano: Life and Struggles of the Mexican Minority in the US* (New York, 1993).

A. Lösch, 'The nature of Economic Regions,' *Southern Economic Journal*, 5 (July) 1938.

J. Love, 'An Approach to Regionalism,' in *Approaches to Latin American History*, ed. R. Graham and P. H. Smith (Austin, 1974).

M. Machado, Jr., *Centaur of the North, Francisco Villa, the Mexican Revolution and Northern Mexico* (Austin, 1988).

_____. *The North Mexican Cattle Industry, 1910-1950: Ideology, Conflict and Change* (College Station, 1981).

C. MacLachlan and I. Rodriguez, 'La Forja de la raza cósmica' in *Historia económica de México* ed. E. Cárdenas (Mexico, 1992).

M.P. Malone and R. W. Etulain, *The American West: A Twentieth Century History* (Lincoln, 1989).

I.F. Marcosson, *Metal Magic, The Story of American Smelting and Refining Company* (New York 1949).

M. Margulis and R. Tuiran, *Desarrollo y población en la frontera norte: el caso de Reynosa* (Mexico, 1986).

C. Marichal Salinas, 'Obstacles to the development of Capital Markets in Nineteenth Century Mexico,' in *How Latin America Fell Behind* ed. S. Haber (Stanford, 1997).

_____. *La economía mexicana: Siglos XIX y XX*, ed C. Marichal Salinas (Mexico, 1992).

K. Marsden, *African Entrepreneurs: Pioneers in Development*, International Finance Corporations, Discussion Paper No.9, (Washington, D.C., 1990).

I. K. Martin, et al., *America and Its People* (New York, 1989).

G. A. Martin, 'Years of Fighting Ended in 1904 when Mexico, New Mexico and Texas Singed Up' for Elephant Butte Dam,' *El Paso Herald*, 2 November 1922.

_____. 'Years of fighting Ended in 1904 When Mexico, New Mexico and Texas "Sign Up" for Elephant Butte Dam,' *El Paso Herald*, 2 November 1922.

M. Martínez, *Industria tecnológica y clase obrera: estudio de caso de la industria maquiladora electrónica R.C.A.*, Ciudad Juárez, Chihuahua (Iztapalada, 1994).

O.J. Martínez, *Troublesome Border* (Tucson, 1988).

_____. *Across Boundaries: Transborder Interaction in Comparative Perspective* (El Paso, 1986)

_____. *The Foreign Orientation of the Mexican Border Economy*, Center for Inter-American and Border Studies, University of Texas-El Paso (El Paso, 1983).

_____. *Border Boom Town, Ciudad Juarez since 1848* (Austin, 1975).

D. Massey and R. Meegan eds. *Politics and method: contrasting studies in industrial geography* (London, 1985).

E.D. McCallum, 'Phelps-Dodge Rail Net to Solve Transportation Problems,' *El Paso Times*, 6 August 1965.

W.A. Mckintosh, 'Innis on Canadian Economic Development,' *Journal of Political Economy*, June (1953).

P. McPhee, 'A case study of International colonization; the Francization of Northern Catalonia,' Review 3 (1980) 3.

C. McWilliams, *North from Mexico: The Spanish-Speaking Peoples of the United States* (New York, 1990).

D. Meining, *Southwest: Three Peoples in Geographical Change* (New York, 1971).

F. Merck, *History of the Westward Movement* (New York, 1978).

_____. *Manifest Destiny and Mission in American History, A Reinterpretation* (New York, 1963).

L.C. Metz, Border, *The US.-Mexico Line* (El Paso, 1989).

_____. *Desert Army, Fort Bliss on the Texas Border* (El Paso, 1988).

C.G. Metzner, *Water Quality Issues of the San Diego-Tijuana Border Region*, San Diego Institute for Regional Studies of the Californias, San Diego State University (San Diego, 1974).

M.C. Meyers, 'The Borderlands; An Historical Survey for the Non-Historian,' *Journal of Borderlands Studies*, 15 (1986) 1.

M.C. Meyers and W. Sherman *The Course of Mexican History* (New York, 5th edition, 1979).

M. T. Miles, *A History of El Paso Business and Industry* (El Paso, no date).

D.H. Miller and J.S. Steffen, *The Frontier: Comparative Studies* (Norman, 1977).

