The Terms of Trade and the Rise of Argentina in the Long Nineteenth Century

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A thesis submitted to the Department of Economic History of the London School of Economics and Political Science for the degree of Doctor of Philosophy.

December 2013.

Declaration

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Abstract

Argentina's early twentieth century is commonly portrayed as a 'golden age' in which it became 'one of the richest countries in the world'. Here, however, this optimistic vision is challenged by placing Argentina within a new metanarrative of global divergence during the long nineteenth century. A massive terms-of-trade boom – the extent of which has not previously been appreciated – had profoundly uneven impacts across the periphery. Where land was abundant, frontiers could expand, leading to dramatic extensive (that is, aggregate) growth. An expanding frontier then had a safety-valve effect on labour markets, so capitalists responded to high wages by mechanising production, which raised labour productivity and, consequently, per capita incomes. In the land-scarce periphery, by contrast, deindustrialisation led to increasing quantities of labour receiving diminishing returns by being applied to limited land resources. Similarly, Argentina's own century-long terms-of-trade boom allowed the Littoral to prosper but made the more densely populated interior stagnate. The presence of the poor interior then prevented the country from developing the kind of white-egalitarian democracy that had allowed the prosperous European offshoots to make the transition to rapid intensive (that is, per capita) growth. Most importantly, Argentina's political backwardness ensured that landownership remained concentrated, which muted the safety-valve effect of the expanding frontier, so capitalists did not make the same investments in labour-saving technologies. The new metanarrative of global divergence thus leads to a far more pessimistic revision of Argentina at the beginning of the twentieth century – a revision that is verified through a comparative assessment of its living standards that shows them to have been considerably below the levels of Northern Europe and the European offshoots. Argentina's 'golden age' is therefore a myth.

To Ron, Sally, Karen, y la changuita.

Acknowledgements

Research for this dissertation received financial support from the Economic and Social Research Council. Colin Lewis was instrumental in my obtaining that funding, and provided patient supervision throughout my time at the LSE; Chris Minns came on board later as a second supervisor, and gave much useful advice; Max-Stephan Schulze excelled first as the PhD Programme Director, then as Head of Department; and Rose Harris in the Financial Office gave assistance at various times, especially when she rescued me from one particularly sticky situation.

The dissertation, especially Chapter 2, benefited greatly from comments made by participants in the LSE Economic History Department's Thesis Workshop, particularly Peter Sims. Alejandra Irigoin kindly invited me to participate at the New Economic Historians of Latin America workshop at the LSE on 26 April 2013, where I received valuable feedback on Chapter 5, above all from Alfonso Herranz-Loncan. Chapter 5 also benefited from being presented at the Oxford Economic & Social History Graduate Workshop at Nuffield College on 6 November 2013.

Invaluable stimulation and support also came from Carlos Brando, Ulaş Karakoç, Cecilia Lanata Briones, Jesús Emilio Monzón, Felipe Pereira Loureiro, José Luis Quintana Goyeneche, Beatriz Rodriguez-Satizabal, Gerardo Serra, Leonardo Weller, and Bernardo Wjuniski. In Argentina I am indebted to the kindness of Jorge Gaggero, Juan Carlos Garavaglia, Norma Lanciotti, Marcelo Rougier, Ruth Sautu, and the late Jorge Schvarzer, as well as the librarians of the Instituto Torcuato di Tella, the Ministerio de Economía, and the Universidad de San Andrés. Elsewhere, thanks must be given to Cristián Ducoing Ruiz, Manuel Llorca-Jaña, Jonathan Nitzan, Jeffrey Williamson, and the staff of the Bodleian Library, the British Library, the British Library of Political and Economic Science, and Senate House Library.

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Chapter 1

Introduction

> I believe that free trade is fatal to the nation. I shall never be able to understand how restrictions on trade could constitute an obstacle to industry.
>
> Pedro Ferré, *Memorias*[1]

> To limit or restrict the entry of desirable products from abroad, so as to enhance the price of inferior home products, is like debarring good-looking foreign women from entering the country, in order that ill-favoured ones may make better marriages; it is like hindering people of rosy and clear complexions from entering, because the mulattoes, who form the bulk of the nation, will be avoided by the women on account of their inferiority in looks.
>
> Juan Bautista Alberdi, *The Crime of War*[2]

This dissertation analyses how global capitalism shaped Argentina through a boom in its terms of trade during the long nineteenth century. In doing so, it places the country's development within a broader metanarrative of the 'great divergence' between poor and rich countries.[3] During the long nineteenth century, the dissertation argues, trade liberalisation, falling transportation costs, and increasing industrial productivity in the North Atlantic core brought a massive, periphery-wide terms-of-trade boom that radically reordered the world. In response to changes in relative prices, a new global capitalist order formed in which the periphery specialised in primary-commodity production, while the North Atlantic core industrialised. Land-abundant regions more than anywhere else prospered from this new order, whereas land-scarce regions that did not industrialise – or were deindustrialised – lost out. These global

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1. Quoted in A.G. Frank, *Lumpenbourgeoisie, Lumpendevelopment: Dependence, Class, and Politics in Latin America*, New York, 1972, p. 54.
2. J.B. Alberdi, *The Crime of War*, London, 1913, p. 241.
3. To clarify, a metanarrative is an overarching framework for understanding something. On the metanarratives of the great divergence, see P.K. O'Brien, 'Metanarratives in Global Histories of Material Progress', *International History Review*, 23:2, 2001; and idem, 'Ten Years of Debate on the Origins of the Great Divergence', *Reviews in History*, 1008, 2010, online at http://www.history.ac.uk/reviews/review/1008 (accessed 5 September 2013).

processes of uneven development, as will be seen here, were also at work *within* Argentina, preventing it from becoming one of the world's most developed countries despite its substantial land resources.

In arguing against the optimistic vision of Argentina's long nineteenth century that currently reigns in the historiography, this dissertation revisits some of the more pessimistic conclusions that once predominated. It reinforces them with new and under-utilised quantitative data, and by applying quality controls to the data that optimists have used to make their case. Far too much of the optimistic historiography, it contends, suffers from what D.C.M. Platt identified as the problem of 'Mickey Mouse numbers',[4] as the optimists have too often relied on statistics of dubious quality, especially unreliable estimates of gross domestic product (GDP).[5] This dissertation, by contrast, will only use numbers that have passed some basic controls for quality. Hence, unlike in much of the recent literature on Argentina, as well as in the so-called New Economic History more broadly, here bad numbers will *not* be preferred to no numbers at all.[6] What reliable numbers there are, it will be seen, support a more pessimistic revision of Argentina's long nineteenth century.

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4. D.C.M. Platt, *Mickey Mouse Numbers in World History: The Short View*, Basingstoke, 1989.
5. This problem was pointed out some time ago in L. Randall, 'Lies, Damn Lies, and Argentine GDP', *Latin American Research Review*, 11:1, 1976; since then, it has gotten worse, as will be detailed at length in Appendix 1.1.
6. The determination of New Economic Historians (or 'cliometricians') to use numbers – almost *any* numbers – stems from a research agenda based on using quantitative methods (often econometrics) to test hypotheses derived from neo-classical economic theory. N.F.R. Crafts, 'Cliometrics, 1971-1986: A Survey', *Journal of Applied Econometrics*, 2:3, 1987. The problems with this research agenda are at least twofold. First, it can lead to conclusions that are presented as if they were historical facts, when their conclusions are actually dependent upon the assumptions in the theories that underlie their models. Second, econometric models and the data fed into them can be tweaked until they arrive at a statistically significant result that suits the researcher. For a description of this aspect of econometrics by a leading practitioner, see E.E. Leamer, 'Let's Take the Con Out of Econometrics', *American Economic Review*, 73:1, 1983; and idem., 'Tantalus on the Road to Asymptopia', *Journal of Economic Perspectives*, 24:2, 2010. For a useful demonstration of how this basic flaw can lead to different groups of econometricians reaching opposed results using the same data, see J.R. Magnus and M.S. Morgan, eds., *Methodology and Tacit Knowledge: Two Experiments in Econometrics*, New York, 1999, chs. 1-14. Making these problems even worse, New Economic Historians have often proved resistant to new theories. In the words of one of their pioneers, Douglass North, 'the limitations of neoclassical theory as a tool kit are today more appreciated by many in economics – where I think a revolution is going on – than in economic history, which tends to be more reactionary in terms of theoretical innovation than economics. And until economic historians break out of the strictures imposed by neoclassical theory, cliometrics will remain a relatively uninteresting field'. In G.D. Libecap, J.S. Lyons, and S.H. Williamson, 'Douglass C. North', in J.S. Lyons, L.P. Cain, and S.H. Williamson, eds., *Reflections on the Cliometric Revolution: Conversations with Economic Historians*, London, 2008, p. 197. Being uncharitable, it could be argued that the New Economic History has become primarily concerned with verifying outmoded theories with dubious data using methodologies that are open to manipulation.

The remainder of this introduction provides an overview of the dissertation, placing its findings within their historiographical context. It begins by describing the swing from pessimism to optimism in the historiography of Argentina's long nineteenth century, highlighting the role that this swing has played in legitimising global capitalism. Argentina has, it observes, been held up as one of the great success stories of the 'first globalisation', and its subsequent decline is alleged to have been due to it becoming more closed to the rest of the world. The remainder of the introduction then provides a chapter-by-chapter summary of how the dissertation casts doubt on this morality tale by demonstrating that its starting point is wrong: there was, the dissertation will contend, no 'golden age' for Argentina at the beginning of the twentieth century; rather, a long terms-of-trade boom had allowed some regions to prosper, but had also made others stagnate, leading to an unevenness that prevented Argentina from realising its potential as a land-abundant country.

From Pessimism to Optimism

The current optimism about Argentina at the beginning of the twentieth century is in stark contrast to the pessimistic consensus that once reigned in the country's historiography. Drawing on 'revisionist' diatribes against foreign domination, which had proliferated in the interwar period,[7] as well as 'structuralism', the post-war critique of neo-classical economic theory,[8] in the 1960s and '70s most historians believed that Argentina had missed an important opportunity in the long nineteenth century because its rapid growth had been unbalanced and had not laid the foundations for more long-term development. This pessimistic vision was shared by proponents of 'modernisation theory' and 'dependency theory' alike, with the more optimistic view of liberals (in the Adam Smith sense) an uninfluential minority.[9] Nevertheless, by the

7. See T. Halperín Donghi, *El revisionismo histórico argentino*, Buenos Aires, 1970; and idem, *La Argentina y la tormenta del mundo: Ideas y ideologías entre 1930 y 1945*, Buenos Aires, 2003, ch. 2.
8. See J.L. Love, 'The Rise and Fall of Structuralism', in V. FitzGerald and R. Thorp, eds., *Economic Doctrines in Latin America: Origins, Embedding and Evolution*, Basingstoke and New York, 2005; and R. Grosfoguel, 'From *Cepalismo* to Neoliberalism: A World-Systems Approach to Conceptual Shifts in Latin America', *Review (Fernand Braudel Center)*, 19:2, 1996. Its theoretical content is described in C. Kay, *Latin American Theories of Development and Underdevelopment*, London, 1989, ch. 2; and O. Rodríguez, *El estructuralismo latinoamericano*, México, 2006. For comparisons with the somewhat tamer 'neo-structuralism' of today, see F.I. Leiva, *Latin American Neostructuralism: The Contradictions of Post-Neoliberal Development*, Minneapolis, 2008.
9. For a classic pessimistic analysis from the perspective of modernisation theory, see G. di Tella

end of the twentieth century the pendulum had decisively swung toward a far more optimistic vision, according to which Argentina had been a successful case of 'export-led development'.[10] Here this swing from pessimism to optimism will be outlined.

The pessimists who once ruled in the historiography pointed towards the country's great regional disparities, its inegalitarian distribution of wealth and income, and its vulnerability to fluctuations in international trade and capital flows. Aldo Ferrer's *The Argentine Economy*, first published in 1963, was the most complete expression of this pessimistic vision.[11] In an analysis of the country's development since colonisation, Ferrer argued that during the nineteenth century technological change, particularly improved shipping and railways, drove the country's integration into the world economy. The land-abundant Pampean zone prospered as a result, as, in his words, the 'useless territories of the colonial period [...] became the nucleus of a rapid process of development',[12] but at the same time integration brought deindustrialisation to the country's interior,[13] while the concentration of landownership meant that even in the Pampean zone there was widespread underemployment, which depressed living standards.[14] The country's export-led growth was, moreover, vulnerable to its external position, especially because it was heavily dependent upon imports for its supply of manufactured goods, so fluctuations in the

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and M. Zymelman, *Las etapas del desarrollo económico argentino*, Buenos Aires, 1973, ch. 2. The key structuralist/dependentista account was A. Ferrer, *The Argentine Economy*, Berkeley, 1967, chs. 5-12. For useful comparisons of the two theories, see J.S. Valenzuela and A. Valenzuela, 'Modernization and Dependency: Alternative Perspectives in the Study of Latin American Underdevelopment', *Comparative Politics*, 10:4, 1978; and R. Grosfoguel, 'Developmentalism, Modernity, and Dependency Theory in Latin America', *Nepantla: Views from the South*, 1:2, 2000. An important example of the liberal view from that era is F. Pinedo, *La Argentina: Su posición y rango en el mundo*, Buenos Aires, 1971; also see J.A. Martínez de Hoz, *La agricultura y la ganadería argentina en el período 1930-1960*, Buenos Aires, 1967.

10. For overviews of this shift in the historiography, see E.J. Míguez, 'La expansión agraria de la pampa humeda (1850-1914): Tendencias recientes de su análisis histórico', *Anuario IEHS*, 1; idem, '¿Veinte años no es nada? Balance y perspectivas de la producción reciente sobre la gran expansión agraria, 1850–1914', in J. Gelman, ed., *La historia económica argentina en la encrucijada*, Buenos Aires, 2006; and R. Cortés Conde, 'Export-Led Growth in Latin America: 1870-1930', *Journal of Latin American Studies*, 24, Quincentenary Supplement, 1992, pp. 168-72.
11. A. Ferrer, *La economía argentina: Las etapas de su desarrollo y problemas actuales*, México, 1963; and idem, *Argentine Economy*. The original was substantially revised and expanded in A. Ferrer, *La economía argentina: Desde sus orígenes hasta principios del siglo XXI*, 3rd ed., Buenos Aires, 2004.
12. Ferrer, *Argentine Economy*, p. 77.
13. Ibid., p. 241.
14. Ibid., p. 116.

terms of trade, a bad harvest, or an interruption of capital inflows could have severely negative consequences for growth.[15]

A similarly pessimistic interpretation was offered by those following the principles of modernisation theory. The case of Roberto Cortés Conde is particularly notable because he would subsequently become the most prominent optimist, producing influential accounts of Argentina's progress in the late nineteenth and early twentieth centuries.[16] In the mid-1960s, by contrast, he had reflected the consensus that Argentina's rapid growth prior to the First World War had represented a missed opportunity.[17] External circumstances, he claimed, had been highly favourable for the country, allowing it to prosper by bringing new land into production through a rapid expansion of the frontier. Yet this extensive growth was limited by the closing of the frontier, while it was also vulnerable to changes in the external environment, especially given that the country had failed to industrialise. The result, Cortés Conde concluded, was that Argentina's apparent prosperity was more illusion than reality. He wrote:

> Testimonies of the time speak clearly enough of the sudden luxury of the until recently austere society of the River Plate; the ostentatious buildings and a way of life that came close to the [...] richest and most sophisticated capitals of Europe. In that cultural life, in contrast to other countries in the world's periphery, it was not just the educated native-born elite that participated. [...] This fact created the impression that [Argentina] had reached the levels of the most progressive and industrialised countries, and to some extent it had: a European population, extensive education, urban centres, such as Buenos Aires, that had little to envy in those of old Europe. Yet something was lacking. Behind the advanced urban Argentina was a virtually pastoral society. There was no correlate industrial development. When circumstances changed and the external impetus disappeared, we found that the castle had been built on air.[18]

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15. Ibid., pp. 102-03, 122.
16. R. Cortés Conde, *El progreso argentino: 1880-1914,* Buenos Aires, 1979; idem, 'The Export Economy of Argentina 1880-1920', in idem and S.J. Hunt, eds., *The Latin American Economies: Growth and the Export Sector 1880-1930*, New York, 1985; R. Cortés Conde, 'The Growth of the Argentine Economy, *c*. 1870-1914', in L. Bethall, ed., *The Cambridge History of Latin America*, V, c. *1870-1930*, Cambridge, 1986; R. Cortés Conde, *La economía argentina en el largo plazo: Ensayos de historia económica de los siglos XIX y XX*, Buenos Aires, 1997; and idem, 'The Vicissitudes of an Exporting Economy: Argentina (1975-1930)', in E. Cárdenas, J.A. Ocampo, and R. Thorp, eds., *An Economic History of Twentieth-Century Latin America*, I, *The Export Age*, Oxford, 2000.
17. R. Cortés Conde, 'El 'boom' argentino: ¿Una oportunidad desperdiciada?', in T. di Tella and T. Halperín Donghi, eds., *Los fragmentos del poder*, Buenos Aires, 1969; also see idem, 'Problemas del crecimiento industrial de la Argentina (1870-1914)', *Desarrollo Económico*, 3:1/2, 1963; and E. Gallo and R. Cortés Conde, *La formación de la Argentina moderna*, Buenos Aires, 1967.
18. Cortés Conde, ''Boom' argentino', p. 241, author's translation.

For many, including Cortés Conde,[19] this pessimistic narrative began to change through exposure to 'staple theory'. Following the pioneering work of Harold Innis,[20] Canadian historians had argued that the rapid expansion of their country's export sector in the nineteenth century had generated linkages with other sectors, leading to more broad-based growth, including industrialisation.[21] In a highly influential study, Carlos Díaz Alejandro claimed that Argentina's nineteenth-century growth had fitted this pattern[22] – a claim that Ezequiel Gallo reinforced with his observation that industry had also grown rapidly at the beginning of the twentieth century, in the midst of the export sector's great expansion.[23] Finally, Jonathan Brown extended staple theory back to the late colonial era by maintaining that increasing exports of silver from Potosí in Upper Peru triggered a pastoral expansion on the Pampas, which then, as described by Díaz Alejandro and Gallo, turned into far more broad-based growth after the arrival of the railways.[24] As Brown summarised:

> Both the export of foodstuffs to Upper Peru and the silver trade out of Potosí provided the rationale for European settlement and commercial development in the Río de la Plata. Buenos Aires' connection with Atlantic shipping, established by the illegal silver trade, eventually fostered the pastoral industries of the Litoral. Then, the European and North American revolutions in manufacturing of the first half of the nineteenth century further stimulated rural production in the region, and exports of hides, wool, and a variety of pastoral goods more than replaced the deteriorating trade through the port. Ranching, marketing, and processing – despite the limitations of traditional technology – all expanded to support the export sector. Finally, the modern technology let loose by the industrial revolution reached the Río de la Plata in the years following 1860. Existing trends in population growth, settlement of

---

19. For example, Cortés Conde, 'Export-Led Growth', pp. 170-71. Cf. idem, 'Growth of the Argentine', p. 355.
20. H. Innis, *Essays in Canadian Economic History*, Toronto, 1956.
21. The first statement came from M.H. Watkins, 'A Staple Theory of Economic Growth', *Canadian Journal of Economics and Political Science*, 29:2, 1963; cf. idem, 'Staples Redux', *Studies in Political Economy*, 79, 2007. Major subsequent contributions were A.O. Hirschman, 'A Generalized Linkage Approach to Development, with Special Reference to Staples', *Economic Development and Cultural Change*, 25, Supplement, 1977; G. di Tella, 'The Economics of the Frontier', in C.P. Kindleberger, ed., *Economics in the Long View: Essays in Honour of WW Rostow*, I, *Models and Methodology*, New York, 1982; R. Findlay and M. Lundahl, 'Natural Resources, 'Vent-for-Surplus', and the Staples Theory', in G.M. Meier, ed., *From Classical Economics to Development Economics*, Basingstoke and New York, 1994; and M. Altman, 'Staple Theory and Export-Led Growth: Constructing Differential Growth', *Australian Economic History Review*, 43:3, 2003.
22. C.F. Díaz Alejandro, *Essays on the Economic History of the Argentine Republic*, New Haven, 1970, pp. 9-11.
23. E. Gallo, 'Agrarian Expansion and Industrial Development in Argentina', in R. Carr, ed., *Latin American Affairs*, Oxford, 1970. A similar argument was made around the same time by L. Geller, 'El crecimiento industrial argentino hasta 1914 y la teoría del bien primario exportable', *Trimestre Económico*, 37:148(4), 1970.
24. J.A. Brown, *A Socioeconomic History of Argentina, 1776-1860*, Cambridge, 1979.