R.R. Miller, 'Arms Across the Border: U.S. Aid to Juarez during the French Intervention in Mexico,' *Transactions of the American Philosophical Society*, News Series 63 (1973) 6.

C.A. Milner, C. A. O'Connor, and M. A. Sandweiss eds., *The Oxford History of the American West* (Oxford, 1996).

L.B. Minnes, J. Tinbergen, J.L. Waarburg, *The Element of Space in Development Planning* (Amsterdam, 1969).

B.R. Mitchell ed., *International Historical Statistics* (London, 4th edition, 1998).

W. Molle, *Economics of European Integration* (Aldershot, 2nd edition, 1992).

C.S. Monoh, 'Critique of Borderlands Theories,' in *Borderlands in Africa*, ed. A.I. Asiwaju and P.O. Adenyi (Lagos, 1989).

B. Montgomery, 'Many Troubles Hit Famed Early Mail Line,' *El Paso Times*, 8 July 1957.

_____. 'Trans -Western Mail Came Through EP 100 Years Ago,' *El Paso Times*, 8 July 1957.

A. Monto, *The Roots of Mexican Labor Migrations* (Westport, 1994).

M. Moorhead, *New Mexico's Royal Road: Trade and Travel on the Chihuahua Trail* (Norman, 1958).

D. Montejano, *Anglos and Mexicans in the Making of Texas, 1836-1986* (Austin, 1987).

P. Morales, *Indocumentados Mexicanos, Causas y razones de la migracion laboral* (Mexico, 1989).

A. Morris, *Geography and development* (London, 1998).

_____. *Latin America: Development and Regional Differentiation* (New Jersey, 1981).

V.G. Muro Gonzalez, *Iglesia y movimientos sociales en México: los casos de Ciudad Juárez y el Istmo de Tehuantepec* (Mexico, 1994).

G. Myrdal, *Economic Theory and Underdeveloped Regions* (London, 1957).

_____. *Rich lands and poor* (New York 1957).

G. Nash, *The American West in the Twentieth Century* (Inglewood Cliffs, 1973).

G. Nava Otero, 'La Minería bajo el Porfiriato,' in *México en el Siglo XIX 1821-1910*, ed. C. Cardoso (Mexico, 9th edition, 1990).

D. Newman, 'The Functional Pressure of an 'Erased' Boundary', *World Boundaries*, Vol 2. in Middle East and North Africa.

I A. Q. Niemi, Jr. ed., *U.S. Economic History* (New York, 2nd edition, 1980).

D.C. North ed., *The Economic Growth of the United States, 1790-1860* (New York, 1966).

_____. 'Location Theory and Regional Economic Growth,' *Journal of Political Economy* (July 1938).

D.C. North and R.P. Thomas, *Rise of the Western World, A New Economic History* (Cambridge, 1973).

R. Nusbaum, *The City Different and the Palace, The Palace of Government Its Role in Santa Fe History* (Santa Fe 1978).

P.K. O'Brian, *Economic Effects of the American Civil War* (London, 1988).

_____. 'A Critique of Latin American Theories of Dependency,' in I. Oxall, T. Barnett and D. Booth eds., *Beyond the Sociology of Development: Economy and Society in Latin America and Africa* (London, 1975).

A.M. O'Connor, 'Mexico's City of Promise: Immigrants from across the country are pouring into Tijuana,' *Los Angeles Times*, 1998.

H. O'Connor, *The Guggenheims: The Making of an American Dynasty* (New York, 1967).

L. O'Dowd and T. M. Wilson eds., *Borders, Nations and States* (Aldershot, 1996).

I. K. Ohrnae, *The End of The Nation State: The Rise of Regional Economies* (New York,

D.C. Oliff, *Reforma Mexico and the United States: A Search for Alternatives, 1854-1861* (Birmingham, 1981).

R. Ortiz Meno, *La Moneda Mexicana Analysis Histórico de sus Fluctuaciones* (Mexico, 1942).

G. Overman, 'The Mexican Central The First Railroad in Ciudad Juárez,' mimeograph, El Paso Public Library, Southwest Room, 23 April 1937.

I. Oxall, T. Barnett and D. Booth eds., *Beyond the Sociology of Development: Economy and Society in Latin America and Africa* (London, 1975).

J. Parr, 'Growth Poles and Regional Development,' in *Regional Policy and Regional Integration*, ed. N. Hanson, et.al. (Cheltenham, 1996).