> virgin territories, and expansion of the domestic market quickened. New technology, even though controlled by foreigners, extended economic activity to the Interior and broadened Argentina's exports. It proved the catalyst for continuing growth and ultimately for industrialization.[25]

Considerably later, Cortés Conde would reinforce this optimistic narrative by providing numbers that verified the claim that rapid industrialisation had occurred alongside export expansion. His new estimates of Argentina's GDP showed industry growing at a phenomenal trend rate of nine percent per year during 1875-1913, helping drive an overall growth rate of seven percent.[26] This finding was crucial because the historiography had previously reached an impasse between pessimism and optimism due to the lack of data. As a literature review published shortly before Cortés Conde released his numbers explained:

> [T]he discussion ceased before it had finished, probably because it could only go on producing more of the same arguments with the tools available. Thus the estimates of the economic indicators on which many of these studies were based were not revised. Nor did researchers undertake a search of the primary sources that would have allowed them to line up new evidence.[27]

Cortés Conde's new numbers showing dramatic industrial growth accordingly had a major impact. They inspired other studies of Argentina's industrialisation that typically drew on far more fragmentary data, but could still point toward Cortés Conde's numbers to demonstrate the rapid growth that they were describing.[28] Few, however,

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25. Ibid., p. 233.
26. Calculated from Cortés Conde, *Economía argentina*, pp. 230-31, Cuadro A1. This is a mildly revised version of the GDP estimates detailed in R. Cortés Conde, 'Estimaciones del producto bruto interno de Argentina 1875-1935', Documento de Trabajo 3, Departamento de Economía y Matemática, Universidad de San Andres, 1994. See Appendix 1.1, pages 45-53, for details.
27. J.C. Korol and H. Sabato, 'Incomplete Industrialization: An Argentine Obsession', *Latin American Research Review*, 25:1, 1990, pp. 23-24.
28. See F. Rocchi, *Chimneys in the Desert: Industrialization in Argentina During the Export Boom Years, 1870-1930*, Stanford, 2006, esp. pp. 21, 24-25, 42; and M.I. Barbero and F. Rocchi, 'Industry', in G. della Paolera and A.M. Taylor, eds., *A New Economic History of Argentina*, Cambridge, 2003, esp. pp. 264-65; also Y. Pineda, *Industrial Development in a Frontier Economy: The Industrialization of Argentina, 1890-1930*, Stanford, 2009. An example of the kind of fragmentary data these studies have mustered to support their case comes from Rocchi's finding that 74 industrial companies received loans worth $17.2 million from the Banco de la Provincia de Buenos Aires during 1906-16, which he takes as evidence that there was no 'anti-industrial' bias in Argentina's financial system (*Chimneys in the Desert*, pp. 252-54). Yet he fails to provide any of the context that is necessary to understand these numbers; that, for instance, these loans were just 1.4 percent of the bank's total loans during this period (calculated from H.J. Cuccorese, *Historia del Banco de la Provincia de Buenos Aires*, Buenos Aires, 1972, Cuadro 27), and that more aggregated data suggest that the financial system was heavily oriented toward the needs of merchants and especially large landowners. See, for example, J. Adelman, 'Agricultural

appear to have looked at the methodology underlying Cortés Conde's series, nor, vitally, did they attempt to replicate them. That task, which is undertaken in Appendix 1.1,[29] suggests they can only be reproduced if obvious methodological errors are made. For example, Cortés Conde's spectacular industrial growth rate of 12 percent per year in the 1890s appears to be due to a greater range of goods being taxed by the government, which he seems to have mistaken for an increase in the output of those goods. Nonetheless, as such checks have not previously been made, Cortés Conde's numbers have come to feature prominently in the more optimistic accounts of Argentina's nineteenth century, as they have led historians to conclude that the rapidly rising incomes generated by export-led growth made the internal market expand, leading to final demand linkages that drove dramatic industrialisation.[30] Optimism, armed with Mickey Mouse numbers, has in this way prevailed.

This swing towards optimism has also had ramifications far beyond the historiography of Argentina's long nineteenth century. The belief that Argentina was once 'one of the richest countries in the world', but then declined precipitously, has become widespread, with a cottage industry emerging around the 'Argentine paradox' – a research agenda that attempts to explain how a rich country could have subsequently become a relatively poor country.[31] Typically, the answer given is some variation on the following: at the beginning of the twentieth century Argentina experienced a 'golden age' when it prospered by being open to international flows of

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Credit in the Province of Buenos Aires, Argentina, 1890-1914', *Journal of Latin American Studies*, 22:1, 1990, pp. 73-81.

29. See pages 47-53.
30. F. Rocchi, 'El péndulo de la riqueza: La economía argentina en el período 1880-1916', in M. Zaido Lobato, ed., *Nueva historia argentina*, V, *El progreso, la modernización y sus límites (1880-1916)*, Buenos Aires, 2000; and R. Hora, *Historia económica de la Argentina en el siglo XIX*, Buenos Aires, 2010, ch. 7.
31. Major works that pursue this research agenda include Díaz Alejandro, *Essays on the Economic History*; C. Waisman, *Reversal of Development in Argentina: Postwar Counterrevolutionary Policies and Their Structural Consequences*, Princeton, 1987; D. Cavallo, R. Domenech, and Y. Mundlak, *La Argentina que pudo ser: Los costos de la represión económica*, Buenos Aires, 1989; P.H. Lewis, *The Crisis of Argentine Capitalism*, Chapel Hill, 1990; A.M. Taylor, 'External Dependence, Demographic Burdens, and Argentine Economic Decline After the Belle Époque', *Journal of Economic History*, 52:4, 1992; P. Gerchunoff and L. Llach, *El ciclo de la ilusión y el desencanto: Un siglo de políticas económicas argentinas*, Buenos Aires, 1997; R. Cortés Conde, *Progreso y declinación de la economía argentina*, 2nd ed., Buenos Aires, 1998; della Paolera and Taylor, eds., *A New Economic History*; and C.M. Lewis, *Argentina: A Short History*, Oxford, 2002; and L.J. Alston and A.A. Gallo, 'Electoral Fraud, the Rise of Perón and Demise of Checks and Balances in Argentina', *Explorations in Economic History*, 47:2, 2010. A useful survey and interpretation of some of the early Argentine-paradox literature is given in C.M. Lewis, 'Explaining Economic Decline: A Review of Recent Debates in the Economic and Social History Literature on the Argentine', *European Review of Latin American and Caribbean Studies*, 64, 1998.

goods, capital, and labour; following the First World War and/or the Great Depression, the country experienced some problems due to adverse external circumstances; thereafter, it declined because its government was illiberal, turning its back on globalisation.[32] Argentina is thus held up as a prime example of what could happen to a country if it rejects liberal principles by having an interventionist state that seeks to direct its development. In this way, Argentina's history has become one of the key morality tales of the new global capitalist order. The moral of its sad tale is liberalise or be damned.[33]

Pessimism Redux

This dissertation demonstrates that the starting point for the Argentine morality tale – the 'once upon a time' – is incorrect. The dissertation explains why Argentina's integration into global capitalism did *not* turn it into 'one of the richest countries in the world'. To be clear, capitalism is here defined as a *mode of power* in which society is *ordered (and reordered) by prices*.[34] Following the logic of this definition, the dissertation analyses how global capitalism shaped Argentina through changes in the *relative prices* of its exports and imports, or what are technically known as its 'net barter terms of trade' (NBTT),[35] which are calculated as follows:

$$NBTT = \frac{Export\ price\ index}{Import\ price\ index} \qquad 1.1$$

The dissertation argues that changes in this ratio reordered the world during the long nineteenth century, as a long terms-of-trade boom drove divergence between an industrialising North Atlantic core, the prosperous European offshoots, and the poor periphery.[36] Within Argentina, improved terms of trade led to highly uneven develop-

32. This is, in effect, the argument of Díaz Alejandro (*Essays on the Economic History*), who most of the subsequent 'Argentine paradox' literature has followed, while adding some nuance.
33. For a prominent example, see A. Beattie, *False Economy: A Surprising Economic History of the World*, New York, 2009, ch. 1.
34. This definition draws on J. Nitzan and S. Bichler, *Capital as Power: A Study of Order and* Creorder, London, 2009, esp. ch. 13.
35. For a comparison with the various other terms-of-trade concepts ('gross barter', 'single factoral', and 'double factoral'), see C.P. Kindleberger, *International Economics*, 4th ed., Homewood, 1968, pp. 73-76.
36. To clarify, the terms 'periphery' and 'core' are used in this dissertation in a geographic (and nineteenth-century specific) sense, as the periphery is understood to be all of the world outside of the North Atlantic core, which in turn includes both northwestern Europe and the northeastern

ment that combined prosperity, as described by the optimists, with stagnation, which the pessimists were more conscious of. This, then, was the result of Argentina being reordered by global capitalism – of being integrated, in other words, into a global order in which power was exercised through the price system. The remainder of this introduction will summarise how this analysis is advanced in this dissertation chapter by chapter, with each placed within its historiographical context.

The Terms of Trade

Debates about the terms of trade have long focused on Raúl Prebisch and Hans Singer's famous hypothesis that a long-term deterioration in the periphery's terms of trade undermined the liberal assumption that the periphery should specialise in the production of primary commodities for export.[37] In the subsequent debate, the main question became whether this long-term deterioration had really taken place.[38] The consensus among historians, at least until recently, has been that there were no trends in the terms of trade, only cyclical fluctuations. With regard to Latin America, Stephen Haber neatly expressed this widespread belief:

> [W]hen other scholars examined the terms-of-trade argument closely, by pushing estimates back into the nineteenth century and by subjecting the data to more careful analysis, they found that for long periods the terms of trade actually improved, even during the so-called era of export liberalism. The weight of the evidence points to the conclusion that there has been no secular deterioration in Latin America's terms of trade, but rather there have been cyclical swings with no discernable long-term trend.[39]

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seaboard of the United States. From this perspective, for example, the North American West was part of the periphery. The 'European offshoots' were the settler societies of Australasia and North America.

37. R. Prebisch, 'The Economic Development of Latin America and Its Principal Problems', *Economic Bulletin for Latin America,* 7:1, (1950) 1962; and H.W. Singer, 'The Distribution of Gains between Investing and Borrowing Countries', *American Economic Review*, 40:2, 1950. On the origins of their hypothesis, see J.L. Love, 'Raúl Prebisch and the Origins of the Doctrine of Unequal Exchange', *Latin American Research Review*, 15:3, 1980; idem, *Crafting the Third World: Theorizing Underdevelopment in Rumania and Brazil*, Stanford, 1996, ch. 7; D.J. Shaw, *Sir Hans Singer: The Life and Work of a Development Economist*, Houndsmill and New York, 2002, pp. 49-58; J. Toye and R. Toye, 'The Origins and Interpretation of the Prebisch-Singer Thesis', *History of Political Economy*, 35:3, 2003; and E.J. Dosman, *The Life and Times of Raúl Prebisch, 1901-1986*, Montreal, 2008, chs. 5-11.
38. For overviews, see J. Spraos, *Inequalising Trade? A Study of Traditional North/South Specialisation in the Context of Terms of Trade Concepts*, New York, 1983, ch. 3; D. Diakosavvas and P.L. Scandizzo, 'Trends in the Terms of Trade of Primary Commodities, 1900-1982: The Controversy and Its Origins', *Economic Development and Cultural Change*, 39:2, 1991, pp. 232-46; and J.A. Ocampo and M.A. Parra, 'The Continuing Relevance of the Terms of Trade and Industrialization Debates', in E. Peréz Caldentey and M. Vernengo, eds., *Ideas, Policies and Economic Development in the Americas*, London, 2007, pp. 163-66.

Given this consensus, Jeffrey Williamson's recent work has been striking, in that he has contended that there was a long-term *boom* in the periphery's terms of trade during the nineteenth century, and it was, moreover, of much significance for the 'great divergence'.[40] He claims that the terms of trade improved due to the combined effects of trade liberalisation, reduced transportation costs, and increasing productivity in the core's industry. The boom that followed, Williamson argues, then led to deindustrialisation by undermining the periphery's cottage industries, as it pulled capital and labour towards the primary commodity-focused export sector.[41] Divergence resulted because, in Williamson's words, (1) 'industrial-urban activities contain far more cost-reducing and productivity-enhancing forces than do traditional agriculture and traditional services';[42] (2) deindustrialisation led to a 'resource curse' that saw the periphery's institutions come to reflect the interests of the rent-seeking elites that were the principal beneficiaries of primary-commodity exports;[43] and (3) there was more growth-inhibiting volatility because primary-commodity prices fluctuate more dramatically than those of manufactured goods.[44] In this way, Williamson's new terms-of-trade narrative has the long boom generating divergence by dividing the world into an industrialised core and a poor, deindustrialised periphery that was afflicted by bad institutions and great instability.[45]

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39. S. Haber, 'Introduction: Economic Growth and Latin American Economic Historiography', in idem, ed., *How Latin America Fell Behind: Essays on the Economic History of Brazil and Mexico*, Stanford, 1997, p. 12.
40. Most notably, J.G. Williamson, 'Globalization and the Great Divergence: Terms of Trade Booms, Volatility and the Poor Periphery, 1782-1913', *European Review of Economic History*, 12:3, 2008; and idem, *Trade and Poverty: When the Third World Fell Behind*, Cambridge, MA, 2011; also see Y.S. Hadass and J.G. Williamson, 'Terms-of-Trade Shocks and Economic Performance, 1870-1940: Prebisch and Singer Revisited', *Economic Development and Cultural Change*, 51:3, 2003; J.G. Williamson, *Globalization and the Poor Periphery before 1950*, Cambridge, MA, 2006, chs. 2, 3, and 5; and C. Blattman, J. Hwang, and J.G. Williamson, 'Winners and Losers in the Commodity Lottery: The Impact of Terms of Trade Growth and Volatility in the Periphery 1870-1939', *Journal of Development Economics*, 82:1, 2007. For an illustration of the influence of Williamson's arguments, see R.C. Allen, *Global Economic History: A Very Short Introduction*, Oxford, 2011, chs. 5-6.
41. Williamson defines industrialisation as 'an increase in the share of economic activity based in industry'. Williamson, *Trade and Poverty*, p. 49. Deindustrialisation is therefore a decreasing share of industry in total productive activity – a definition that this dissertation follows.
42. Williamson, *Trade and Poverty*, p. 49.
43. Ibid., pp. 50-51.
44. Ibid., pp. 51-53, ch. 10.
45. Exactly how original this narrative is is open to debate. Williamson identifies the work of W. Arthur Lewis as a precursor. See Williamson, *Trade and Poverty*, p. 33). Lewis did not, however, identify the terms of trade as a driving force of deindustrialisation. Indeed, he believed that the periphery's factoral terms of trade deteriorated during the late nineteenth century. W.A. Lewis, *The Evolution of the International Economic Order*, Princeton, 1978, ch. 3; also see idem,

Chapter 2 will greatly reinforce Williamson's claim that there was a long terms-of-trade boom, but only by criticising the evidence that Williamson himself uses to illustrate it. This task is important because Williamson has been applauded for assembling a database of the terms of trade of numerous peripheral countries; one prominent reviewer, for example, states that a 'major contribution of Williamson's research is the compilation of a data set on the terms of trade for 21 poor countries'.[46] Yet Chapter 2 demonstrates that most of Williamson's 21 series are of doubtful quality since they have been calculated by using prices from the core countries as proxies for prices in the periphery. Given the massive price convergence that took place during the nineteenth century, the result is a downward bias in the trends of these estimates, which leads Williamson to greatly underestimate the length, magnitude, and universality of the periphery's terms-of-trade boom.[47]

By criticising Williamson's empirical evidence for the long boom, Chapter 2 actually reinforces the link that he makes between the terms of trade and deindustrialisation. The explanatory power of Williamson's narrative seems limited because he did not detect any boom for India,[48] even though it has been by far the most widely discussed case of the periphery's nineteenth-century deindustrialisation.[49] Chapter 2, however, shows that Williamson's failure to find a boom for India was due to his use of a 'proxy' estimate, whereas price data taken from India clearly indicate that its terms of trade must have improved significantly. What Williamson sees as a para-

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Aspects of Tropical Trade 1883-1965, Stockholm, 1969, pp. 17-25; and idem, *Growth and Fluctuations 1870-1913*, London, 1978, pp. 188-93. A predecessor that, on the other hand, is quite close to Williamson is M. Lévy-Leboyer, *Les banques européenes et l'industrialisation internationale dans la première motié du XIX siècle*, Paris, 1964, ch. 4. Yet, as will be seen in Chapter 3, Lévy Leboyer did not see deindustrialisation as having any negative ramifications for the periphery's development because he believed in the neo-classical model of international trade.

46. N. Crafts, 'Book Review Feature: *Trade and Poverty: When the Third World Fell Behind*', *Economic Journal*, 123, 2013, p. F193.
47. It was this same faulty methodology that led Hans Singer to detect such a long-term secular deterioration. His findings were first published in United Nations, *Relative Prices of Exports and Imports of Under-Developed Countries: A Study of Post-War Terms of Trade between Under-Developed and Industrialized Countries,* Lake Success, 1949; and were partially reproduced in Prebisch, 'Economic Development', p. 4, Table 1.
48. T. Roy, 'Review of *Trade and Poverty: When the Third World Fell Behind*', EH.net, 2012, online: http://eh.net/book_reviews/trade-and-poverty-when-third-world-fell-behind (accessed 7 October 2012).
49. For overviews, see I. Habib, 'Studying a Colonial Economy – Without Perceiving Colonialism', *Modern Asian Studies*, 19:3, 1985, pp. 359-64; T. Roy, *Rethinking Economic Change in India: Labour and Livelihood*, London and New York, 2005, ch. 5; and P. Parthasarathi, 'Historical Issues of Deindustrialization in Nineteenth-Century South India', in G. Riello and T. Roy, eds., *How India Clothed the World: The World of South Asian Textiles, 1500-1850*, Leiden, 2009.

dox – that India deindustrialised without a boom[50] – thus ceases to be one once the methodological issues discussed in Chapter 2 are taken into account. The periphery's long terms-of-trade boom has, then, far more explanatory power than even Williamson supposes.

The Great Divergences

Chapter 3 goes beyond Williamson to explain why the long boom drove global divergence. Much of the existing literature has tended to focus either on the divergence between Asia and Europe,[51] or on the divergence between Anglo and Latin America.[52] Williamson himself offers a variation on this theme with his new terms-of-trade narrative, as he seeks to explain the divergence between industrialising Europe and the deindustrialising poor periphery, ignoring the prosperous European offshoots in Australasia and North America. Why they are excluded can be seen by considering some of the implications of these regions for Williamson's narrative; taking them into account begs a series of questions: Given that the European offshoots prospered while exporting primary commodities, why were they not afflicted by the same resource curse of rent-seeking elites as the poor periphery? Why were they able to industrialise (to varying degrees), even as the land-scarce periphery experienced deindustrialisation? Chapter 3 will seek to answer these questions by elaborating a new metanarrative to understand both of the great nineteenth-century divergences.