H. Pedraza Reyes, 'Compendio de Historia Política de Ciudad Juárez,' *Cuadernos de Trabajo*, 20 April 1994.

J. Peach and K. Nowotny, 'Economic Development in Border Areas, The Case of New Mexico and Chihuahua,' *Journal of Economic Issues*, 16 (1981) 2.

L.I. Perrigo, *The American Southwest: Its People and Cultures* (New York, 1971).

A. Pinto and J Knakal, *América Latina y el cambio en la economía mundial* (Lima, 1973).

D.C.M. Platt, 'Finanzas Británicas en México, 1821-1867,' in *La economía mexicana: Siglos XIX y XX*, ed C. Marichal Salinas (Mexico, 1992).

_____. 'Objeciones de un historiador a La teoría de la dependencia en America Latina in el Siglo XIX, *Desarrollo Económico*, 76 (1980) 19.

D.M. Pletcher, 'La construccion del Ferrocarril Mexicano,' in *La Economía Mexicana*, ed. L. Marichal Salinas (Mexico, 1992).

_____. *Diplomacy of Annexation, Texas, Oregon and the Mexican War* (Columbus, 2nd edition, 1975).

_____. *Rails Mines and Progress: Seven American Promoters in Mexico, 1867-1911* (Ithaca, 1958).

S. Pollard, 'Regional Markets and National Development,' in *Markets and manufacturing in early industrial Europe*, ed. M. Berg (London, 1990).

_____. *Peaceful Conquest: The Industrialization of Europe, 1760-1970* (Oxford, 1981).

J.M. Ponce de León, *Reseñas Históricas del Estado de Chihuahua* (Chihuahua, 1905).

R Potash, *Mexican Government and Industrial Development in the Early Republic: The Banco de Avío* (Arnherst, 1983).

_____. 'La fundación del banco de Avío in *La Economia mexicana*, , ed. C. Marichal Salinas (Mexico, 1992).

_____. *Banco de Avío de Mexico: el fomento de la industria, 1830-1846* (Mexico, 1959).

B. Poulson, *Economic History of the United States* (New York, 1981)

F. W. Powell, *The Railroads of Mexico* (Boston, 1921).

J.W. Powell, *Report on the Lands of the Arid Regions of the United States* (Washington, D.C. 1878)

P.W. Powell, *Tariff Policy of the United States* (New York, 1933).

G.E. Poyo and G.M. Hinajosa, 'Spanish Texas and Borderlands Historiography in Transition: Implications for United States History,' *Journal of American History*, 75I (1988)2.

A. Pred, *Behaviour and location: foundations for geographic and dynamic location theory*, Lund Studies in Geography, Nos. 27 and 29 (Lund 1967 and 1969).

J.R.V. Prescott, *Boundaries and Frontiers* (London, 1978).

_____. *Political Boundaries and Frontiers* (Sydney, 1987).

M. A. Quintana, 'Plata y la Moneda del Pueblo Mexicano,' *Revista de Económica*, 9 (1946) 2.

S. Ratner, *The Tariff in American History* (New York, 1972).

North American without Borders: Integrating Canada the United States and Mexico, ed. S.J. Randall (Calgary, 1992).

R.E. Reigel, *The Story of the Western Railroads* (New York, 1926).

R.E. Reigel and R.G. Athearn, *America Moves West* (New York, 1964).

G .F .Reinhardt, 'Rectification of the Rio Grande in the El Paso-Juarez Valley,' *The American Journal of International Law*, 31 (1974).

C. Reynolds, *The Mexican Economy: Twentieth Century Structure and Growth* (New Haven, 1970).

H. Richardson, *Regional Economics* (New York, 1969).

R.N. Richardson, *The Greater Southwest: The Economic, Social and Cultural Development of Kansas, Oklahoma, Texas, Utah, Colorado, Nevada, New Mexico, Arizona, and California from the Spanish Conquest to the Twentieth Century* (Glendale, 1934).

H.J. Riner, *Coordination of Regional Planning Across National Frontiers: Regio Test Case -Switzerland/France/Germany* (Basel, 1981).

A Rios-Bustamante ed., *Mexican Immigrants Workers in the U.S.* (Los Angeles, 1981).

J.F. Rippy, *British Investments in Latin American, 1822-1949* (New York, 1966).

W.S. Robertson, 'The French Intervention in Mexico in 1838,' *Hispanic American Historical Review*, 24 (1944).