To explain the rise of the land-abundant European offshoots, Chapter 3 draws on some lessons from North America's historiography. In land-abundant regions, it argues, the long boom *allowed frontiers to expand* by making it profitable to bring new land into production. This expanding frontier then acted as a 'safety valve' that stopped labour markets from becoming saturated, so wages could remain high despite the arrival of millions of immigrants. In North American social thought observations of this safety-valve effect have a long tradition. It is most often associated with Frederick Jackson Turner's late nineteenth-century 'frontier thesis',[53]

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50. Williamson, *Trade and Poverty*, ch. 6.
51. Notable examples are A.G. Frank, *ReOrient: Global Economy in the Asian Age*, Berkeley, 1998; and K. Pomeranz, *The Great Divergence: China, Europe, and the Making of the Modern World Economy*, Princeton, 2000.
52. Most notably, S.L. Engerman and K.L. Sokoloff, *Economic Development in the Americas since 1500: Endowments and Institutions*, Cambridge, 2012.
53. F.J. Turner, *The Frontier in American History*, New York, 1920, esp. pp. 259-60, 280.

although it can really be traced back to at least the eighteenth century.[54] Initially it was believed that the expanding frontier prevented social unrest, then economists claimed that it kept wages high by permitting labour to move to the West, in that way preventing more easterly labour markets from becoming saturated. Subsequent debates revolved around the question of whether labourers could have afforded to move westward to take up farming,[55] and whether they did in fact move.[56] The more fundamental point, however, is that it did not matter *who* moved, as long as the frontier was providing enough opportunities to keep draining labour from the East. As Ellen von Nardroff explained in an important statement of the safety-valve concept, '[t]he safety valve effect did not necessarily depend upon Eastern laborers going West to farms. [...] [I]t makes little difference', she continued, 'if any specified group went West to do any one particular thing as long as somebody went West to do something which increased their productivity in relation to what it would have been in the East and if a high wage level were maintained as a result'.[57]

It was this safety-valve effect of the expanding frontier, Chapter 3 continues, that distinguished the European offshoots from the land-scarce regions of the world, which were afflicted by what Arthur Lewis called 'unlimited supplies of labour'.[58] The two types of region, land abundant and land scarce, could therefore take quite different developmental paths. As von Nardroff explained for the United States:

> The effect of the frontier on the supply of labor to industry was due to the factor that has been most obvious all along; namely, that the agricultural sector was expanding physically. [...] [T]his is something of an anomaly in economic development. Both in Europe and in the typical underdeveloped country today, initial industrial development was and is based on exploitation of an agricultural labor surplus, meaning

54. H.N. Smith, *Virgin Land: The American West as Symbol and Myth*, Cambridge, MA, 1950, ch. 20.
55. C.H. Danhof, 'Farm-Making Costs and the 'Safety Valve': 1850-60', *Journal of Political Economy*, 49:3, 1941; R.E. Ankli, 'Farm-Making Costs in the 1850s', *Agricultural History*, 48:1, 1974; and J. Atack, 'Farm and Farm-Making Costs Revisited', *Agricultural History*, 56:4, 1982.
56. J.W. Adams and A.B. Kasakoff, 'Wealth and Migration in Massachusetts and Maine: 1771–1798', *Journal of Economic History*, 45:2, 1985, pp. 363-68; J.P. Ferrie, 'Migration to the Frontier in Mid-Nineteenth Century America: A Re-examination of Turner's Safety Valve', unpublished paper, 1997, available online at http://faculty.wcas.northwestern.edu/~fe2r/papers/munich.pdf (accessed 19 November 2013); and J.I. Stewart, 'Migration to the Agricultural Frontier and Wealth Accumulation, 1860–1870', *Explorations in Economic History*, 43:4, 2006.
57. E. von Nardroff, 'The American Frontier as a Safety Valve: The Life, Death, Reincarnation, and Justification of a Theory', *Agricultural History*, 36:3, 1962, pp. 135-36; for the same point, see H.J. Habakkuk, *American and British Technology in the Nineteenth Century: The Search for Labour-Saving Inventions*, Cambridge, 1962, pp. 11-12, fn. 2.
58. W.A. Lewis, 'Economic Development with Unlimited Supplies of Labour', *Manchester School*, 22:2, 1954.

> that the marginal productivity of labor in agriculture is or is approaching zero, that labor already engaged in agriculture may be withdrawn without reducing the total product of the sector significantly, and that the supply of labor to industry, for a time, at least, is infinitely elastic at subsistence wages. No such state of affairs ever existed in this country [...]. As a result, American industry was relatively capital intensive from the start and continues to be so.[59]

This exceptionalism allowed the European offshoots to prosper, as the safety-valve effect of the expanding frontier provided the bridge that turned the *extensive* (that is, aggregate) growth predicted by staple theory into *intensive* (that is, per capita) growth.[60] As John Habakkuk famously argued, high wages meant that North American capitalists tried to reduce labour costs by investing in machinery and equipment.[61] For this reason, North American industry became highly mechanised, raising levels of labour productivity and, consequently, per capita incomes.[62]

Chapter 3 contends that where land was scarce, by contrast, the long boom produced quite opposite tendencies. As industry concentrated in the North Atlantic

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59. Von Nardroff, 'American Frontier', pp. 138-39.
60. Many have missed the point that staple theory *does not predict intensive growth*. On its own, it merely predicts that the expansion of export staples will trigger the growth of non-export sectors through a variety of 'linkages', which lead to 'diversification around an export base'. Watkins, 'Staple Theory', p. 144. Hence, 'backward linkages' encourage the domestic production of goods used in the production of staples; 'forward linkages' promote secondary industries that process them; 'final-demand linkages' stimulate the production of goods for the consumption of those engaged in staple production; and 'fiscal linkages' derive from governments spending the revenues that come from growth. See ibid., p. 145; idem, 'Staples Redux', p. 118; and Hirschman, 'Generalized Linkage Approach', pp. 72-80. What staple theorists do not do, by their own admission, is provide a theory of per capita growth. See J.H. Dales, J.C. McManus, and M.H. Watkins, 'Primary Products and Economic Growth: A Comment', *Journal of Political Economy*, 75:6, 1967.
61. On this connection, see Habakkuk, *American and British Technology*, esp. ch. 3. Given its importance to this dissertation, Habakkuk's hypothesis should be defended from its main criticism, which is that the nominal value of capital per worker was perhaps 25 percent higher in Britain than in the United States in 1860, thereby indicating that Britain was actually more capital intensive, even though it had a low land-labour ratio. A.J. Field, 'On the Unimportance of Machinery', *Explorations in Economic History*, 22:4, 1985, p. 394, Table 5. While generally accepted, this critique suffers from a major empirical failing, in that it does not take into account the lower prices of capital goods in the United States. Hence, one highly approximate estimate suggests that in 1870-74 they were 83 percent more expensive in Britain than in the United States. W.J. Collins and J.G. Williamson, 'Capital-Goods Prices and Investment, 1870-1950', *Journal of Economic History*, 61:1, 2001, p. 67, Table 2. If the price difference was the same in 1860, it would indicate that, in 'real' terms, the capital stock per worker in the United States was in fact 46 percent higher than in Britain. A confirmation of this comes from extrapolations back from post-Second World War estimates of the capital stock per worker at purchasing power parity, which show the US level at 20 percent above the British level in 1870. A. Maddison, *Phases of Capitalist Development*, Oxford, 1982, p. 54, Table 3.5.
62. On the close relationship between 'capital intensity' and GDP per capita, see R.C. Allen, 'Technology and the Great Divergence: Global Economic Development since 1820', *Explorations in Economic History*, 49:1, 2012.

core due to the head start given it by the industrial revolution,[63] its ever-cheaper manufactures undermined the periphery's (import-competing) cottage industries, which also saw the cost of their (exportable) raw materials go up due to the improved terms of trade. Deindustrialisation then depressed living standards because, following Lewis' logic, diminishing returns set in when more labour was applied to a more or less fixed supply of land.[64] Massive underemployment resulted, leading to the situation described above by von Nardroff as that of the 'typical underdeveloped country'. In Lewis' words:

> [A]n unlimited supply of labour may be said to exist in those countries where population is so large relatively to capital and natural resources, that there are large sectors of the economy where the marginal productivity of labour is negligible, zero, or even negative. Several writers have drawn attention to the existence of such 'disguised' unemployment in the agricultural sector, demonstrating in each case that the family holding is so small that if some members of the family obtained other employment the remaining members could cultivate the holding just as well [...]. The phenomenon is not, however, by any means confined to the countryside. Another large sector to which it applies is the whole range of casual jobs – the workers on the docks, the young men who rush forward asking to carry your bag as you appear, the jobbing gardener, and the like. These occupations usually have a multiple of the number they need, each of them earning very small sums from occasional employment; frequently their number could be halved without reducing output in this sector.[65]

The growth in this pool of surplus labour due to deindustrialisation therefore reduced average productivity levels by increasing the rate of underemployment.

In a nutshell, then, the metanarrative presented in Chapter 3 is that the long boom had hugely uneven impacts on different regions, depending upon their endowments of land and labour. Where land was abundant it allowed frontiers to expand,

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63. The possible logic of this agglomeration is outlined in P. Krugman and A.J. Venables, 'Globalization and the Inequality of Nations', *Quarterly Journal of Economics*, 110:4, 1995; also see M. Fujita, P.R. Krugman, and A.J. Venables, *The Spatial Economy: Cities, Regions and International Trade*, Cambridge, MA, 1999, chs. 14-17. For a notable, although not entirely satisfactory, attempt to apply Krugman and Venables' model to history, see N. Crafts and A. Venables, 'Globalization in History: A Geographical Perspective', in M.D. Bordo, A.M. Taylor, and J.G. Williamson, eds., *Globalization in Historical Perspective*, Chicago, 2003, pp. 331-36.
64. Lewis, 'Economic Development', pp. 140-55. Lewis was inspired in turn by Ricardo, who drew on Malthus. D. Ricardo, *On the Principles of Political Economy and Taxation*, 3rd ed., London, 1821, ch. 5, in P. Sraffa, ed., *The Works and Correspondence of David Ricardo*, I, Indianapolis, (1951) 2004. Lewis' updating of this 'classical' model would be criticised by 'neo-classical' economists, but none of their criticisms have been entirely convincing. See G. Ranis, 'Is Dualism Worth Revisiting?', in A. Janvry and R. Kanbur, eds., *Poverty, Inequality and Development: Essays in Honor of Erik Thorbecke*, I, *Economic Studies in Inequality, Social Exclusion and Well-Being*, New York, 2006, pp. 371-85.
65. Lewis, 'Economic Development', p. 141.

which then acted as a safety valve that prevented labour markets from becoming saturated despite rapid population growth. High wages then made capitalists invest in labour-saving technologies, which raised average productivity levels. The long boom accordingly turned the European offshoots into the world's richest countries, even as in the land-scarce periphery it had quite opposite effects. Outside the North Atlantic core, where industry was agglomerating, improved terms of trade brought deindustrialisation by depressing the prices of manufactures and driving up the costs of raw materials, thereby decreasing opportunities for employment outside of agriculture. More labour was then applied to limited supplies of land, leading to the diminishing returns that depressed average productivity levels. In this way, the metanarrative outlined in Chapter 3 explains how the long boom allowed land-abundant regions to prosper, while making land-scarce regions outside the North Atlantic core stagnate.

From Disorder to Order

This new framework for understanding global divergence is applied to Argentina in Chapter 4. The chapter's most important empirical contribution is to show that there was a massive improvement in Argentina's terms of trade from independence up to the First World War. In finding this, the chapter corrects a major methodological error in the existing literature: historians have mainly looked at *absolute* rather than *relative* prices, often drawing them, moreover, from the core countries, rather than from Argentina itself. Tulio Halperín Donghi, in particular, pioneered this error in two classic essays on Argentina's pastoral expansion in the first half of the nineteenth century.[66] By examining the nominal prices of River Plate hides and tallow in Britain, he found that they rose somewhat after independence, but then experienced a 'slow but very prolonged fall' from the mid-1830s onward,[67] precisely as hide and tallow exports from Buenos Aires took off. This led Halperín Donghi to conclude that the pastoral expansion was *not* due to price incentives because, as he put it, his numbers 'perfectly demonstrate the economic climate in which pastoral production occurred in the whole River Plate area (and, for that reason, also in the countryside of Buenos

66. T. Halperín Donghi, 'La expansión ganadera en la campaña de Buenos Aires (1810-1852)', *Desarrollo Económico*, 3:1/2, 1963; and idem, 'La expansión de la frontera de Buenos Aires (1810-1852)', in A. Jara, ed., *Tierras nuevas: Expansión territorial y ocupación del suelo en América (siglos xvi-xix)*, México, DF, 1969.
67. Halperín Donghi, 'Expansión de la frontera', p. 82, author's translation.

Aires); [it was] a production that did not receive its stimulus, nor see its momentum hampered, by movements in prices'.[68] Following Halperín Donghi, research has tended to focus on why the expansion occurred *despite* falling prices.[69] In the words of one major survey, the problem became to 'explain the paradox posited by Halperín Donghi more than thirty years ago: the great boom in the ranching economy was achieved during a time of declining export prices'.[70] Even those, moreover, who have correctly observed that improved terms of trade did provide price incentives for the expansion have seriously underestimated the extent of the boom because they have used the same type of 'proxy' estimates as Williamson, which have a downward bias in the trend.[71] This leads them, for instance, to see a four percent deterioration in the terms of trade from 1820 to 1860,[72] whereas the new estimates presented in Chapter 4 suggest a roughly 100 percent improvement, while they indicate that over the course of the long nineteenth century – from the 1780s to the 1900s – *they probably improved by over 2,000 percent*. Once Argentina's terms of trade are measured more accurately, therefore, a massive and persistent boom can be seen, so Halperín Donghi's paradox disappears.

Having demonstrated the magnitude of Argentina's long terms-of-trade boom, Chapter 4 then analyses how it reordered the River Plate, shaping the political economy of the emerging nation. In doing so, it argues against a traditional narrative that sees the country's political backwardness as a remnant of a more or less distant past. Domingo Sarmiento, Argentina's president during 1868-74, famously expressed the liberal form of this narrative in terms of the conflict between 'civilisation' and 'barbarism';[73] Marxists would later use the terms 'feudalism' and 'capitalism';[74]

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68. Halperín Donghi, 'La expansión ganadera', p. 61, author's translation.
69. The most important work to build on Halperín Donghi are H. Sabato, *Agrarian Capitalism and the World Market: Buenos Aires in the Pastoral Age, 1840-1890*, Albuquerque, 1990; and S. Amaral, *The Rise of Capitalism on the Pampas: The Estancias of Buenos Aires, 1785-1870*, Cambridge, 1998.
70. R. Salvatore and C. Newland, 'Between Independence and the Golden Age: The Early Argentine Economy', in della Paolera and Taylor, eds., *A New Economic History*, p. 22.
71. See C. Newland, 'Exports and Terms of Trade in Argentina, 1811-1870', *Bulletin of Latin American Research*, 17:3, 1998; C. Newland and J. Ortíz, 'The Economic Consequences of Argentine Independence', *Cuadernos de Economía*, 38:115, 2001; and Salvatore and Newland, 'Between Independence'.
72. Salvatore and Newland, 'Between Independence', p. 28, Table 2.1.
73. D. Sarmiento, *Facundo: Civilisation and Barbarism*, Berkeley, (1845) 2003; also see N. Shumway, *The Invention of Argentina*, Berkeley, 1991, chs. 5-6.
74. On the long debate about these categories among Latin American(ist) Marxists, see S.J. Stern, 'Feudalism, Capitalism, and the World-System in the Perspective of Latin America and the

modernisation theorists preferred 'tradition' and 'modernity';[75] more recently, 'neo-institutionalists' have revived this dualism with the contrast between good and bad institutions, with the latter being seen as a legacy of Spanish colonialism.[76] Hence, in their discussion of Argentina Daron Acemoglu and Simon Robinson claim that the country's political backwardness was due to the (bad) 'extractive' institutions established by the Spanish to exploit the natives in the interior's more densely populated regions, which negated the (good) 'inclusive' institutions that would later form in Buenos Aires.[77] They write:

> At the time of the conquest of the Americas by the Spanish, [La Rioja, a western interior province,] was an outlying part of the Inca Empire and had a dense population of indigenous people. The Spanish created encomiendas here, and a highly extractive economy developed growing food and breeding mules for the miners in Potosí to the north. In fact, La Rioja was much more like the area of Potosí in Peru and Bolivia than it was like Buenos Aires. In the nineteenth century, La Rioja produced the famous warlord Facundo Quiroga, who ruled the area lawlessly and marched his army on Buenos Aires. The story about the development of Argentine political institutions is a story about how the interior provinces, such as La Rioja, reached agreements with Buenos Aires. These agreements were a truce: the warlords of La Rioja agreed to leave Buenos Aires alone so that it could make money. In return, the Buenos Aires elites gave up on reforming the institutions of 'the interior'. So Argentina at best appears a world apart from Peru or Bolivia, but it is really not so different once you leave the elegant boulevards of Buenos Aires. That the preferences and the politics of the interior got embedded into Argentine institutions is the reason why the country has experienced a very similar institutional path to those of other extractive Latin American countries.[78]

In this latest version of the dualist analysis, then, Argentina's political backwardness was a result of the institutional legacies of colonialism in the interior.

The problem with the neo-institutionalist account of Argentina's (and the periphery as a whole's) institutional development is that it ignores several centuries of history.[79] The principal debate among neo-institutionalists is why colonialism left

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Caribbean', *American Historical Review*, 93:4, 1988.

75. The classic analysis is G. Germani, *Política y sociedad en una epoca de transición: De la sociedad tradicional a la sociedad de masas*, 4th ed., Buenos Aires, 1971; for background, see Valenzuela and Valenzuela, 'Modernization and Dependency', pp. 537-43.
76. For critical overviews of this literature, see H-J. Chang, 'Understanding the Relationship between Institutions and Economic Development: Some Key Theoretical Issues', in idem, ed., *Institutional Change and Economic Development*, New York, 2007; and L. Bértola, 'Institutions and the Historical Roots of Latin American Divergence', in J.A. Ocampo and J. Ros, eds, *The Oxford Handbook of Latin American Economics*, Oxford, 2011, pp. 32-47.
77. D. Acemoglu and J.A. Robinson, *Why Nations Fail: The Origins of Power, Prosperity, and Poverty*, London, 2012, pp. 383-88.
78. Ibid., pp. 386-87.
79. Cf. G. Austin, 'The 'Reversal of Fortune' Thesis and the Compression of History: Perspectives from African and Comparative Economic History', *Journal of International Development*, 20:8,

some countries with good, and other countries with bad, institutions, with particular attention given to the contrasts between Anglo and Spanish America. Some neo-institutionalists believe that institutional differences resulted from the nature of the colonies' mother countries in Europe;[80] others, like Acemoglu and Robinson, argue that the differences evolved in response to the resources and environmental conditions that colonists found when they arrived.[81] What all tend to underplay is everything that has happened since the colonial era, as if institutions had been fixed for all time. In this, they repeat the mistake of previous dualist literatures, which, in the words of Andre Gunder Frank, ignored how 'the contemporary underdeveloped institutions of the so-called backward or feudal domestic areas of an underdeveloped country are no less the product of the single historical process of capitalist development than are the so-called capitalist institutions of the supposedly more progressive areas'.[82] While the vocabulary has changed, including in Frank's later works,[83] the basic problem with dualist theories remain, as the neo-institutionalists seek to project the origins of backwardness into the distant colonial past, ignoring the ways in which it has evolved through the process of what Frank called the 'development of underdevelopment'.[84]

Following Frank's lead, Chapter 4 traces the origins of Argentina's political backwardness not to the colonial era, but to its integration into global capitalism. It is

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80. D.C. North, W. Summerhill, and B.R. Weingast, 'Order, Disorder and Economic Change: Latin America Versus North America', in B. Buenos de Mesquita and H.L. Root, eds., *Governing for Prosperity*, New Haven, 2000.
81. S.L. Engerman and K.L. Sokoloff, 'Factor Endowments, Institutions, and Differential Paths of Growth among New World Economies', in S.H. Haber, ed., *How Latin America Fell Behind: Essays in the Economic Histories of Brazil and Mexico, 1800-1914*, Stanford, 1997; and idem, *Economic Development*; D. Acemoglu, S. Johnson, and J.A. Robinson, 'The Colonial Origins of Comparative Development: An Empirical Investigation', *American Economic Review,* 91:5, 2001; idem., 'Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution', *Quarterly Journal of Economics,* 117:4, 2002; idem., 'The Rise of Europe: Atlantic Trade, Institutional Change, and Economic Growth', *American Economic Review,* 95:3, 2005; and Acemoglu and Robinson, *Why Nations Fail*, esp. Ch. 1.
82. A.G. Frank, *Latin America: Underdevelopment or Revolution: Essays on the Development of Underdevelopment and the Immediate Enemy*, New York, 1969, p. 5.
83. On Frank's struggles with the term 'capitalism', see A.G. Frank, 'Transitional Ideological Modes: Feudalism, Capitalism, Socialism', in idem and B.K. Gills, eds., *The World System: Five Hundred Years or Five Thousand?*, London, 1993.
84. Frank, *Latin America*, ch. 1. Frank's critique of the dualist literature has been somewhat revived by J.H. Coatsworth, 'Structures, Endowments, and Institutions in the Economic History of Latin America', *Latin American Research Review*, 40:3, 2005, esp. pp. 135-36, 139-40; also see idem, 'Inequality, Institutions and Economic Growth in Latin America', *Journal of Latin American Studies*, 40:3, 2008. Some of the key evidence that Coatsworth musters against the neo-institutionalists, his GDP per capita statistics, is, however, extremely dubious, as will be shown for Argentina in Appendix 1.1, page 53.

contended that *within* Argentina the long boom allowed land-abundant regions to prosper, even as it brought stagnation to the interior regions, which were relatively land-scarce and/or landlocked.[85] It is, then, essential to take into account the uneven impacts of improved terms of trade on Argentina's different regions, as they shaped not only the famous 'European Argentina' that centred on Buenos Aires, but also the 'other Argentina' that surrounded it.[86] This unevenness was central to Argentina's development, Chapter 4 argues, because the state was substantially built by the interior's ruling classes, who sought a strong federal government to buttress themselves against the discontent of their peasantries, who were losing out from the long boom. The possibilities for the kind of white-egalitarian democracy that was being pioneered in the prosperous European offshoots were thus limited in Argentina because it lacked the social consensus that facilitated democratisation in those countries. Pace the neo-institutionalist focus on the colonial era, therefore, Chapter 4 identifies the country's integration into the global(ising) capitalist order as generating institutional backwardness because the losers from the long boom – the interior's peasantries – had to be excluded from politics.

In making this analysis, Chapter 4 builds on Miron Burgin's classic account of why a unified state was unable to form in Argentina during the first half of the nineteenth century.[87] Burgin claimed that improved terms of trade drove the civil conflicts that followed independence. 'There was', Burgin wrote, 'a considerable decrease in import prices and a simultaneous appreciation in the value of commodities destined for overseas markets'. This triggered a great expansion in exports because '[f]or the first time the country was in a position to make full and open use of the vast cattle resources which had accumulated in the past two centuries' since Europeans first introduced livestock to the region.[88] Yet, Burgin observed, this expan-

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85. It is impossible to adequately quantify exactly how land-scarce the interior was without further studies of Argentina's regional land resources and better estimates of historical populations. At the beginning of the long nineteenth century the North and West probably had similar land-labour ratios as Bolivia and other Andean countries, which, while more land-abundant than most of Eurasia, were far less land-abundant than Australasia, North America, or, indeed, Argentina's Pampean zone.
86. The classic analysis of this fan-like structure is in A. Bunge, *Una nueva Argentina*, Madrid, (1940) 1984, ch. 10. The most complete account of Argentina's interior in the twentieth century is L. Sawers, *The Other Argentina: The Interior and National Development*, Oxford, 1996.
87. M. Burgin, *The Economic Aspects of Argentine Federalism 1820-1852*, Cambridge, MA, 1946, esp. ch. 1.
88. Burgin, *Economic Aspects*, p. 11.

sion was overwhelmingly confined to the Littoral region due to the high costs of internal transportation from the landlocked interior to the coast, which prevented the interior's goods from being exported overseas. Furthermore, a 'flood of [imported] commodities [...] soon swamped the country'; textiles, in particular, were much cheaper to transport overland, so they could compete with the interior's cottage industry, which was soon 'faced with ruin'.[89] Federalists in the interior as a result insisted on a loose confederation of the River Plate provinces, in order to 'protect their industries and agriculture against the encroachments from abroad' through 'special tariffs, transit duties, differential taxation, and direct economic legislation',[90] all of which would have been difficult within a unified state.[91]

Chapter 4 builds on Burgin's analysis by examining the formation of a unified Argentine state in the second half of the nineteenth century, after Burgin's narrative ends. The key event that facilitated state formation, it argues, was the outward turn in what Peter Cain and Anthony Hopkins have called Britain's 'gentlemanly capitalism'.[92] When British arable farming was undermined by the increased supply of grain from the European offshoots, the British landed gentry responded by fusing with the financial sector of the City of London, giving rise to a new class of 'gentlemanly investors' who focused on financing infrastructure projects abroad. The

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89. Ibid., p. 16.
90. Ibid., pp. 16-17, also pp. 134-36.
91. Subsequent research on the effects of trade liberalisation on the interior's industry has added nuance to this picture, but without fundamentally altering it. Hence, it has been found that the cottage industries survived until the second half of the nineteenth century, but in a diminished form, which is largely in line with Burgin's analysis. See T. Halperín Donghi, *Politics, Economics and Society in Argentina in the Revolutionary Period*, Cambridge, 1975, pp. 89-91; C.S. Assadourian, *El sistema de la economía colonial: Mercado interno, regiones y espacio económico*, Lima, 1982, pp. 253-65; J.C. Garavaglia and C. Wentzel, 'Un nuevo aporte a la historia del textil colonial: Los ponchos frente al mercado porteño, 1750-1850', *Anuario IEHS*, 4, 1989; S. Palomeque, 'Los esteros de Santiago: Acceso a los recursos y participación mercantil: Santiago del Estero en la primera mitad del siglo XIX', *Data: Revista del Instituto de Estudios Andinos y Amazónicos*, 2, 1992, pp. 40-43; S. Romano, *Economía, sociedad y poder en Córdoba: Primera mitad del siglo XIX*, Córdoba, 2002, pp. 123-26, 162-65; and, for a useful overview, M. Llorca-Jaña, *The British Textile Trade in South America in the Nineteenth Century*, Cambridge, 2012, pp. 257-70. For a recent attempt to assess the divergence between the Littoral and the interior after independence, see J. Gelman and D. Santilli, 'Crecimiento económico, divergencia regional y distribución de la riqueza: Córdoba y Buenos Aires después de la independencia', *Latin American Research Review*, 45:1, 2010.
92. P.J. Cain and A.G. Hopkins, *British Imperialism 1688-2000*, 2nd ed., Harlow, 2002, esp. chs 1-3. For the debates that this work has inspired, see A. Webster, *The Debate on the Rise of British Imperialism*, Manchester, 2006, ch. 7. It should be stressed that Cain and Hopkins' analysis of British imperialism is in many ways a vindication and update of J.A. Hobson, *Imperialism: A Study*, New York, 1902.

land-abundant countries received the bulk of British capital exports because they required railways to expand their frontiers, and, more importantly, they could service substantial foreign investments due to their booming export sectors. In Argentina a British-financed railway network then augmented the national army's capacity to put down rebellions in the provinces, while the railways also gave the provincial ruling classes the opportunity to profit from the long boom for the first time, as drastically reduced internal transportation costs meant they could send their agricultural products to the Littoral, either for export or domestic consumption. For this reason, the interests of the ruling classes of the Littoral and the interior began to converge, eventually leading to a considerable integration between the two in terms of their family and social networks.[93]

From this perspective, then, state formation in Argentina was a highly conflictual process that was contingent upon developments in the North Atlantic core. It was not, as Oscar Oszlak implied in a highly influential study, a case of a Leviathan inevitably expanding outward from Buenos Aires.[94] Rather, the state was as much pulled into the interior as it was pushed out from the Littoral. In making this argument, Chapter 4 draws on Ariel de la Fuente's study of La Rioja Province, in which he found that establishing a strong federal government appealed to those elements of the provincial ruling classes that had traditionally depended upon the support of the Spanish authorities, whereas Federalist strongmen (caudillos), such as Facundo Quiroga, became prominent after independence because they could draw on the support of the rural poor. As de la Fuente puts it:

> The limitations of the provincial state selectively impacted different sectors of the local elite, and hence, affected their political affiliations. A federal system of government that assured the political autonomy of the province was the best alternative for the caudillos, who thanks to their ability to mobilize clients, had the capacity to practice politics at the local level. But other sectors of the elite without cliental – and so, little opportunity to compete for political power at the local level –

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93. The crucial role of the railways in this process has been identified by W. Ansaldi, 'Notas sobre la formación de la burguesía argentina, 1780-1880', in E. Florescano, ed., *Origenes y desarrollo de la burguesía en América Latina, 1700-1955*, México, 1985, pp. 550-52. The most important study of the subsequent changes in the interior's ruling classes remains J. Balán, 'Una cuestión regional en la Argentina: Burguesías provinciales y el mercado nacional en el desarrollo agroexportador', *Desarrollo Económico*, 18:69, 1978. For a synthesis of the subsequent literature, see L. Losada, *Historia de la élites en la Argentina: Desde la Conquista hasta el surgimiento del peronismo*, Buenos Aires, 2009, pp. 146-52.
94. O. Oszlak, *La formación del estado argentino: Orden, progreso y organización nacional*, Buenos Aires, 1997, esp. pp. 272-75.

> were in favor of a centralized system with a strong state presence at the local level. *When seen from the interior of the country, the centralization of power was not only a consequence of the policies implemented by the national state; it was also actively sought by certain sectors of the provincial elites.* In the conflict between Unitarians and Federalists, then, two political projects were contested, with important ramifications for different sectors of the provincial elites. *And it was the weakness of the provincial state apparatus (and initially, the national one as well) that gave the lower classes a decisive role in the political struggle, forcing the elites to cultivate a cliental.*[95]

This, then, is starkly different to the liberal interpretation of Argentina's political development, which, as seen above, has viewed the Federalist strongmen as relics of Spanish colonialism. According to de la Fuente's findings, they were in fact a reflection of the at least partial democratisation that had occurred after independence, whereas a unified state appealed precisely to those elements of the provincial ruling classes that had little popular support, which made it necessary for them to turn to some external force, such as the federal government. It was for this reason that the state was substantially built under the hegemony of the PAN, an alliance of representatives of the provincial ruling classes, as they sought a stronger federal government that would allow them to reconquer the societies that they had ruled over during the colonial era. That reconquest could only occur, however, once British capital had begun to finance the infrastructure that the federal government required to exercise its authority across its territory. Argentina's political backwardness – that is, its oligarchic state – thus came from its integration into global capitalism.

In making this analysis, Chapter 4 presents a far less charitable interpretation of the PAN than has appeared in much of the recent literature. Some have interpreted the PAN's promotion of railways in the interior as representing a kind of developmentalism for Argentina's most backwards regions.[96] Here, on the other hand, it is maintained that the railways were principally used to reconquer the interior's peasant societies, at the same time as they permitted the provincial ruling classes to profit from the long boom. What is more, the chapter shows how the material bases of

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95. A. de la Fuente, *Children of Facundo: Caudillo and Gaucho Insurgency During the Argentine State-Formation Process (La Rioja, 1853-1870)*, Durham, NC, 2000, p. 188, emphasis added.
96. L. Llach, 'The Wealth of the Provinces: The Rise and Fall of the Interior in the Political Economy of Argentina, 1880-1910', PhD diss., Harvard University, 2007; and P. Gerchunoff, F. Rocchi, and G. Rossi, *Desorden y progreso: Las crisis económicas argentinas, 1870-1905*, Buenos Aires, 2008, chs. 1-2. Much of the inspiration for this literature can be found in T. Duncan, 'La política fiscal durante el gobierno de Juárez Celman, 1886-1890: Una audaz estrategia', *Desarrollo Económico*, 23:89, 1983.

these peasant societies were undermined by the railways because reduced costs of internal transportation meant that cottage textile production was displaced by imported yarn and cloth. Ferrer recognised this some time ago:

> Although the formation of a national market created development possibilities in certain provinces in lines of production oriented toward that market, it meant the final subordination of the interior. The railroads, which speeded up communication and ended the isolation of many regions of Argentina, were the crucial factor. From 1857 to 1914, the railroad grid lengthened from 10 kilometers to 33,500 kilometers. Except for Patagonia, all the interior provinces were connected by railroad with Buenos Aires and the Litoral ports. For the first time in Argentina's history, geographical distance ceased to protect the various economic regions. Imports easily reached the interior, and their competition dealt a death blow to the shaky local industries. For example, the production of cloth succumbed completely to imported textiles.[97]

Chapter 4 reinforces Ferrer's vision with the numbers that were often lacking in his own account – as one critic incredulously noted, 'Ferrer managed to write an economic history of Argentina without including a single statistical table'.[98] Census data on occupations are used to demonstrate just how substantial deindustrialisation was, with a dramatic decline in textile employment clearly shown. The new industries that did emerge, moreover, did not provide sufficient employment to compensate for the loss of the cottage industries, while access to the land was limited by the highly concentrated pattern of landownership, combined with the racism that prevented the interior's largely mixed-race population from becoming tenants in the Pampean zone. Increasing underemployment then resulted from the saturation of the interior's labour markets, putting downward pressure on wages.

Argentina's oligarchic state would also leave its mark on the development of the country's land-abundant regions. As Miguel Angel Cárcano described in his classic study, under the PAN public lands were privatised in a way that encouraged the concentration of landownership.[99] Carmen Sesto's subsequent research then revealed the extent to which members of the PAN used laws that were ostensibly designed to redistribute land to actually appropriate it themselves.[100] Hilda Sabato's data for

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97. Ferrer, *Argentine Economy*, p. 129.
98. Haber, 'Introduction: Economic Growth', p. 8.
99. M.A. Cárcano, *Evolución histórica del régimen de la tierra pública 1810-1916*, 3rd ed., Buenos Aires, 1972.
100. C. Sesto, 'Implementación de la política estatal ganadera en la Provincia de Buenos Aires', *Investigaciones y Ensayos*, 32, 1982.

Buenos Aires, which are used in Chapter 4, indicate that landownership accordingly became more concentrated,[101] despite optimists' claims to the contrary.[102] Restricted access to the land then made it difficult to become a smallholder, while immigrants also found it more difficult to become tenants as their numbers swelled.[103] As Ferrer again recognised, this meant that the frontier did not act as a safety valve for labour markets:

> With no farmland available, the immigrant was obliged to work as a tenant farmer or as a field hand and to accept low wages. The profits, interests, and rent generated by rural output were concentrated in the hands of a small proportion of the population. [...]
>
> Furthermore, land concentration also affected the remuneration of labor in urban activities: first, by swelling the supply of manpower for urban employment, which kept wages down; and second, by establishing poor pay for alternative activities in agriculture. The pressure of cheap manpower in urban centers was reflected in the large ratio of unemployment. [...] Thus, land concentration was the decisive factor in the level of remuneration of labor in agricultural and urban activities and in the share of labor in net income.[104]

Land concentration in this way made Argentina deviate from a European offshoot-style development path by muting the safety-valve effect of the frontier, which reduced the incentives for the kind of mechanised intensive growth that was taking place in the United States.

According to the analysis made in Chapter 4, it was, then, the lack of a white-egalitarian democracy that prevented Argentina's land resources from being as effectively used as in the European offshoots. This was because land abundance was, to a degree, 'socially constructed',[105] as people had to be given easy access to the land for the expanding frontier to have its safety-valve effect on labour markets. In the European offshoots access was given through a variety of white-egalitarian policies, such as the US Homestead Acts, which provided free public land for settlers.[106] In

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101. Sabato, *Agrarian Capitalism*, ch. 2
102. Most importantly, A.M. Taylor, 'Latifundia as Malefactor in Economic Development? Scale, Tenancy, and Agriculture on the Pampas, 1880–1914', *Research in Economic History*, 17, 1997, pp. 274-78.
103. See J. Adelman, *Frontier Development: Land, Labour, and Capital on the Wheatlands of Argentina and Canada*, 1890-1914, Oxford, 1994, ch. 4.
104. Ferrer, *Argentine Economy*, p. 116.
105. Cf. A.P. David and G. Wright, 'Increasing Returns and the Genesis of American Resource Abundance', *Industrial and Corporate Change*, 6:2, 1997; also G. Wright and J. Czelusta, 'Why Economies Slow: The Myth of the Resource Curse', *Challenge*, 47:2, 2004.
106. For a description of this and the various other ways in which settlers accessed the land in the European offshoots, see J.C. Weaver, *Great Land Rush and the Making of the Modern World,*

Argentina, on the other hand, such policies proved far more difficult to implement due to its political backwardness. As a result, Argentina became a land abundant country with widespread landlessness, as the 'floating population' of landless day labourers grew: by the First World War it accounted for around 40 percent of the male working population outside of the capital city.[107] This mass of unskilled workers saturated labour markets, leading to underemployment, which put downward pressure on wages. Consequently, capitalists had fewer incentives to invest in machinery and equipment, so intensive growth was limited.[108] Hence, Chapter 4 concludes, the institutional legacies of Argentina's integration into global capitalism prevented it from fulfilling its potential as a land-abundant country.

The Development Gap

To test this pessimistic revision, Chapter 5 evaluates the common claim that Argentina began the twentieth century as 'one of the richest countries in the world'. The chapter adopts a comparative methodology, as living standards in Argentina prior to the First World War are compared with those of various countries in Northern Europe, its land-abundant offshoots, Southern Europe, and South America. To do so, the chapter looks at 'human development' as a 'process of enlarging people's choices', particularly their capacity to 'lead a long and healthy life, to be educated and to enjoy a decent standard of living', including 'political freedom'.[109] Unlike in other studies that have adopted this approach to living standards, Chapter 5 does not calculate Human Development Indices (HDIs).[110] Instead, it offers a more considered

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1650-1900, Montreal, 2003, chs. 4-7.

107. The term 'floating population' was used by contemporaries. See, for example, A.E. Bunge, *Riqueza y renta de la Argentina: Su distribución y su capacidad contributiva*, Buenos Aires, 1917, p. 278. The most valuable account of this part of the labour force in the Pampean zone remains C. Solberg, 'Farm Workers and the Myth of Export-Led Development in Argentina', *Americas*, 31:2, 1974; also see J. Adelman, 'The Harvest Hand: Wage-Labouring on the Pampas, 1890-1914', in idem, ed., *Essays in Argentine Labour History, 1870-1930*, London, 1992; and idem, *Frontier Development,* pp. 116-30. For the North and West, see J. Balán, 'Migraciones, mano de obra y formación de un proletariado rural en Tucumán, Argentina, 1870-1914', *Demografía y Economía*, 10:2, 1976; D.J. Guy, 'The Rural Working Class in Nineteenth-Century Argentina: Forced Plantation Labor in Tucumán', *Latin American Research Review*, 13:1, 1978; and R.D. Salvatore, 'Labor Control and Discrimination: The Contratista System in Mendoza, Argentina, 1880-1920', *Agricultural History*, 60:3, 1986.
108. Again, see Adelman, *Frontier Development*, ch. 7.
109. UNDP, *Human Development Report*, New York, 1990, p. 10.
110. N.F.R. Crafts, 'The Human Development Index and Changes in Standards of Living: Some Historical Comparisons', *European Review of Economic History*, 1:3, 1997; idem, 'The Human Development Index, 1870-1999', *European Review of Economic History*, 6:3, 2002; P. Astorga,

assessment of indicators of political institutions, public welfare, and the purchasing power of wages, which is a measure of incomes that is more reliable than the historical GDP statistics that other studies use.[111]

The indicators examined in Chapter 5 do not place Argentina among the world's most developed countries. Argentina's political institutions lagged far behind Britain and the European offshoots; in terms of health and education, Argentina was at roughly Southern European levels; and workers' incomes were higher than in Italy or Spain but below the levels of Northern Europe, let alone the European offshoots. Such comparisons hardly suggest, therefore, that Argentina was one of the world's most developed countries. Indeed, precisely for this reason, even those studies that have incorporated dubious GDP statistics into their HDIs have not been kind to Argentina. Nicholas Crafts, for instance, assigned Argentina a HDI in 1913 of 0.51, which was somewhat better than Italy (0.49) and Spain (0.42), but considerably below France and Germany (both 0.61), or Britain and the United States (both 0.64).[112] The conclusions of Chapter 5 should not, then, be entirely surprising, even if the optimists have been slow to absorb the findings of the HDI literature.

In explaining these results, Chapter 5 builds on the analysis presented in the previous chapter, focusing especially on the backwardness of Argentina's political institutions. It follows David Rock, who has shown that the system established by the PAN in the 1870s persisted until the early twentieth century.[113] Rock and his co-author Fernando López-Alves neatly summarise what the system consisted of:

> In the prosperous late 1860s and the early 1870s patronage ties replaced coercion as the chief method of maintaining the control of the national government over the provinces. [...] As the conduits of such patronage from the national government, the provincial governors emerged as critical components of the political system and the office of governor became the object of intense competition. [...] A successful candidate for governor needed to win the support of the military commanders stationed in the region, the provincial legislatures and the *jueces de paz* [magistrates], who controlled elections at the county or municipal level. Once installed in power, governors commonly appointed members of their own families to senior provincial offices and stacked the legislatures with their followers. Such conditions became more pronounced as time passed, particularly in the more undeveloped provinces. [...] When their terms ended, the governors often sought election to the

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A.R. Berges, and V. Fitzgerald, 'The Standard of Living in Latin America During the Twentieth Century', *Economic History Review*, 58:4, 2005; and L. Prados de la Escosura, 'Improving Human Development: A Long-Run View', *Journal of Economic Surveys*, 24:5, 2010.