P.R. Robinson, Superintendent, Rio Grande Division of the Southern Pacific, 'Kiwanians Hear part Railroads play in History, Development of El Paso,' *El Paso Times*, 12 June 1952.

J. Romero, 'La inmigraci6n y emigraci6n en Mexico, 1910-1911,' *Boletin de la Sociedad Mexicana de Geografia y Estadistica*, 5 (1919).

F. Rosenzweig, 'El desarrollo económico de México de 1877 a 1911,' *El Trimestre Economico*, 32 (1965) 3. (Also published as 'El desarrollo económico de México de 1877 a 1911', in *Historia Económica de México*, ed. E. Cárdenas (Mexico, 1992)).

S. Ross ed., *Views Across the Border: The US. and Mexico* (New Mexico, 1975).

R.R. Rostow, *The Stages of Economic Growth: A Non-Communist Manifesto* (Cambridge, 2nd, 1971).

L. Rufener, *Money and banking in the United States* (London, 1936).

R.E. Ruiz, *The People of Sonora and Yankee Capitalists* (Tucson, 1988).

J.J. Rumbarger, *Profits, Power and Prohibition: Alcohol, Reform and the Industrialization of America, 1800-1930* (New York, 1989).

D. Rumley and J.V. Minghi, *The Geography of Border Landscapes* (London, 1991).

N. Sánchez-Albornoz, 'Population,' in *Latin America: Economy and Society, 1870-1930*, ed. L. Bethell (Cambridge, 1989).

A. Saragoza, *The Monterrey Elite and the Mexican State, 1880-1940* (Austin, 1988).

R.C. Scheck, 'Transportation,' in *Borderlands Sourcebook: A Guide to Literature on Northern Mexico and the U.S. Southwest*, ed. E. Stoddard, *et. al.* (Norman, 1983).

H.N. Scheiber, *United States Economic History* (New York, 1964).

H. N. Scheiber *et. al.* eds., *American Economic History* (New York, 1976).

R.H. Schmidt, Jr ., *A Geographical Survey of Chihuahua* (El Paso, 1972).

C. Schofield ed., *World Boundaries*, Vol. 1. Global Boundaries (London, 1994).

W. V. Scholes, *Mexican Politics During the Juárez Regime* (Columbia, 1957).

R.F. Selcer, *Hell's Half Acre* (Fort Worth, 1991).

C.. Sepúlveda, and A.E. Utton, *The U.S.-Mexico Border Region: Resource needs and Issues to the Year 2000* (El Paso, 1984).

R. Shaffer, *Community Economics: Economic Structure and Change in Smaller Communities* (Ames, 1989).

P. Shalin, *Boundaries: The making of France and Spain in the Pyrenees* (Berkeley, 1989).

A. W. Shaw, 'Scientific management in business,' in *The Changing Economic Order: Readings in American business and economic history*, eds. A.D. Chandler, S. Bruchey, and L. Galambos (New York. 1968).

H. Siebert, *Regional Economic Growth: Theory and Policy* (Scranton, 1969).

M. Simmons, *Spanish Government in New Mexico* (Albuquerque, 1990).

H.D. Sims, *The Expulsion of Mexico Spaniards, 1821-1836* (Pittsburgh. 1990).

R.N. Sinkin, *The Mexican Reform, 1853-1876: A Study in Liberal Nation Building*, Institute of Latin American Studies (London. 1979).

I L. Sklair, *Assembling for Development* (Boston. 1989).

J. W. Sloan and J.P. West, 'Community Integration and Politics Among Elites in Two Border Cities: Los Dos Laredos,' *Journal of Inter-American Studies*, 18 (1976).

P.M. Slowe, 'The Geography of borderlands: The case of the Quebec-US borderlands', *World Boundaries*, Vol. 4, The Americas, ed. P.O. Girot (London, 1994).

D.M. Smith. 'The Geographical Basis of American Life; Space and Society in the Development of the United States,' in *The United States: A Companion to American Studies*, ed. D. Welland {London. 2nd edition. 1987}).

_____. 'Geographical Basis,' in *A History of the United States to 1877*, eds. T.H. Williams, R. N. Current and F.R. Freidel (New York, 1969).

C.L. Sonnichsen. *Pass of the North, Four Centuries on the Rio Grande*, El Paso, Vols. I and II {El Paso, 1968).