111. Again, see Appendix 1.1 for the problem with historical GDP statistics.
112. Crafts, 'Human Development Index, 1870-1999', p. 396, Table 2.
113. D. Rock, *State Building and Political Movements in Argentina, 1860-1916*, Stanford, 2002.

> national senate, a body later sarcastically described as 'a haven of rest dedicated to ex-Governors of Provinces'. [... P]rovincial office-holding became a means to amass landed property. It provided a means to influence the choice of railway routes, and in the arid north and west to use irrigation works as instruments of patronage and political pressure.[114]

In much of the country this system remained intact until (at least) the First World War, with only the more developed areas, especially the urban centres, having a more democratic politics, associated particularly with the Radical Civic Union (UCR).[115] Hence, in Paula Alonso's words:

> The UCR was the first national party with a permanent party structure solely sustained by the private resources of its leaders and from public appeals and campaigns. This was only made possible by the existence of a more affluent society whose members could invest in party organization and whose followers could buy and read newspapers and contribute to the campaigns. It cannot be a coincidence that the party's main strongholds were located in the more developed areas of the country, such as the city and Province of Buenos Aires, south of Santa Fe, Córdoba, and Mendoza, areas with higher literacy rates, greater affluence and denser populations.[116]

The PAN's rule can, from the perspective of Chapter 5, be seen as both perpetuating and being perpetuated by Argentina's uneven development, as the low levels of human development that afflicted much of the country, especially low literacy rates and low incomes, prevented democratisation, thus allowing the PAN to maintain its rule, which in turn prevented Argentina from becoming one of the world's most developed countries by restricting access to its substantial land resources.

Numbers, Myths, Metanarratives

In summary, then, the pessimistic revision of Argentina's long nineteenth century is based on the new metanarrative developed in the first half of this dissertation. Chapter 2 argues that some of the issues raised in Williamson's recent work on the

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114. F. López-Alves and D. Rock, 'State-Building and Political Systems in Nineteenth-Century Argentina and Uruguay', *Past & Present*, 167, 2000, pp. 192-93.
115. Also see E. Gallo and S. Sigal, 'La formación de los partidos políticos contemporáneos: La Unión Cívica Radical (1890-1916)', *Desarrollo Económico*, 3:1-2, 1963, pp. 212-22; D. Rock, *Politics in Argentina 1890-1930: The Rise and Fall of Radicalism*, Cambridge, 1973, chs. 1-3.; P. Alonso, *Between Revolution and the Ballot Box: The Origins of the Argentine Radical Party in the 1890s*, Cambridge, 2000, pp. 11, 159-60; and M. Bonaudo, 'Society and Politics: From Social Mobilization to Civic Participation (Santa Fe, 1890-1909)', in J.P. Brennan and O. Pianetto, eds., *Region and Nation: Politics, Economics, and Society in Twentieth Century Argentina*, New York, 2000.
116. Alonso, *Between Revolution*, p. 11.

periphery's terms-of-trade boom are important, but he has undermined his own case by relying upon dubious data. Were better data used, the periphery's boom would appear much longer, of greater magnitude, and more widespread than Williamson supposes. Chapter 3 then goes beyond Williamson by outlining an alternative metanarrative of how this long boom drove global divergence. It contends that the terms-of-trade boom increased global inequality due to its effects on the labour market: in the land-abundant European offshoots it allowed frontiers to expand, which prevented labour markets from becoming saturated, while in the land-scarce periphery deindustrialisation depressed wages because of the diminishing returns that came from applying a greater amount of labour to a more or less fixed supply of land. In this way, the dissertation analyses how global capitalism generated what Frank called the 'development of underdevelopment' through the terms of trade.

The second half of the dissertation then applies this new metanarrative to the case of Argentina. It begins in Chapter 4 with an overview of how a massive terms-of-trade boom reordered the River Plate, shaping Argentina as an emerging nation. The chapter discusses first how the long boom generated disorder due to its uneven impacts on land-scarce and land-abundant regions, then how a new order was established in the second half of the nineteenth century thanks to massive inflows of British investment. The new state would, Chapter 4 argues, be an oligarchic state because the losers from the long boom had to be excluded from politics. Political backwardness then prevented Argentina's from realising its potential, particularly by ensuring that landownership remained highly concentrated. Chapter 5 reinforces that conclusion by comparing living standards in Argentina with those in Europe, its offshoots, and South America. It finds that whether measured in terms of political institutions, public welfare, or national income, Argentina was not among the most developed countries in the world. Consequently, as discussed further in Chapter 6, the conclusion of this dissertation, the starting point of the Argentine morality tale – its 'once upon a time' – is wrong. There is, in other words, no Argentine paradox because the optimistic vision of its 'golden age' is a myth.

Appendix 1.1: Argentina's GDP, 1800-2012

This appendix discusses why Argentina's GDP statistics should not be considered

reliable, and why, for this reason, they will not be used in this dissertation. The appendix begins by discussing the problems with the official GDP statistics during the period 1935-2012, then goes on to outline the problems with the unofficial estimates covering 1800-1935. To understand why this long timespan has been adopted, it is necessary to take into account the way in which historical GDP statistics are constructed. In short, the most common method is to extrapolate back from a more or less recent purchasing-power-parity (PPP) benchmark estimate using volume indices of historical GDP.[117] The problems with twentieth-century GDP statistics matter to historians of the nineteenth century, then, *because they provide the volume indices that are used to estimate nineteenth-century GDP levels*, which means that *any error in the statistics for the twentieth century will also affect the estimate of nineteenth-century GDP levels*. This appendix is therefore intended to contribute to the growing awareness of the problems in the standard methods used to produce historical GDP statistics.[118]

The Official Estimates, 1935-2012

The first official (that is, government-produced) estimates of Argentina's GDP were made by the Central Bank in 1946; they covered the period 1935-45, with 1935 used as their base year. Subsequently, various other estimates would be made, with various base years. Initially they were calculated from census data on the value of output, with price series used to deflate nominal values into 'constant' base-year prices. Interpolations between, and extrapolations from, census-year data then occurred using volume indices constructed from data on output and employment. The resulting 'constant' price GDP series were then reflated using price indices to give series in 'current' prices. Thereafter, the methodology used appears to have shifted away from

117. See, for example, A. Maddison, *The World Economy*, II, *Historical Statistics*, Paris, 2006. This methodology will be further discussed in Chapter 5, pages 208-10.

118. See M. Jerven, 'An Unlevel Playing Field: National Income Estimates and Reciprocal Comparison in Global Economic History', *Journal of Global History*, 7:1, 2012; also K. Fukao, D. Ma, and T. Yuan, 'Real GDP in Pre-War East Asia: A 1934-36 Benchmark Purchasing Power Parity Comparison with the US', *Review of Income and Wealth*, 53:3, 2007. For examples of how some historians have carried on regardless of the problems with their methodology, see J. Bolt and J. Luiten van Zanden, 'The First Update of the Maddison Project: Re-Estimating Growth Before 1820', Maddison-Project Working Paper 4, Groningen Growth and Development Centre, 2013, online at http://www.ggdc.net/maddison/maddison-project/abstract.htm?id=4 (accessed 6 November 2013); and S. Broadberry, 'Accounting for the Great Divergence', Working Paper 184, Economic History Department, London School of Economics, 2013, online at http://eprints.lse.ac.uk/54573/(accessed 11 December 2013).

census data toward using just the volume indices.[119]

Laura Randall's early discussion of the problem of 'lies, damn lies, and Argentine GDP' highlighted the index-number problem in the official estimates.[120] Randall found that five different manufacturing-output indices showed annual trend growth rates ranging from 2.1 percent to 6.1 percent for the period 1943-55,[121] with the differences between them principally due to the choice of base year. From this, she concluded that there was a high degree of arbitrariness in the GDP series commonly used by historians, so the conclusions drawn from them should be considered doubtful. Unfortunately, Randall's warning not to trust Argentine GDP statistics was widely ignored, not least in her own work.[122]

Even more important than the index-number problem highlighted by Randall, however, is that of coverage. In short, Argentine government statisticians have lacked much of the data that would have been necessary to accurately measure production, particularly in the earlier estimates. The result was a major downward bias in the trend of GDP because it tended to be the newest, fastest growing sectors for which data were lacking. Juan Sourrouille described this problem in his history of Argentina's national accounts:

> It is clear [...] that the most reliable data are for censal years and for those sectors for which current production statistics or accounting data are available. Intercensal interpolations for these sectors are especially subject to increasing error over time because they include most of those activities which have been growing and changing most rapidly in Argentina. Each subsequent census has in fact revealed that interpolations of gross product for these sectors have had a systematic downward bias. The most dramatic example of such bias is the series on industrial gross product published prior to the revision of 1964. This series was interpolated using the old index of industrial production constructed from the census of 1943, in which the industries that developed rapidly after World War I1 were very inadequately represented. When the results of the 1953 census became available, it was therefore found that the value of industrial production was 53 percent higher than national accounts estimates. This downward bias appears to have been greatly reduced in later interpolations of manufacturing gross product, for example, the difference between the estimate for 1963 and that contained in the census for this year being

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119. On the history of Argentina's national accounts, see BCRA, *Sistema de cuentas del producto e ingreso de la Argentina*, III, *Series históricas de cuentas nacionales de la Argentina*, Buenos Aires, 1976; J.V. Sourrouille, 'The Development of National Accounts in Argentina', *Review of Income and Wealth*, 22:4, 1976; ECLA, 'Estadísticas de corto plazo de la Argentina', I, 'Cuentas nacionales, industria manufacturera y sector agropecuario pampeano', Documento de Trabajo 28, ECLA Buenos Aires, 1988, pp. 33-141; and R.G. Martínez, 'Recopilación de series históricas del producto y del ingreso', LC/BUE/R.242, ECLA Buenos Aires, 1999, pp. 6-13.
120. Randall, 'Lies, Damn Lies'.
121. Calculated from ibid., p. 143.
122. See L. Randall, *An Economic History of Argentina in the Twentieth Century*, New York, 1978.

> about 7 percent. Differences between national accounts estimates and 1963 census data were, however, greater for the trade and services sectors, because estimates for these sectors are partially based on extrapolations of the labor force, which during the 1950s did not adequately reflect the changes that took place in the relation between output and employment.[123]

More problematic still was the lack of coverage of the informal sector, which did not feature in the censuses, and was only incorporated into the national accounts in the 1990s. For historians, this matters because the informal sector grew faster than the formal sector, thereby introducing a downward bias in the trend of the GDP volume indices that are typically used to estimate historical GDP statistics. Consequently, past GDP levels have been overestimated. This can be illustrated by Adrían Guissarri's application to Argentina of a commonly used methodology to estimate the output of the informal sector. He finds that it grew at an annual trend rate of 5.9 percent during 1930-85, while the formal sector (that is, the unadjusted official GDP estimate) grew by three percent; combined, they show that the overall GDP growth rate was 3.6 percent.[124] The absence of the informal sector thus means that the official statistics underestimate growth. Consequently, when they are used to extrapolate backwards from recent benchmarks they will overestimate past GDP levels. In Figure A1.1 this can be seen, as the official GDP statistics and Guissarri's adjusted series have been used to extrapolate back from Angus Maddison's bench-mark level for 1980, with both series shown as percentages of US GDP per capita. For the thick line, extrapolation was done using the official estimate, whereas for the thin line, Guissarri's adjusted series was used. The difference between them is impressive: the unadjusted series suggests that Argentina's GDP per capita was 60 percent of US GDP per capita in 1930, and that the country then experienced steady

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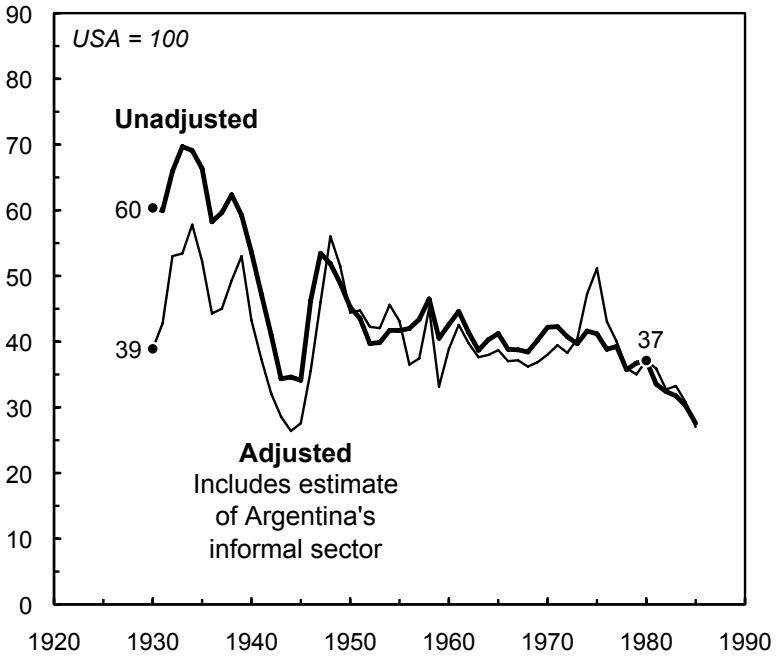
123. Sourrouille, 'Development of National Accounts', pp. 355-56.

124. A. Guissarri, *La Argentina informal: Realidad de la vida económica*, Buenos Aires, 1989, ch. 4, Cuadro 13, available online at http://www.hacer.org/pdf/Arginfo.pdf (accessed 12 November 2013); also see idem, 'La demanda de circulante y la informalidad en la Argentina: 1930-1983', *Cuadernos de economía*, 24:72, 1987. The methodology used by Guissari to estimate the size of the informal sector was developed by V. Tanzi, 'The Underground Economy in the United States: Annual Estimates, 1930-80', *International Monetary Fund Staff Papers*, 30:2, 1983. It is based on the assumption that there is a normal demand for money that is determined by formal activity, the interest rate, and inflation. Regressions are then used to calculate how far the money supply is beyond the level of demand suggested by those indicators, which is then taken as a sign of informal activity. Guissarri also provides an estimate based on electricity usage, which provides a similar result to the monetary method. Guissarri, *Argentina informal*, ch. 4, Cuadro 17. Note that Guissarri extended the official GDP estimate back from 1935 to 1930 using one of the unofficial extensions discussed below.

Figure A1.1

Argentina's Relative GDP Per Capita, 1930-85



Note: The GDP per capita of both Argentina and the United States were calculated by using volume indices to extrapolate from GDP per capita in international dollars in 1980.

Sources: 1980 benchmark GDPs: A. Maddison, *The World Economy in the 20th Century*, Paris, 1988, p. 112, Table A-1. Argentina's formal and informal GDP: Guissarri, *Argentina informal*, ch. 4, Cuadro 13. US GDP and populations: Maddison, *World Economy*, II, pp. 460-61, 463-64, 500-01. For the GDP estimates, see Table DA.1 in the Data Appendix.

relative decline until reaching Maddison's benchmark level of 37 percent in 1980, which is the standard narrative found in much of Argentina's historiography; the adjusted series, by contrast, shows little decline, as it begins at 39 percent in 1930, then falls to the 37 percent benchmark level in 1980. Of course, this begs the question: How much of the country's apparent decline – the so-called Argentine paradox – is simply due to a failure to take into account the growth of the informal sector? Guissarri himself made a similar observation,[125] yet his warning, like those of Randall and Sourrouille, has generally been ignored, since historians have instead preferred to put their faith in the statistics produced by officialdom.

The Unofficial Extensions, 1800-1935

There have been two main attempts to extend the official series back from 1935:

125. Guissarri, *Argentina informal*, ch. 4.

1) The first and most influential was made by the Economic Commission for Latin America (ECLA), working with the cooperation of Argentina's government. Released in 1958, the ECLA extension provided a series for GDP in constant 1950 prices for the period 1900-35, which was spliced with an official estimate, then presented as if it were one series.[126] The authors of this extension expressed major reservations about its quality, 'above all for the industrial and construction sectors, which are most worrying',[127] but economists and historians have routinely used their numbers without mentioning any such issues. Indeed, in 1988 Gerardo della Paolera even extended the ECLA series back to 1884 using various indirect indicators, which were, in his words, the 'physical volume of exports and imports; indirect trade indexes that include: tons carried in rail roads, in ships and passengers transported in railroads; population; gross investment figures including: public sector construction, private non-agriculture construction and railroad investments'.[128] This ECLA-della Paolera extension would then be reproduced, without any methodological notes, in a widely used compilation of Argentina's historical statistics.[129]

2) In 1994 Roberto Cortés Conde provided an alternative extension covering the period 1875-1935. His methodology consisted of measuring the physical output of various sectors for as much of this period as possible, then weighting them according to their shares of employment in 1895 and of GDP in 1914.[130] In 1997 Cortés Conde released a mildly revised version of his series (without giving any indication of how or why the revisions had been made),[131] which would also be reproduced in the same compilation of Argentina's historical statistics as the ECLA-della Paolera extension, again without any methodological notes.[132]

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126. ECLA, *El desarrollo económico de la Argentina: Anexo: Algunos estudios especiales y estadísticas macroeconómicas preparadas para el informe*, Santiago de Chile, 1958, Anexo 1.
127. Ibid., p. 25, author's translation.
128. G. della Paolera, 'How the Argentine Economy Performed During the International Gold Standard: A Reexamination', PhD diss., University of Chicago, 1988, p. 189.
129. Della Paolera and Taylor, eds., *A New Economic History*, data CD, Series YZD.
130. Cortés Conde, 'Estimaciones del producto'.
131. Cortés Conde, *Economía argentina*, pp. 230-31, Cuadro A1.
132. Della Paolera and Taylor, eds., *A New Economic History*, data CD, Series YZC.

Table A1.1

Three Estimates of Argentina's GDP Growth, 1875-1913

	Annual trend growth rate, %	
	1875 to 1913	1884 to 1913
GDP		
ECLA-della Paolera	n.a.	4.9
Cortés Conde	6.4	6.1
Cortés Conde (rev.)	7.0	6.2
GDP per capita		
ECLA-della Paolera	n.a.	1.5
Cortés Conde	3.0	2.8
Cortés Conde (rev.)	3.6	2.9

Sources:

GDP: della Paolera, 'How the Argentine Economy', p. 187, Table 37; Cortés Conde, 'Estimaciones del producto bruto'; and idem, *Economía argentina*, pp. 230-31, Cuadro A1. See Table DA.1 in the Data Appendix for the series.

Population: Z. Recchini de Lattes and A.E. Lattes, eds., *La población de Argentina*, Buenos Aires, 1975, p. 199, Tabla 1.

As mentioned in this chapter, Cortés Conde found a considerably higher growth rate for the late nineteenth century than had previously been supposed. Table A1.1 shows that the revised version of his series leads to a 2.9 percent annual trend growth rate of GDP per capita during 1884-1913, whereas the ECLA-della Paolera series has a 1.5 percent annual growth rate. To put these numbers in perspective, the most recent update to Angus Maddison's widely used database contains GDP per capita for 29 countries other than Argentina for 1884-1913.[133] According to Cortés Conde's extension, Argentina experienced the most rapid per capita growth in the world during this period, as its rate of 2.9 percent per year was greater than Canada, with 2.8 percent, and than Peru, with 2.6 percent. On the other hand, according to the ECLA-della Paolera estimate, Argentina was in fourteenth place, slightly behind France. Cortés Conde's extension in this way suggests spectacular per capita growth, but the ECLA-della Paolera extension indicates a distinctly middle-of-the-road performance. It was because of this extraordinary growth rate that the authors of the Maddison update have recently chosen not to use Cortés Conde's extension, prefer-

133. Bolt and Luiten van Zanden, 'The First Update', underlying data available online at http://www.ggdc.net/maddison/maddison-project/data/mpd_2013-01.xlsx (accessed 12 November 2013).

ring the ECLA-della Paolera series instead.[134]

Some of the problems with Cortés Conde's extension can be illustrated with his industrial output index, which is particularly important due to the role that it has played in debates about Argentina's industrialisation.[135] In his original series Cortés Conde showed industry growing at a phenomenal annual trend rate of 8.4 percent during 1875-1913, which was then increased to 8.8 percent in the revised version. Understanding how he arrived at these numbers is, however, difficult, given what he has revealed about the components of the industrial output index. For 1875-1913, the index appears to have been calculated from just nine underlying series that together made up 42 percent of industrial value added in 1914.[136] They were: flour, flour products, meat products, and sugar, all from 1875 onwards; beer from 1876; textiles from 1879; wine from 1892; dairy products from 1894; and tobacco products from 1900.[137] Unfortunately, Cortés Conde did not reproduce these series, although he has published the average annual growth rates for food and textiles, as shown in Table A1.2. The most curious aspect of these numbers is that the industrial output index as a whole has an extremely high growth rate for the 1890s, even though food processing, which was by far the largest sector, grew much more slowly. Thus, food accounted for 69 percent of the value of the index in its 1914 base year,[138] and, although Cortés Conde did not reveal the weights he used for the 1895 base year, it seems unlikely that the share of food was substantially less. Consequently, it is unclear in purely mathematical terms how Cortés Conde arrived at a 12 percent growth rate for the 1890s, given that the dominant component of his index grew so slowly.