_____. *The El Paso Salt War of 1877* (El Paso, 1961).

C.L. Sonnichsen and M.G. McKinney, *The State National Bank since 1881, The Pioneer Bank of El Paso* (El Paso, 1971).

E. Spicer, *Cycles of Conquest : The Impact of Spain, Mexico and the United States on the Indians of the Southwest* {Tucson. 1982).

J.C. Stabler, 'Exports and Evolution: the Process of Regional Change,' *Land Economics*, 44 (1968).

A M. Stern. 'Buildings, Boundaries and Blood: Medicalization and Nation-Building on the U.S.-Mexico border, 1910-1930,' *Hispanic American Historical Review*, 1 {1999) 79.

W.B. Steven, 'The Lost Mine and the Ancient Church on the Rio Grande: A padre's story Web Flanagan on Living issues-Cosmopolitan El Paso-A Tariff that did not prohibit,' from 'Through Texas: A series of Interesting Letters,' *St. Louis Globe-Democrat*, 3 September 1892.

A.R. Stevens and W. M. Holmes, *Historical Atlas of Texas* (Norman, 1989).

K.L. Stewart and A de León, *Not room enough: Mexicans, Anglos and socio-economic change in Texas, 1850-1900* (New Mexico, 1995).

A.L. Stimson, *History of the Express Companies: And the Origin of American Railroads* (New York, 1958).

E. Stoddard, *et. al. eds.*, *Borderlands Sourcebook: A Guide to Literature on Northern Mexico and the Southwest* (Norman, 1983).

E. Stoddard, 'U.S. Mexico Borderlands A Research Laboratory,' *Journal of InterAmerican Affairs*, 11 (1969) 3.

R. Strassoldo and G. Delli Zotti, *Cooperation and Conflict in Border Areas* (Milan, 1982).

R. Strickland, *Six Who Came to El Paso, Pioneers of the 1840s* (El Paso, 1963).

P. Studenski and R E. Krooss, *Financial History of the United States* (New York, 1952).

W. Summehill, 'Transportation Improvements in Brazil and Mexico,' in *How Latin American Fell Behind*, ed. s. Haber (Stanford, 1994).

O. Sunkel, *Past, present and future of the process of Latin-American underdevelopment* (Budapest, 1973).

G.P. Sweeney, Innovation, Entrepreneurship and Regional Development (London, I 1987).

R. Tamayo Flores, 'Mexico in the Context of the North American Integration; major Regional Trends and Performance of Backward Regions', *Journal of Latin American Studies*, 33 (2001) 2.

E. Tannam *Cross-border cooperation in the Republic of Ireland and Northern Ireland* (London, 1999).

L. Tarazi-Fawaz, *Merchants and Migrants in Nineteenth Century Beirut* (Harvard, 1983).

F. Taussig, *The Tariff History of the United States* (New York, 1964).

B. Tenenbaum, 'El poder de las finanzas y las finanzas del poder en Mexico,' *Siglo XIX*, I 3 (1988) 5.

_____. *The Politics of Penury: Debts and Taxes in Mexico, 1821-1856* (Albuquerque, 1986).

W .H. Timmons, *El Paso: A Borderlands History* (El Paso, 1990).

G.P.C. Thomson, *Puebla de los Angeles: Industry and Society in a Mexican Town* (Boulder, 1989).

_____. 'Protectionism and Industrialization in Mexico, 1821-1854: The Case of Puebla,' in *Latin America: Economic Imperialism and the State*, ed. C. Able and C. M. Lewis (London, 1985).

R.H. Thonhoff, *San Antonio Stage Lines* (El Paso, 1971).

C.L. Thorup, 'The Politics of Free Trade and the Dynamics of Cross-border Coalitions in U.S. Mexican Relations', *Columbia Journal of World Business*, 26 (1991) 2.

C.M. Tiebout, 'Exports and Regional Economic Growth,' *Journal of Political Economy*, 14 (1956) 3.

I.A. Tischendorf, *Great Britain and Mexico in the Era of Porfirio Diaz* (Durham, 1961).

M.P. Todaro, *Economic development in the Third World : An introduction to problems and policies in a global perspective* (Harlow, 2nd, 1982).

_____. *Economic Development* (Reading, 7th ed., 1999).

D.F. Trask, *The War with Spain in 1898* (New York, 1981).

F.J. Turner, *The Frontier in American History* (New York, 1921).

B. Ulloa, 'La lucha armada' in *Historia General de México*, vol. 4 (Mexico, 2nd edition, 1977).

P. J. Underwood, *Disorder and Progress: Borders, Power and Mexican Development* (Lincoln, 1981).

M.C. Urrutia de Stebelski and G. Nava Ortero, 'La minería (1821-1880)' in *Historia Económica de México* ed. c. Cardoso (Mexico, 1992).

R.M. Utley, *The International Boundary United States and Mexico: A History of Dispute and Cooperation, 1848-1963* (Santa Fe, 1964).

B.C. Vack, *Borderline: A Bibliography of the United States-Mexico Borderlands* (Los Angeles, 1985).

H.B. Vaderblue and K.F. Burgess, *Railroad Rates, Service Management* (New York, 1923).

J. Vasconcelos, *Breve Historia de México* (Mexico, 1956).

J. Vázquez, 'The Texas Question in Mexican Politics, 1836-1845,' *Southwestern Historical Quarterly*, 89 (1986).

J.Z. Vázquez and L. Meyer, *The United States and Mexico* (Chicago, 1987).

R.W. Vickerman, *The Single European Market: Prospects for Economic Integration* (New York, 1992).

S. Voss, *On The Periphery of Nineteenth Century Mexico, Sonora and Sinaloa, 1810-1877* (Tucson, 1982).

D.J. Walmsley and G.J. Lewis, *Human geography: behavioural approaches* (London, 1984).

M. Walsh, *The American Frontier Revisited* (London, 1981).

G.M. Walton and H. Rockhoff, *History of the American Economy* (Fort Worth, 7th edition, 1994).

M. Wasserman, *Persistent Oligarchs: Elites and Politics in Chihuahua, Mexico, 1910-1940* (Durham, 1993).

_____. 'La inversión extranjera en México, 1876-1910: Un estudio de caso del papel de las élites regionales,' in *Historia Económica de México*, ed. E. Cárdenas (Mexico, 1992).

_____. 'Chihuahua; Family Power, Foreign Enterprise and National Control,' in *Other Mexicos: Essays on Regional Mexican History*, ed. T. Benjamin and W. McNellie (Albuquerque, 1984).

_____. *Capitalists, Caciques and Revolution, The Native Elite and Foreign Enterprise in Chihuahua, Mexico, 1854-1911* (Chapel Hill, 1984).

_____. 'Foreign Investment in Mexico, 1876-1910: As Case study of the role of Regional Elites,' *The Americas*, 36 (1979)1.

L.L. Waters, *Steel Trails to Santa Fe* (Lawrence, 1950).

A. Weber, *Alfred Weber's Theory of the location of industries* (Chicago, 1929).

D.J. Weber, *The Spanish Frontier in North America* (New Haven, 1992).

_____. "From Hell Itself": The Americanization of Mexico's Northern Frontier, 1821-1846,'*Border Perspectives*, Center for Inter-American and Border Studies, 5 (1983).

_____. *The Mexican Frontier, 1821-1846: The American Southwest Under Mexico* (Albuquerque, 1982).

_____. *Foreigners in their Native Lands: Historical Roots of Mexican-Americans* (Albuquerque, 1973).

_____. *Taos Fur Trappers in the Far Southwest, 1540-1846* (Norman, 1971).

J.J. Weber, *Adventures in the Santa Fe Trade, 1844-1847* (Glendale, 1921).

A.K. Weinberg, *Manifest Destiny, A Study of National Expansionism in America* (Baltimore, 1967)

D.J. Weinhart, *The Fur Trade of the American West, a Geographical Synthesis* (London, 1979).

S. Weintraub, *Free Trade between Mexico and the United States* (Washington, D.C. 1984).

_____. *Mexican Trade Policy and the North American Community* (Washington, D.C. 1988).

D. Welland ed., *The United States: A Companion to American Studies* (London, 2nd edition, 1987).

O.P. White, 'El Paso,' *Password*, 2 {1991} 36.

C. Whitlock, 'Railroads Started City's Progress,' *El Paso Times*, 26 August 1946.

E.J. Williams, 'The Resurgent North and Contemporary Mexico Regionalism,' *Mexican Studies/Estudios Mexicanos*, 6 {1990} 2.