There are two main possible explanations for the rapid industrial growth found by Cortés Conde in the 1890s:

1) It was driven by textiles output, which apparently grew by 13 percent per year in the 1890s. This, however, seems unlikely because Cortés Conde states

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134. This is the logical implication of their statement that extrapolating back using Cortés Conde's series 'casts too low a figure' for 1875. Bolt and Luiten van Zanden, 'First Update', p. 20.
135. Again, see Rocchi, *Chimneys in the Desert*, pp. 21, 24-25, 42; and Barbero and Rocchi, 'Industry', pp. 264-65. Also see the discussion earlier in this chapter, pages 17-18.
136. Cortés Conde, 'Estimaciones del producto', p. 10.
137. Ibid., pp. 13-14.
138. Ibid., p. 10.

Table A1.2

Cortés Conde's Industrial Growth Rates for Argentina, 1875-1910

	Annual growth rate, %		
	Total	Food	Textiles
1875-90	5.2	5.6	3.9
1890-1900	11.5	4.2	12.7
1900-10	7.8	6.7	7.4

Source: Cortés Conde, *Economía argentina*, pp. 207, 209, Cuadros 15 and 17.

that textiles only made up five percent of the value of his index in its 1914 base year,[139] and it is improbable that he assigned it a greater value for his 1895 base year.[140]

2) The rapid industrial growth in the 1890s may alternatively have been driven by the other series aggregated in Cortés Conde's index. Given that tobacco products were only included from 1900 onward, this leaves beer and wine – goods that made up six and 10 percent respectively of his sample in the 1914 base year.[141] Combining these weights with those given to food and textiles suggests that beer and wine must somehow together have expanded at around 40 percent per year during 1890-1900 for the overall index to have a 12 percent growth rate.

Surprisingly, this is a plausible explanation for the rapid growth found by Cortés Conde, as can be seen by examining how he estimated the output of these industries. For both, he states that he relied upon data from the internal production taxes that began to be levied on certain goods at the beginning of the 1890s.[142] To understand why this methodology may have led to a roughly 40 percent annual growth rate for beverages, the available production tax data for beer and wine are reproduced in Tables A1.3 and A1.4. They show that the

139. Ibid., pp. 10-11.

140. Even if he did somehow give textiles a much greater weight, moreover, his method of calculating textiles output is highly questionable, as it appears that he summed a (presumably) fixed percentage of the value of dirty wool exports, the value of yarn imports, and the value of raw cotton production, then deflated the total by an index of imported cloth prices. Ibid., p. 14. Why dirty-wool exports should be taken as an indicator of the amount of wool being processed domestically is not explained, while, as was will be seen in Chapter 4, pages 168-70, the rapid growth of yarn imports is likely to have reflected the displacement of the country's own domestically-produced yarns, so should not be taken as an indication of the amount of yarn actually being turned into cloth.

141. Ibid., p. 10.

142. Ibid., p. 14.

beer output taxed increased at a trend rate of 10 percent per year during 1891-99, while wine output taxed grew by an incredible 64 percent per year during 1892-1900. Wine could, therefore, explain Cortés Conde's 12 percent industrial growth rate during the 1890s.

If this reconstruction of Cortés Conde's findings is correct, the problem is that in reality there was no such increase in wine output, as the 64 percent growth rate merely reflected the extension of the taxes levied to 'natural wines', which made up the vast bulk of production, but only began to be taxed in 1898, when a tax of 0.04 paper pesos (m$n) per litre was imposed.[143] By contrast, the land cultivated with vines, a more accurate indicator of wine output, grew at an annual rate of roughly five percent during the 1890s.[144] If this is the explanation for Cortés Conde's high industrial growth rate, it is, then, the result of a fairly obvious error.

Various indirect indicators of Argentina's industrial output also contradict Cortés Conde's estimate of nine percent annual growth for 1875-1913 as a whole. Reproduced in Table A1.5, these proxies predominantly relate to the apparent supply of raw materials and other inputs used in various industries, which have been compiled from trade and agricultural statistics; exports are also used for some industries, with fairly crude adjustments made for domestic consumption. Together, according to the 1914 census, the represented industries made up half of industrial value added in 1913. Some did expand at the kind of rate suggested by Cortés Conde: the proxies for sugar refining and metallurgy increased by nine percent annually; for flour milling and winemaking by around eight percent. Yet indicators for other industries show far slower growth: slaughterhouse products grew at roughly three percent per year due to the poor performance of hides, and dried and salted meat; tobacco products and clothing expanded by possibly three percent. These figures therefore make it extremely difficult to see how industrial output could have grown at a trend rate of nine percent during 1875-1913. Before Cortés Conde's

143. See P. Barrio de Villanueva, 'Controles estatales a la industria del vino en Mendoza, 1890-1914', *H-industri@: Revista de historia de la industria, los servicios y las empresas en América Latina*, 4:7, 2010, pp. 8-9, available online at http://www.hindustria.com.ar/images/client_gallery/HindustriaNro7Barrio.pdf (accessed 14 May 2013).
144. DGEE, *Estadística Agrícola: Año Agrícola 1913-14*, Buenos Aires, 1914, p. 18.

Table A1.3

Argentine Production Tax Data for Beer, 1891-1900

	Production taxed (lts)	Tax raised (m$n)	Taxes levied (m$n)				
			Single extract, per lt	Double extract, per lt	Per bottle, less than 40 cl	Per bottle, more than 40 cl	Casks, per lt
1891	7,220,680	267,855	0.02	0.05			
1892	10,743,179	267,477	0.01	0.03			
1893	11,887,430	457,680	0.02	0.05			
1894	12,477,070	355,341	0.01	0.03			
1895	15,080,314	427,648	0.03	0.03			
1896	16,085,334	482,560	0.03	0.03			
1897	n.a.	742,935	0.05	0.05			
1898	15,236,990	761,849	0.05	0.05			
1899	19,697,825	928,693			0.02	0.035	0.05
1900	n.a.	1,155,509			0.02	0.035	0.05

Sources: Compiled from DGEN, *Anuario 1896*, II, pp. 47-48; idem, *Anuario 1898*, II, pp. 73-74; idem, *Anuario 1899*, II, pp. 215-216; idem, *Anuario 1900*, II, pp. 285-86; and Tornquist, *Economic Development*, pp. 295, 298-99.

Table A1.4

Argentine Production Tax Data for Wine, 1892-1900

	Production taxed (lts)			Tax raised (m$n)	Taxes levied (m$n)					
	Total	Natural	Others		Natural (per lt)	Artificial (per lt)	Blended and petiot (per lt)	Watered or manipulated (per lt)	Raisin (per lt)	Fortified (per degree exceeding 16°)
1892	5,597,155	0	5,597,155	560,433		n.a.				
1893	258,849	0	258,849	25,885		n.a.				
1894	1,233,587	0	1,233,587	123,359		0.10				
1895	15,250,208	0	15,250,208	159,502		0.10				
1896	5,111,651	0	5,111,651	281,428		0.12	0.04	0.07	0.02	
1897	n.a.	n.a.	n.a.	95,211		0.12	0.06	0.07	0.02	0.01
1898	49,524,723	47,815,010	1,709,713	1,906,745	0.04	0.12	0.06	0.07	0.02	0.01
1899	122,821,727	121,200,652	1,621,075	3,508,963	0.02	0.14	0.08	0.09	0.04	
1900	125,910,730	125,076,954	833,776	3,624,805	0.02	0.14	0.08	0.09	0.04	

Sources: As in Table A1.3.

Table A1.5

Evidence of Industrial Growth in Argentina, 1870s-1913

	% of 1913 value added*	Indicators	Start year	Annual trend growth rate, %
Sugar	7.7	Sugarcane: land cultivated.	1873	9.4
Wine	5.7	Grapes: land cultivated.	1873	7.5
Flour products	5.5	Implicit flour consumption: implicit wheat consumption, assuming 600 kg of flour per ton of wheat, minus exports, plus imports.	1877	7.4
Slaughterhouse	5.4	Exports, total (at 1914 prices):	1875	2.2
		Hides and skins.	1875	0.9
		Meat.	1875	4.5
		Other byproducts.	1875	4.8
		plus annual domestic meat consumption of 90 kg per person, at 80% 1914 export price per kg, based on the assumption that domestic consumption was of lower quality.	1875	2.6
Metallurgy	5.2	Imports of iron and steel in bars and sheets.	1875	9.3
Tobacco products	5.2	Tobacco processed: tobacco production, estimated as land cultivated, assuming a yield of 600kg per ha, plus tobacco imports, minus exports.	1875	3.3
Clothing	4.7	Common sewing thread, reels imported.	1883	2.9
Beer	3.6	Hops imported.	1876	7.1
Flour mills	5.5	Implicit wheat consumption: wheat production, based on cultivated land, minus exports, plus imports.	1877	7.9
Dairy products	3.0	Butter, casein, and cheese exports, plus 1.6 kg of cheese and 1 kg of butter per person per year, minus imports, all valued at 1914 export prices.	1875	5.3

* Value added was calculated from the industrial census by subtracting the cost of raw materials from the gross value of output.

Sources:

Census value: CNC, *Tercer censo nacional*, VII, *Censo de las industrias*, Buenos Aires, 1917, pp. 27-34.

Cultivated land: DGEE, *Estadística Agrícola: 1913-14*, p. 18; and CNG, *Anuario geográfico argentino*, Buenos Aires, 1941, pp. 204, 207, 227, 229, 235, 245.

Exports and imports: F. Latzina, *Estadística retrospectiva del comercio exterior argentino 1875-1904*, Buenos Aires, 1905; and DGEN, *Anuario*, various years.

Per capita consumption levels: Estimated from Tornquist, *Economic Development*, pp. 272-73; CNG, *Anuario geográfico*, p. 275.

Population: Recchini de Lattes and Lattes, eds., *Población de Argentina*, p. 199, Tabla 1.

estimates can be considered reliable, therefore, far more details of his methodology must be given.

Attempts to extend the official series and their extensions even further back, meanwhile, are even more problematic. Three are shown in Figure A1.2. Their prob-

lems are as follows:

1) John Coatsworth's series is based on (partly misreported) estimates of wages in Buenos Aires,[145] which are then projected onto the whole of the country, even though the high costs of internal transportation make it unlikely that wage levels in the Littoral were representative of wages in the interior.
2) The new Maddison Project estimate extends the ECLA-della Paolera series using the nominal value of pastoral output in the Pampean zone, combined with the assumption that the zone's non-pastoral sector grew at the same rate, and that per capita output remained constant in the rest of the country.[146] Aside from these questionable assumptions, the use of the nominal (silver) value of pastoral output is dubious because it ignores the sharp fall in (silver) prices during this period, which means that the nominal value will understate volume growth.[147]
3) Victor Bulmer-Thomas' estimate takes Cortés Conde's series for 1875-1913, multiplies it by export and import price indices calculated using prices from Europe to convert it to nominal values, then extends it back with exports and tax revenues from Buenos Aires, thereby ignoring the rest of Argentina.[148]

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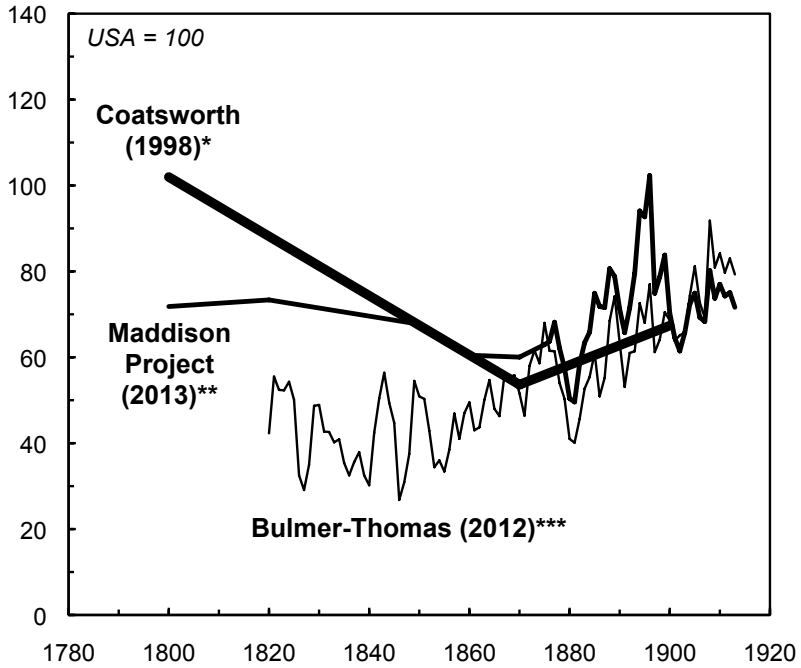
145. Coatsworth states that 'Lyman Johnson's Buenos Aires study cites an average monthly wage of 17 pesos or 204 pesos per year for urban unskilled construction laborers in the first decade of the nineteenth century'. J.H. Coatsworth, 'Economic and Institutional Trajectories in Nineteenth-Century Latin America', in idem and A.M. Taylor, eds., *Latin America and the World Economy since 1800*, Cambridge, MA, 1998, p. 45. Similarly, he has elsewhere claimed that 'Johnson cites wages in Buenos Aires ranging from 17 pesos per month (204 pesos per year) for unskilled labour'. Idem, 'Economic History and the History of Prices in Colonial Latin America', in L.L. Johnson and E. Tandeter, eds., *Essays on the Price History of Latin America*, Albuquerque, 1990, pp. 28-29. Yet nowhere in the referenced study does Johnson give such a figure. See L.L. Johnson, 'The Price History of Buenos Aires During the Viceregal Period', in Johnson and Tandeter, eds., *Essays on the Price History*. Moreover, elsewhere Johnson *has* provided an estimate of annual wages for urban unskilled construction labourers as from 90 to 105 pesos, depending upon the assumptions made about the number of days worked. Either way, they are around half the level claimed by Coatsworth. L.L. Johnson, 'Salarios, precios y costo de vida en el Buenos Aires colonial tardio', *Boletín del Instituto de Historía Argentina y Americana 'Dr. E. Ravignani'*, 2:7, 1990, pp. 139, 145, Cuadros 1 and 2.
146. Bolt and Luiten van Zanden, 'First Update', p. 20. Their source for the Littoral's pastoral output during 1825-65 is C. Newland and B. Poulson, 'Purely Animal: Pastoral Production and Early Argentine Economic Growth 1825-1865', *Explorations in Economic History*, 35:3, 1998, p. 328, Table 1.
147. On the falling pastoral prices, see J.C. Garavaglia, 'La economía rural de la campaña de Buenos Aires vista a través de sus precios: 1756-1852', in R. Fradkin and J.C. Garavaglia, eds., *En busca de un tiempo perdido: La economía de Buenos Aires en el país de la abundancia, 1750-1865*, Buenos Aires, 2004, pp. 119-29. As will be seen in Chapter 4, the prices of imports fell even faster, so the terms of trade improved.

Figure A1.2

Argentina's Relative GDP Per Capita, 1800-1913



* Maddison's original estimates for 1870 and 1900, extended back to 1800 using wage data as a proxy for national income.

** Maddison's original estimates for 1900-13, extended back to 1870 and 1875-1899 using Gerardo della Paolera's volume indexes of GDP, then back to 1800, 1820, 1850, and 1860, using Carlos Newland and associates' estimates of pastoral output in the Pampean zone.

*** Current GDP per capita for 1900-13, estimated by multiplying a volume index of GDP with consumer and wholesale price indices, then extending it back to 1875-1899 using a volume index of GDP multiplied using Argentine and British export prices, then back to 1820-1874 using export values and tax revenues as proxies.

Sources: Coatsworth, 'Economic and Institutional Trajectories', p. 26, Table 1.1; V. Bulmer-Thomas, 'The Development Gap Between Latin America and the US: When and Why Did It Arise?', paper presented at the conference Understanding the Institutional Trajectory of Latin American Development, London School of Economics, 27 September 2012, pp. 41-43, Table A.3.5; also forthcoming as idem, *The Economic History of Latin America Since Independence*, 3rd ed., Cambridge, 2014, Appendices 3 and 4; and Bolt and Luiten van Zanden, 'First Update'.

These methodologies, as seen in Figure A1.2, produce wildly divergent results, with Coatsworth suggesting that Argentina's GDP per capita fell behind that of the United States, Bulmer-Thomas indicating that it started to catch up, and the Maddison Project showing that it stayed at roughly 60 to 70 percent the US level. This illustrates the margins of error contained in these estimates, which are due to the frag-

148. Bulmer-Thomas, 'Development Gap', pp. 5-6. On the problems with using the core's export and import prices as proxies for prices in the periphery, see Chapter 2.

mentary data their authors use, as well as the questionable assumptions they must make to construct them.

Chapter 2

The Long Boom

> But it is chiefly in order to purchase European goods, that the colonies part with their own produce. The more, therefore, they pay for the one, the less they really get for the other, and the dearness of the one is the same thing with the cheapness of the other.
>
> Adam Smith, *The Wealth of Nations*[1]

This chapter demonstrates that the periphery's nineteenth-century terms-of-trade boom was far longer, greater, and more widespread than has previously been supposed. By revisiting some of the methodological issues raised in the debates about the Prebisch-Singer Hypothesis,[2] it is found that there is a major downward bias in the trend of most estimates of peripheral countries' terms of trade in the nineteenth century. The problem is that historians have routinely used prices recorded in the North Atlantic core as proxies for prices in the peripheral countries themselves. It was precisely this methodological error that originally made Raúl Prebisch and Hans Singer believe that there had been a long-term deterioration in the periphery's terms of trade, and it has also meant that Jeffrey Williamson, more recently, has underestimated the length, magnitude, and extent of the terms-of-trade boom that the periphery experienced in the long nineteenth century.[3]

This chapter provides a comprehensive examination of how the periphery's terms of trade have been (and should be) measured, and how this methodological issue has affected the existing literature. It begins with a detailed discussion of the old and new narratives about the terms of trade. Following this, the chapter shows that there is a downward bias in the trend of most estimates of peripheral countries'

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1. A. Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, II, New York, (1776) 1904, pp. 77-78.
2. Prebisch, 'Economic Development'; and Singer, 'Distribution of Gains'.
3. Williamson, 'Globalization and the Great Divergence'; and idem, *Trade and Poverty*, esp. ch. 3.

nineteenth-century terms of trade, including those used by Williamson. Various tests for the existence of that bias are conducted using an unusually rich collection of price series from Indonesia. Finally, the case of India is used to illustrate how correcting the downward bias makes the periphery's long terms-of-trade boom seem even more significant than Williamson supposes. Chapter 3 will then go beyond Williamson to provide an alternative account of why this long boom drove global divergence.

Old and New Narratives

The two narratives about the periphery's (net barter) terms of trade are quite different. Prebisch and Singer argued that they had been deteriorating since at least the 1880s, redistributing income from the periphery towards the core. Williamson, by contrast, contends that a terms-of-trade boom drove the periphery's deindustrialisation, leading to the 'great divergence'. Here each narrative will be discussed in turn.