T. H. Williams, RN. Current and F. Freidel, *A History of the United States to 1877* (New York, 1969).

M. Wionczek, *Studies in Comparative International Development* 5 (1970) 2.

C. Wise, Jr., 'The Effects of the Railroads Upon El Paso,' *Password*, 5 {1960} 3.

J. Womack, 'The Mexican Revolution, 1910-1920,' in *Mexico Since Independence*, ed. L.

Bethell (Cambridge, 1992).

_____. 'La economía en la revolución (1910-1920)', in *Historia económica de México*, ed. E. Cárdenas (Mexico, 1992).

S. Wong, *Emigrant Entrepreneurs: Shanghai Industrialist in Hong Kong* (Oxford, 1988).

H.B. Woolsten, *Prostitutes in the United States* (New York, 1921).

J.F.R. Wright, S. Goldenberg and R. Schofield, *Transcaucasian boundaries* (London 1996).

B.V. Yarbrough and R.M. Yarbrough, *The World Economy: Trade and Finance* (Fort Worth, 1994).

G. Young, *The Social Ecology and Economic Development of C. Juarez* (Boulder, 1986).

J. Zabludowsky, 'La depreciación de la plata y las exportaciones,' in *Historia Económica de México*, ed. E. Cádenas (Mexico, 1992).

L.G. Zorilla, *Historia de relaciones entre México y los Estados Unidos, 1800-1858* (Mexico, 1965).

UNSIGNED ARTICLES

Migration News, North America, 5 (1998).

'The comments of Francisco Madero regarding revolt at C. Juárez,' *El Paso Morning Times*, 11 May 1911.

'Elephant Butte Dam-It Made a City,' *El Paso Times*, 6 July 1956.

'Enterprise Largest in This Area,' *El Paso Times*, 25 October 1931.

'King Cotton Once A Rarity,' *El Paso Herald Post*, 28 May 1936.

'Enterprise Largest in This Area,' *El Paso Times*, 25 October 1931.

'First Shortage of Rio Grande Water in 1890,' *El Paso Herald Post*, 18 May 1938.

'Lack of Water Recalls Days when Farmers had to Pump,' *El Paso Herald*, 24 April 1935.

'A Description of the Lead and Copper Plant of the American Smelting and Refining Company,' *Engineering and Mining Journal Press*, 27 June 1925.

'Smelter Here is Largest Custom Plant in World,' *El Paso Post*, 24 October 1929.

'Smelter Has Big Payroll; A.S. & R Plan here is one of the Largest in the United States,' *El Paso Times*, 22 August 1930.

'Gold Rush Helped Open Route to Fort Bliss,' *El Paso Times*, 19 September 1948.

‘Guggenheim Mexico Holdings,’ mimeograph, no page, no date, Southwest Room, El Paso Public Library.

‘Pioneers Get Early History About El Paso,’ *El Paso Herald*, 16 February 1923.

‘Bits O’ Bliss,’ *Our Army*, 4 (1932) 9.

‘Ft. Bliss Museum Shows first 100 years of History,’ *El Paso Times*, 30 January 1976.

Memorandum to Marshall Hail of El Paso Herald Post from M.G. McKinney, 24 January 1966, Southwest Room, El Paso Public Library.

‘Pioneer Postman Brought Mail Horseback Into Apache Infested Land,’ *El Paso Times*, 29 April 1956.

‘Butterfield Overland Mail Played Important Part in Developing West,’ *El Paso Times*, 6 November 1938.

‘Butterfield Mail 100 Years Old Monday,’ *El Paso Times*, 17 September 1957.

‘Historical Sketch: Texas, El Paso and El Paso City,’ *El Paso Times*, 2 January 1890.

‘History of E.P. and S. W. System,’ *Southern Pacific Bulletin*, November 1924.

‘E.P. & S. W. Is Well Built Railroad Property,’ in *From Trail to Rail, The Story of the Beginning of the Southern Pacific, Chapter 35, Southern Pacific Properties in the Southwest: History of Arizona Eastern and El Paso and Southwestern*, mimeograph, November 1928.

‘The Underside of the Mexican Revolution,’ *Americas*, July 1982.

‘El Paso Grows as Railroad Center,’ *El Paso Texas*, 29 May 1996.

‘State National Bank Building, 1883,’ *El Paso Herald*, 12 May 1923.

‘Established Military post Here to Protect Emigrants from East Says Col Crimmins,’ *El Paso Times*, 22 November 1925.

San Antonio Express

San Antonio Express News