The Prebisch-Singer Hypothesis

Neither Prebisch nor Singer was the first to claim that the periphery's terms of trade had deteriorated. Since the 1920s the observation had been made by several authors, with the blame variously placed on the overproduction of primary commodities, monopolistic practices in industry, and differences in the nature of the demand for primary commodities and manufactured goods.[4] Prebisch and Singer's contribution to this debate was twofold. First, based on Singer's empirical work, they argued that the interwar deterioration was part of a longer-term process that had been ongoing since at least the 1880s. Second, from prominent positions in international bureaucracies, they polemicised aggressively that the correct response to the deterioration was government-sponsored industrialisation, arguing against the liberal belief that peripheral countries should specialise in the production of primary commodities for export.[5]

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4. For example, G.M. Cassel, *Monopolistic Tendencies in Industry and Trade: Being an Analysis of the Nature and Causes of the Poverty of Nations*, Geneva, 1927; V.P. Timoshenko, 'World Agriculture and the Depression', *Michigan Business Studies*, 5:5, 1933; G.C. Means, *Industrial Prices and Their Relative Inflexibility*, Washington, DC, 1935; and C.P. Kindleberger, 'International Monetary Stabilization', in S.E. Harris, ed., *Postwar Economic Problems*, New York and London, 1943. For discussion, see Love, *Crafting the Third World*, ch. 7; and Toye and Toye, 'Origins and Interpretation', p. 440.
5. Singer was an Anglo-German economist who held prominent positions in various United Nations bodies in the 1950s and '60s, while Prebisch, an Argentine economist and public official, was

Much of the subsequent debate has revolved around the empirical basis of the Prebisch-Singer Hypothesis. Singer's initial contribution was to use British price series to calculate the terms of trade between manufactured goods and primary commodities.[6] His results indicated that 'from the latter part of the nineteenth century to the eve of the Second World War, a period of well over half a century, there was a secular downward trend in the prices of primary goods relative to the prices of manufactured goods'.[7] Since then, the debate has focused on whether such a deterioration actually took place.[8] So far, it has been suggested that there *was* a deterioration in the terms of trade for primary-commodity producers during the twentieth century, although the exact form that it took is unclear. Enzo Grilli and Maw Cheng Yang made the most important contribution when they appeared to confirm that a deterioration had occurred. By compiling price series for 24 primary commodities from 1900 to the mid-1980s, then deflating them with a price index of the core countries' manufactured exports,[9] they found that 'the relative prices of all primary commodities fell on trend by 0.5 percent a year and those of nonfuel primary commodities by 0.6 percent a year'.[10] Thereafter, the statistical debate has reflected developments in econometrics, with particular attention given to the nature of the deterioration. The principal question has become whether it was due to a statistically significant trend or one or more 'structural breaks'.[11] The evidence probably favours the latter inter-

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prominent in ECLA, then in the United Nations Conference on Trade and Development (UNCTAD). On the origins of the Prebisch-Singer hypothesis and the controversy surrounding it, see Love, 'Raúl Prebisch'; idem., *Crafting the Third World*, ch. 8; Shaw, *Sir Hans Singer*, pp. 49-58; Toye and Toye, 'Origins and Interpretation'; and Dosman, *Life and Times*, chs. 5-11.

6. Singer's findings were published in United Nations, *Relative Prices*, esp. pp. 21-28. Singer drew on the British export and import price series calculated by W. Schlote, *British Overseas Trade: From 1700 to the 1930s*, Oxford, 1952. Singer also presented a second series that he claimed to be 'based on the trade statistics of the major trading countries and a number of others' (United Nations, *Relative Prices*, p. 21), taken from the League of Nations, *Industrialization and Foreign Trade*, Geneva, 1945, p. 157, Tables 7 and 8. The methodology of the League of Nations study nevertheless reveals that its principal source was Schlote. Ibid., pp. 154-55. Unsurprisingly, Singer's two series reinforced each other!
7. United Nations, *Relative Prices*, p. 7.
8. For a recent overview, see Ocampo and Parra, 'Continuing Relevance'; also see Spraos, *Inequalising Trade?*, ch. 3; and Diakosavvas and Scandizzo, 'Trends in the Terms of Trade'.
9. E.R. Grilli and M.C. Yang, 'Primary Commodity Prices, Manufactured Goods Prices, and the Terms of Trade of Developing Countries: What the Long Run Shows', *World Bank Economic Review*, 2:1, 1988; subsequently updated in S. Pfaffenzeller, P. Newbold and A. Rayner, 'A Short Note on Updating the Grilli and Yang Commodity Price Index', *World Bank Economic Review*, 21:1, 2007.
10. Grilli and Yang, 'Primary Commodity Prices', p. 1.
11. For example, D. Sapsford, P. Sarkar, and H.W. Singer, 'The Prebisch-Singer Terms of Trade Controversy Revisited', *Journal of International Development*, 4:3, 1992; M. Bleaney and D.

pretation, although it remains somewhat inconclusive because much depends upon how the econometric models are calibrated. Unfortunately, the highly technical nature of the debate has often obscured the basic finding that a deterioration in the terms of trade most likely did occur in the twentieth century.

Of more relevance here, however, are the critiques of Singer's claim that the periphery's terms of trade had been deteriorating since at least the 1880s. This claim was soon questioned by P.T. Ellsworth, who pointed out that the price series used by Singer had been mainly recorded in Britain. This was a problem, Ellsworth observed, because falling transportation costs during the nineteenth century meant that British prices did not necessarily reflect the prices paid and received in the peripheral countries, as the primary-commodity prices included 'cost, insurance, and freight' (CIF), while the prices of manufactured exports were valued 'free on board' (FOB).[12] Falling transportation costs meant that the FOB price of a good in the exporting country and its CIF price in the importing country converged, so it was possible that the CIF prices of Britain's imported primary commodities were falling even as the FOB prices of those goods were increasing in the periphery. Ellsworth concluded that 'the apparent relative decline in the prices of primary exports is therefore heavily weighted by the significant reduction in freight rates. It appears certain that a large part of the fall in primary product prices in European markets must be attributed to this cause'.[13]

Paul Bairoch took Ellsworth's critique even further. He contended that the periphery's terms of trade had in fact *improved* from the 1870s up to the end of the 1920s.[14] To illustrate this, he drew on a range of fragmentary data, including comparisons between League of Nations estimates of the FOB and CIF value of world trade; domestic wholesale prices of primary commodities and manufactured goods; and the

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Greenaway, 'Long-Run Trends in the Relative Price of Primary Commodities and in the Terms of Trade of Developing Countries', *Oxford Economic Papers*, 45:3, 1993; J.T. Cuddington, R. Ludema, and S.A. Jayasuriya, 'Prebisch-Singer Redux', Central Bank of Chile Working Paper 140, 2002; J.A. Ocampo and M.A. Parra-Lancourt, 'The Terms of Trade for Commodities in the Twentieth Century', *CEPAL Review*, 79, 2003; and idem, 'The Terms of Trade for Commodities since the Mid-19th Century', *Journal of Iberian and Latin American Economic History*, 28:1, 2010.

12. P.T. Ellsworth, 'The Terms of Trade between Primary Producing and Industrial Countries', *Inter-American Economic Affairs*, 10:1, 1956.
13. Ibid., p. 54.
14. P. Bairoch, *The Economic Development of the Third World since 1900*, London, (1977) 2006, pp. 111-26; also idem., *Economics & World History: Myths and Paradoxes*, Chicago, 1993, ch. 10.

terms of trade of various primary commodity-exporting countries. His conclusion was that there had been 'a probable improvement between the years 1870 and 1926/29 of 20 to 40 per cent in the export prices of primary products relative to export prices of manufactures',[15] thus refuting the Prebisch-Singer Hypothesis. Bairoch did not, nevertheless, elaborate on the broader implications of his own findings. That task would only be taken up later.

Williamson's Narrative

Williamson has gone even further than Bairoch, arguing that the periphery's terms-of-trade boom had begun early in the nineteenth century.[16] This observation is based on estimates of the terms of trade of 21 peripheral countries from Eastern and Southern Europe, the Middle East, Asia, and Latin America. From this database, Williamson constructed an index of the terms of trade of 19 countries, weighting them according to their populations in 1870.[17] China and Japan were the two excluded because Williamson found that the price of opium rose dramatically, causing a deterioration in China's terms of trade that, due to the country's large population, would have distorted the overall picture if it had been included. For this reason, both China and Japan (together making up East Asia) where left out of the index, leading to the series shown in Figure 2.1, where, following Williamson, it is contrasted with Britain's terms of trade. The poor periphery's terms of trade show an increase of 75 percent from the 1800s to the 1860s, which substantially mirrors the deterioration in Britain's terms of trade over the same period.[18]

The first cause of this boom, according to Williamson, was the falling prices of manufactured goods in the core.[19] During Britain's industrial revolution, productivity growth pulled down prices because manufacturing was highly competitive, so firms were largely unable to collude or administer their own prices. Even when patented innovations briefly allowed monopoly profits, rival firms rapidly

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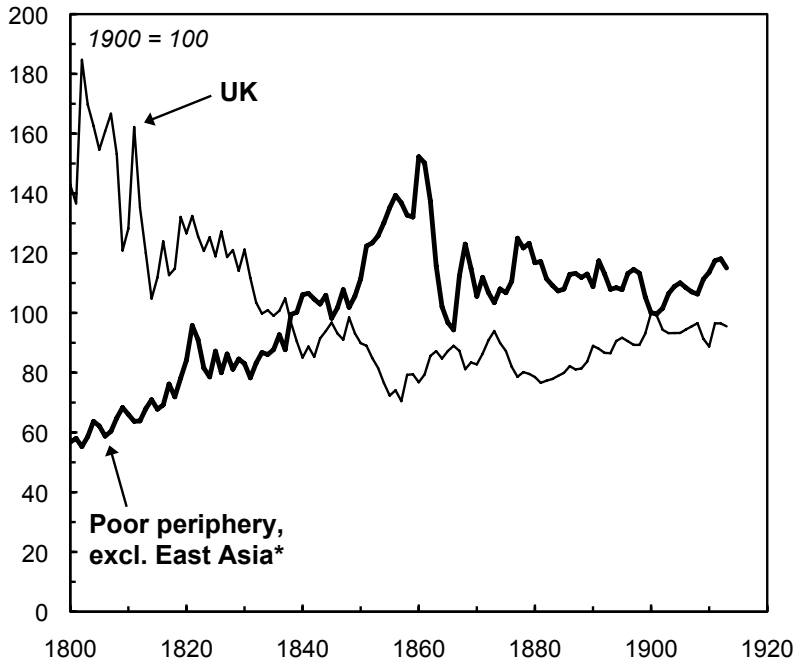
15. Bairoch, *Economic Development*, p. 123.
16. Williamson, 'Globalization and the Great Divergence'; and idem, *Trade and Poverty*, esp. ch 3.
17. Williamson, 'Globalization and the Great Divergence', pp. 359-61, 386-91.
18. Figure 2.1 is different from the equivalent figures in Williamson's published works because it was found in his underlying worksheets that he had accidentally used a series for Latin America, rather than the series for the poor periphery excluding East Asia. This was confirmed by Professor Williamson in private correspondence with the author on 25 May 2012.
19. Williamson, *Trade and Poverty*, pp. 25-27, 31-32.

Figure 2.1

Williamson's Terms-of-Trade Boom, 1800-1913



* Average net barter terms of trade of 19 peripheral countries, weighted by their populations in 1870. The countries are Argentina, Brazil, Ceylon, Chile, Cuba, Egypt, India, Indonesia, Italy, Levant, Malaya, Mexico, Ottoman Turkey, the Philippines, Portugal, Russia, Siam, Spain, and Venezuela.

Source: Data underlying Williamson, 'Globalization and the Great Divergence', p. 362, Figure 2; also idem, *Trade and Poverty*, p. 32, Figure 3.2; kindly provided by Professor Williamson. For the series, see Table DA.2 in the Data Appendix.

began to use the same techniques and technologies, driving down prices due to a greater supply of the good.[20] Given such competition, manufacturers increasingly looked toward exports as a means of avoiding glut on the domestic market. Hence, from perhaps a quarter of industrial output in the 1770s, exports rose to about two thirds by the mid-nineteenth century.[21] British industry could conquer foreign markets by supplying them at dramatically lower prices – the export price of British cotton piece goods fell by roughly 90 percent from the 1770s to the 1850s,[22] driving

20. This was more or less the neo-classical world of 'perfect competition'. See C.K. Harley, 'Prices and Profits in Cotton Textiles During the Industrial Revolution', Discussion Paper in Economic and Social History 81, Oxford University, 2010.
21. J. Cuenca Esteban, 'The Rising Share of British Industrial Exports in Industrial Output, 1700-1851', *Journal of Economic History*, 57:4, 1997, p. 885, Figure 1.
22. Based on export price data in A.H. Imlah, *Economic Elements in the Pax Britannica: Studies in British Foreign Trade in the Nineteenth Century*, Cambridge, MA, 1958, pp. 208-10, Table 2; B.R. Mitchell, *British Historical Statistics*, Cambridge, 1988, p. 761; and J. Cuenca Esteban, 'British Textile Prices, 1770-1831: Are British Growth Rates Worth Revising Once Again?',

the deterioration in Britain's terms of trade shown in Figure 2.1. Nonetheless, prices would probably have fallen even further without exports as a result of the glut that would have formed on the domestic market. For the periphery, the consequence was lower prices of imported textiles and other manufactured goods, bringing improved terms of trade.

Price convergence is identified by Williamson as the second cause of the long boom.[23] Before the nineteenth century, goods from the periphery had sold in the core for far more than in the countries where they were produced.[24] Those margins shrank, however, thanks to the combination of cheaper transportation and trade liberalisation. Egyptian cotton, for example, sold for around 50 percent more in Liverpool than in Alexandria during the 1820s and '30s, but the margin fell to just five percent by the 1890s.[25] Similarly, Indonesian sugar sold for over 100 percent more in London than in Java in the 1840s, but the margin fell to 23 percent during the decade prior to the First World War.[26] What fragmentary data there are suggest that these trends were representative of the periphery's exports in general due to widespread price convergence during the long nineteenth century.[27] This contributed to the long boom, Williamson argues, by raising the periphery's export prices, as they converged upward with prices in the core.

The result of the boom, for Williamson, was the periphery's deindustrialisation.[28] In response to the changed price incentives, labour and capital in the periphery increasingly focused on the export of primary commodities, while the cottage indus-

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Economic History Review, 47:1, 1994, pp. 101-02, Table A3.

23. J.G. Williamson, 'Land, Labor, and Globalization in the Third World, 1870-1940', *Journal of Economic History*, 62:1, 2002, pp. 59-62; idem, *Globalization and the Poor Periphery*, ch. 3; and idem, *Trade and Poverty*, p. 25. On commodity-price convergence, see K.H. O'Rourke and J.G. Williamson, 'When Did Globalisation Begin?', *European Review of Economic History*, 6:1, 2002, pp. 32-39; D. Jacks, 'Intra- and International Commodity Market Integration in the Atlantic Economy, 1800-1913', *Explorations in Economic History*, 42:3, 2005; idem, 'What Drove 19th Century Commodity Market Integration?', *Explorations in Economic History*, 43:3, 2006; and D. Jacks, C.M. Meissner, and D. Novyd, 'Trade Costs in the First Wave of Globalization', *Explorations in Economic History*, 47:2, 2010.
24. O'Rourke and Williamson, 'When Did Globalisation Begin?', pp. 32-35.
25. Calculated from C. Issawi, ed., *The Economic History of the Middle East 1800-1914: A Book of Readings*, Chicago, 1966, pp. 447-48. For the series, see Table DA.7 in the Data Appendix.
26. Calculated from W.L. Korthals Altes, *Changing Economy in Indonesia: A Selection of Statistical Source Material from the Early 19th Century up to 1940*, XV, *Prices (Non-Rice) 1814–1940*, Amsterdam, 1994, pp. 87-96, Table 2A, Series 60, 62, 68 and 69. For the series, see Table DA.7 in the Data Appendix.
27. O'Rourke and Williamson, 'When Did Globalisation Begin?', pp. 35-39.
28. Williamson, *Trade and Poverty*, ch. 5.

Table 2.1

Distribution of World Manufacturing Output, 1750-1913

	Britain	Rest of Europe	European offshoots	Non-European periphery		
				Total	China	India
1750	2	21	0	77	33	25
1800	4	24	1	71	33	20
1830	10	25	3	63	30	18
1860	20	33	8	39	20	9
1880	23	38	15	23	13	3
1900	19	44	25	13	6	2
1913	14	43	33	10	4	1

Note: Totals may not equal 100 due to rounding.

Source: Adapted from Bairoch, 'International Industrialization Levels', p. 296, Table 10.

tries that had once supplied the domestic market were destroyed by influxes of cheaper imports. To demonstrate this process, Williamson presents estimates of how imports displaced domestic textile production in several countries. In the most famous case, India was turned from a net exporter of textiles at the beginning of the nineteenth into a net importer of about 60 percent of its domestic consumption in the 1870s, with other parts of the periphery having similar experiences.[29] As a result, the world's industrial capacity became concentrated in the North Atlantic core. To illustrate this, Williamson presents Bairoch's widely used estimates of international industrialisation levels since 1750,[30] shown in Table 2.1. They indicate that the non-European periphery's share of world manufacturing output fell from perhaps three quarters during the mid-eighteenth century to a tenth by the First World War. The periphery's industrial output per capita actually fell, Bairoch's estimates suggest, by around two-thirds over this period.[31] Even though these numbers are, Bairoch admits, partly based on 'subjective calculations',[32] they can be taken as roughly indicative of actual trends, as will be seen below for the case of India.[33]

29. R. Dobado González, A. Gómez Galvarriato, and J.G. Williamson, 'Mexican Exceptionalism: Globalization and Deindustrialization, 1750-1877', *Journal of Economic History*, 68:3, 2008, pp. 773-75; and Williamson, *Trade and Poverty*, pp. 64-65.
30. P. Bairoch, 'International Industrialization Levels from 1750 to 1980', *Journal of European Economic History*, 11:1&2, 1982.
31. Ibid., p. 281, Table 4.
32. Ibid., p. 317.
33. Apart from the case of India, see accounts of the periphery's deindustrialisation in C. Issawi, *An Economic History of the Middle East and North Africa*, London, 1982, pp. 150-54; Ş. Pamuk, *The Ottoman Empire and European Capitalism, 1820-1913: Trade, Investment and Production*, Cambridge, 1986, ch. 6; R.J. Salvucci, *Textiles and Capitalism in Mexico: An Economic History*

Williamson's narrative is, then, that the falling prices of the core's manufactured goods combined with price convergence to generate a terms-of-trade boom in the periphery, which led to deindustrialisation. The Prebisch-Singer hypothesis is thus turned on its head. Whereas their narrative had been concerned with the effect of the terms of trade on *income*, Williamson is more concerned with the effect on *incentives*. And while Prebisch and Singer claimed that a *deterioration* in the terms of trade *required* industrialisation, Williamson argues that a *boom* had previously *caused* deindustrialisation.

Even though this new narrative is plausible, the evidence that Williamson presents to support it is not convincing. Most notably, Williamson not only finds that China's terms of trade deteriorated, but he also indicates that no boom occurred in India. Consequently, his narrative does not appear to apply to the main regions where, according to Bairoch's numbers, deindustrialisation took place.[34] Moreover, Williamson's index of the periphery's terms of trade, shown in Figure 2.1, provokes a series of unsettling questions: If, as Williamson has contended,[35] price convergence carried on until the end of the century, why did the boom stop around 1860? What about Bairoch's claim that the periphery's terms of trade improved from the 1870s through to the 1920s? What is more, why do the periphery's terms of trade look so suspiciously like Britain's terms of trade inverted? To address these questions, it is necessary to look in more detail at some of the methodological issues that have already been touched upon here.

The Downward Bias

To understand why problems can arise if prices from the core countries are used to measure peripheral countries' terms of trade, it is helpful to consider the various prices paid for an internationally traded good. Assuming that no value is added by processing, the principal prices are:

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of the Obrajes, 1539-1840, Princeton, 1987, ch. 5; A.H. Amsden, *The Rise of 'the Rest': Challenges to the West from Late-Industrializing Economies*, Oxford, 2001, pp. 33-39; and P. van der Eng, 'Why Didn't Colonial Indonesia Have a Competitive Cotton Textile Industry?', *Modern Asian Studies*, 47:3, 2013.

34. Roy, 'Review of *Trade and Poverty*'.
35. K.H. O'Rourke and J.G. Williamson, *Globalization and History: The Evolution of a Nineteenth-Century Atlantic Economy*, Cambridge, MA, 1999, ch. 3; and idem., 'When Did Globalisation Begin?', pp. 37-39.

1) *Producer price in the exporting country* paid by a merchant to the producer of the good.
2) *Wholesale price in the exporting country* charged by the merchant, including internal transportation costs, wholesaling costs, and a commercial markup.
3) *Free on board (FOB) price*, with the cost of packaging and delivering of the good to the ship having been added, including the payment of any export taxes.
4) *Cost, insurance, and freight (CIF) price*, including all the trade costs associated with transporting the good between the two countries, excluding import tariffs.
5) *Wholesale price in the importing country*, including the payment of any import taxes, wholesaling costs, and a commercial markup.
6) *Retail price in the importing country* paid by the consumer, including retailing costs and a further commercial markup.

Which prices are used to calculate a country's terms of trade depends in part on what the purpose of the calculation is. The traditional Prebisch-Singer narrative, especially as formulated by Singer,[36] was concerned with the distribution of the gains from trade, which are arguably best measured using a country's own prices recorded when exports leave and when imports arrive at its port.[37] Following this logic, a country's 'at-the-port terms of trade' are calculated as:

$$At\ the\ port\ NBTT = \frac{FOB\ export\ price\ index}{CIF\ import\ price\ index} \qquad 2.1$$

For Williamson's narrative, by contrast, the terms of trade in a country's own domestic prices are more important because he is primarily interested in price incentives within the country, so at the wholesale level the preferred measure would be:

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36. Singer, 'Distribution of Gains'.
37. The logic is that these prices are those paid and received in international trade. Whether or not this is best for testing the Prebisch-Singer hypothesis is questionable because the distribution of the gains from trade are often determined by domestic wholesale prices. If, for instance, a country's trade is monopolised by foreign merchants who use their position to impose high markups on buyers, or if the home government imposes high export or import taxes in order to make payments to foreign investors, it is less clear that at-the-port prices provide the best measure.

$$Wholesale\ NBTT = \frac{Domestic\ wholesale\ export\ price\ index}{Domestic\ wholesale\ import\ price\ index} \qquad 2.2$$

The ideal measure of the terms of trade would thus be in a country's own prices, whether at the port or within the country.

A country's own prices are not always available, however, so proxies must be used. For peripheral countries, in particular, trade statistics are often scarce and of poor quality, so they cannot be relied upon to provide unit values (that is, the value of imports or exports divided by their physical quantities) for at-the-port terms of trade.[38] That being so, prices from the core countries have often been used as proxies for peripheral countries' own prices – a methodology that Singer himself pioneered with the use of British trade statistics.[39] Subsequent estimates of peripheral countries' terms of trade have largely followed Singer's lead,[40] producing what can be called 'proxy terms of trade', calculated using either unit values or wholesale prices from the core countries, in this way:

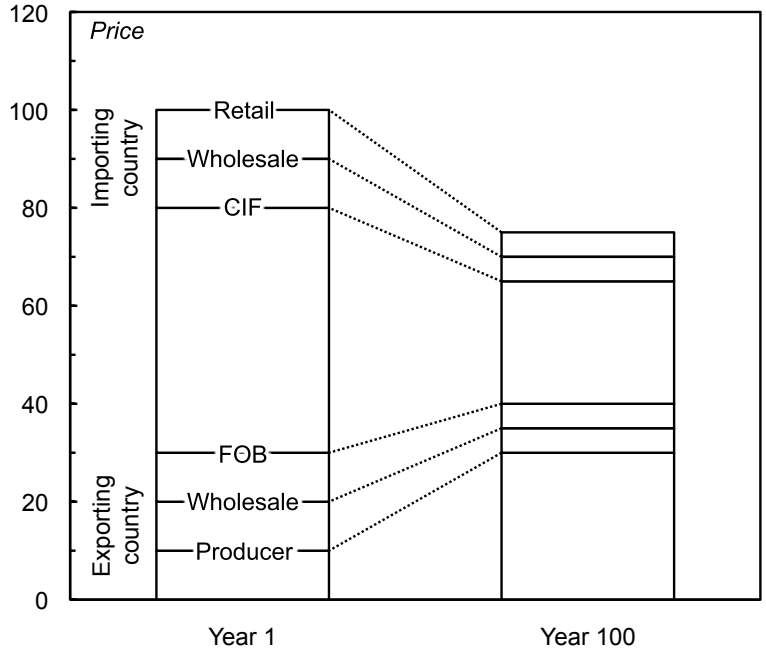
$$Proxy\ NBTT = \frac{Foreign\ export\ price\ index}{Foreign\ import\ price\ index} \qquad 2.3$$

As Ellsworth realised, proxy terms-of-trade estimates are problematic to the extent that there are changes in the costs incurred in trading a good. If trade costs increase over time, they will give an upward bias to the trend of any proxy estimate because rising trade costs tend to inflate the prices of a country's exports abroad and depress them at home, at the same time as they inflate the domestic prices of its imports and depress them in their country of origin. Falling trade costs will, on the other hand, give a downward bias to the trend of proxy terms of trade. A notional illustration of why is seen in Figure 2.2. In this case, trade costs fall for a century, so the prices of a country's exports in the importing country fall, even as they go up at home. At the same time, the prices of its imports go up in the exporting country, even

38. For an exploration of some of the issues, see D.C.M. Platt, 'Problems in the Interpretation of Foreign Trade Statistics before 1914', *Journal of Latin American Studies*, 3:2, 1971.
39. United Nations, *Relative Prices*, esp. pp. 21-28. Also see page 58, footnote 6.
40. The main subsequent reestimation of the periphery's terms of trade, which substantially replicated Singer's methodology, was by W.A. Lewis, 'World Production, Prices and Trade 1870-1960', *Manchester School of Economic and Social Studies*, 20:2, 1952. For discussion, see Bairoch, *Economic Development*, pp. 114-15; and Spraos, *Inequalising Trade?*, ch. 3.

Figure 2.2

Prices of an Internationally-Traded Good with Falling Trade Costs



Note: The figure shows the notional price of an internationally-traded good. It shows how falling trade costs can mean that the domestic price of a country's exports can go up, even as the price of that same good falls in the importing country.

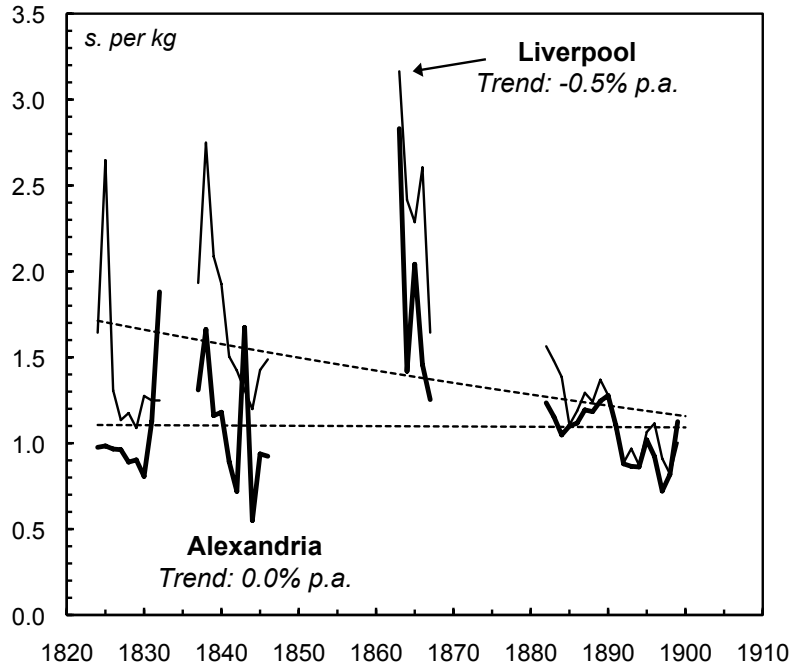
as the prices are falling at home. Hence, any terms of trade calculated using the other county's prices will have a downward bias in the trend.

Proxy terms-of-trade estimates are particularly problematic for the nineteenth century because there was a massive fall in trade costs. Figure 2.3 illustrates the resulting problem for Egyptian cotton, with the wholesale price in British shillings per kilo in Alexandria (the thick line) and Liverpool (the thin line) shown for the periods in which there are data for both cities. The thick line demonstrates that in the Egyptian port the price was trendless – it fluctuated, in other words, but there was no general tendency for it to go up or down. But falling trade costs meant that at the same time the price of Egyptian cotton in Liverpool fell at a trend rate of -0.5 percent per year, as the prices in the two places converged. Using the Liverpool price as a proxy for the prices of Egypt's cotton exports would therefore give a downward bias in the trend of the country's terms of trade, leading to an inaccurate representation of what really occurred.

Evidence of a systematic downward bias in the trend of proxy terms-of-trade

Figure 2.3

Price of Egyptian Cotton in Alexandria and Liverpool, 1824-1889



Note: Quantars were converted to kilos at 54.7 kg per quantar during 1824-35, then 44.9 kg per quantar during 1836-99. The exponential trends are indicated by the dashed lines.

Sources:

Prices and conversion factor: Issawi, *Economic History: A Book of Readings*, pp. 447-48, 518.

US$-£ exchange rate: L.H. Officer, 'Dollar-Sterling Exchange Rates: 1791–1914', in S.B. Carter et al, eds., Historical Statistics of the United States: Earliest Times to the Present: Millennial Edition, New York, 2006, Series Ee618, available online at http://hsus.cambridge.org/HSUSWeb/HSUSEntryServlet (accessed 20 November 2013).

For the series, see Table DA.7 in the Data Appendix.

estimates comes from comparing them with own-price estimates. Figure 2.4 provides such evidence for six peripheral countries for which it proved possible to find both proxy and own-price estimates in the existing literature. At-the-port estimates calculated using unit values from trade statistics were found for four countries: Canada,[41] China,[42] Italy,[43] and Japan;[44] and estimates calculated with wholesale prices were

41. Implicit Paasche indices, from K.W. Taylor and H. Michel, *Statistical Contributions to Canadian Economic History*, II, Toronto, 1931, pp. 18-19; also reproduced in F.H. Leacy, *Historical Statistics of Canada*, 2nd ed., Ottawa, 1983, Series G388, online at http://www5.statcan.gc.ca/bsolc/olc-cel/olc-cel?catno=11-516-XIE&lang=eng (accessed 24 April 2011).
42. Chained Fisher ideal indices, first calculated by F.L. Ho, *Index Numbers of the Quantities and Prices of Imports and Exports and of the Barter Terms of Trade in China, 1867-1928*, Tientsin, 1930; subsequently corrected for or a change in the method of valuing exports and imports in 1904 by C. Hou, *Foreign Investment and Economic Development in China 1840-1937*,

found for another two: India,[45] and Indonesia.[46] For all six, the proxy estimates were mainly produced using a mixture of British and US unit values and wholesale prices.[47] The comparison between the own-price and proxy estimates (respectively the thick and thin lines in Figure 2.4) clearly illustrates the downward bias in the trend of the latter. In five out of six cases, the bias is sufficient to make it seem like the terms of trade were deteriorating, even though the own-price series suggest that they were improving. Table 2.2 confirms this by disaggregating both the proxy and own-price series into trend and cyclical components, then correlating them for each country. The result confirms the negative correlation between the trends in the proxy and own-price estimates for five countries, whereas only two countries have positive correlation coefficients above 0.50 for the cyclical components. This confirms, then, that proxy estimates have a downward bias in the trend that is often sufficient to make it seem like a country's terms of trade were deteriorating, even though they were actually improving.

Williamson nevertheless claims to have avoided the downward bias because

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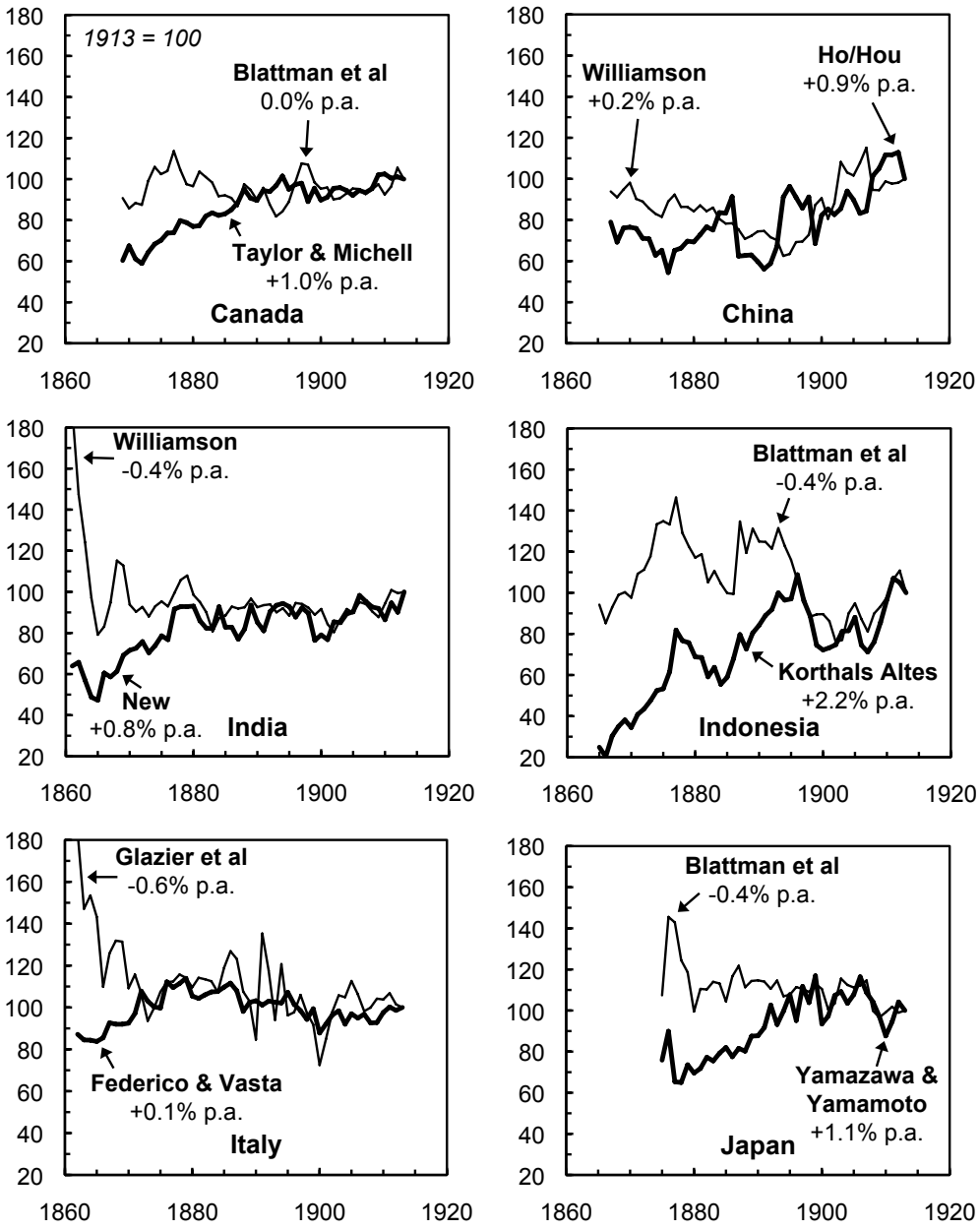
Cambridge, MA, 1965, pp. 194-98.

43. Fisher ideal indices, from G. Federico and M. Vasta, 'Was Industrialization an Escape from the Commodity Lottery? Evidence from Italy, 1861-1940', Dipartimento di Economia Politica Quaderno 573, Università degli Studi di Siena, 2009, pp. 22-23, Table 2; also see G. Federico, S. Natoli, G. Tattara, and M. Vasta, *Il commercio estero italiano 1862-1950*, Rome, 2011, pp. 74-76, 226-32.
44. Chained implicit Paasche indices, from I. Yamazawa and Y. Yamamoto, *Estimates of Long-Term Economic Statistics of Japan since 1868*, XIV, *Foreign Trade and Balance of Payments*, Tokyo, 1979, pp. 169-70, 193, 197. These are not strictly own-price measure estimates because imports prior to 1903 were valued FOB and not CIF. Nevertheless, considerable effort was made by the estimate's authors to convert the FOB figures to CIF using a shipping freight-rate index.
45. Newly estimated chained geometric Laspeyres indices, calculated using prices published by the British colonial authorities for 29 exports and 10 imports, with weights taken from trade statistics. See Appendix 2.2 for full details.
46. Chained Laspeyres indices, from Korthals Altes, *Changing Economy*, XV, pp. 158-60.
47. Five of the proxy estimates were calculated as chained Laspeyres indices by Williamson and his co-authors, largely using British price series for the peripheral countries' exports, and a mixture of British export prices and US wholesale prices for their imports. See C. Blattman, J. Hwang, and J.G. Williamson, 'The Impact of the Terms of Trade on Economic Development in the Periphery, 1870-1939: Volatility and Secular Change', NBER Working Paper 10600, 2004, pp. 30-32; and Williamson, 'Globalization and the Great Divergence', p. 386-91. Blattman, Hwang, and Williamson do not appear to have made adjustments for trade costs, even though they promised that '[i]n a moment we will discuss the adjustments made to our terms of trade figures to account for transport cost changes' ('Impact of the Terms', p. 32). Judging from the underlying worksheets, it would appear that the adjustments were never made. They are available online at http://chrisblattman.com/documents/data/commod/Commoity%20price%20indices%201865-1950.zip (accessed 4 July 2012). The only proxy series not to come from Williamson and his associates is for Italy, which was calculated using British trade statistics by I.A. Glazier, V.N. Bandera, and R.B. Berner, 'Terms of Trade between Italy and the United Kingdom 1815–1913', *Journal of European Economic History*, 4:1, 1975, pp. 30-33, Table 5.

Figure 2.4

Own-Price and Proxy Terms of Trade, 1860s-1913



Note: The thick lines are own-price terms of trade, the thin lines are proxy terms of trade. The annual trends are calculated as the rate of change of the exponential trend line.

Sources: See the text. For the series, see Table DA.3 in the Data Appendix.

only six of the 21 series he gathered were proxy estimates, with the other '15 taken from country-specific sources, which do an excellent job in constructing estimates which come close to the ideal measure',[48] that is, to using the periphery's own prices.

48. Williamson, 'Globalization and the Great Divergence', p. 360; also see idem, *Trade and Poverty*,

Table 2.2

Own-Price and Proxy Terms of Trade, 1860s-1913

	Period	Pearson correlation coefficients		
		Whole	Components*	
			Trend	Cycles
Canada	1869-1913	-0.09	-0.22	-0.03
China	1867-1913	0.33	0.70	-0.35
India	1861-1913	-0.26	-0.84	0.53
Indonesia	1865-1913	0.14	-0.17	0.67
Italy	1862-1913	-0.25	-0.15	0.27
Japan	1875-1913	-0.32	-0.83	0.22

* The trend and cyclical components were separated using a Hodrick-Prescott Filter, with the smoothing parameter set at 300.

Note: 1.00 equals perfect positive correlation, -1.00 perfect negative correlation.

Source: As in Figure 2.4.

Yet an extensive review of the methodology and sources underlying each of his 21 series, which will be detailed at length in Appendix 2.1, indicates that he is mistaken. Summarised in Table 2.3, the review finds that only two of Williamson's 21 series are own-price estimates, while fully 12 were mainly estimated using proxy prices. Three more were calculated as 'part-proxy terms of trade', using own prices for exports but foreign prices for imports,[49] as follows:

$$Part\ proxy\ NBTT = \frac{Domestic\ export\ price\ index}{Foreign\ import\ price\ index} \qquad 2.4$$

Another two were calculated using the core's prices as proxies, as in Equation 2.3, but adjusting them for changes in trade costs, which produces 'adjusted proxy terms of trade', calculated in this way:

$$Adjusted\ proxy\ NBTT = \frac{Foreign\ export\ price\ index - trade\ costs}{Foreign\ import\ price\ index + trade\ costs} \qquad 2.5$$

p. 29. The 21 series include China and Japan, which were excluded from the series for the poor periphery reproduced in Figure 2.1.

49. Own-price series for the periphery's exports tend to be far more abundant than those for its imports; hence, the part-proxy estimates have always used the own-prices for exports and foreign prices for imports. They should have considerably less downward bias because price convergence would only affect the foreign import price index.

Table 2.3

Williamson's 21 Terms-of-Trade Series

Type of estimate	Countries (number)	Mean trend growth rate, 1870-1913
Own-price	Indonesia, and Japan (2).	1.39
Proxy	Argentina, Ceylon, China, Cuba, India, Italy, Malaya, Mexico, the Philippines, Russia, Siam, and Venezuela (12).	-0.47*
Part-proxy	Brazil, Egypt, and the Levant (3).	0.13
Adjusted proxy	Ottoman Turkey, and Spain (2).	-0.27
Other	Chile, and Portugal (2).	0.40

* Excludes Cuba and Malaya due to insufficient data.

Sources: See Appendix 2.1; the series are in Table DA.2 in the Data Appendix.

Of the two remaining series, one (Portugal) is, by the admission of its own author, of little analytical value, and the last (Chile) is estimated from a variety of sources, some of which inspire little confidence.

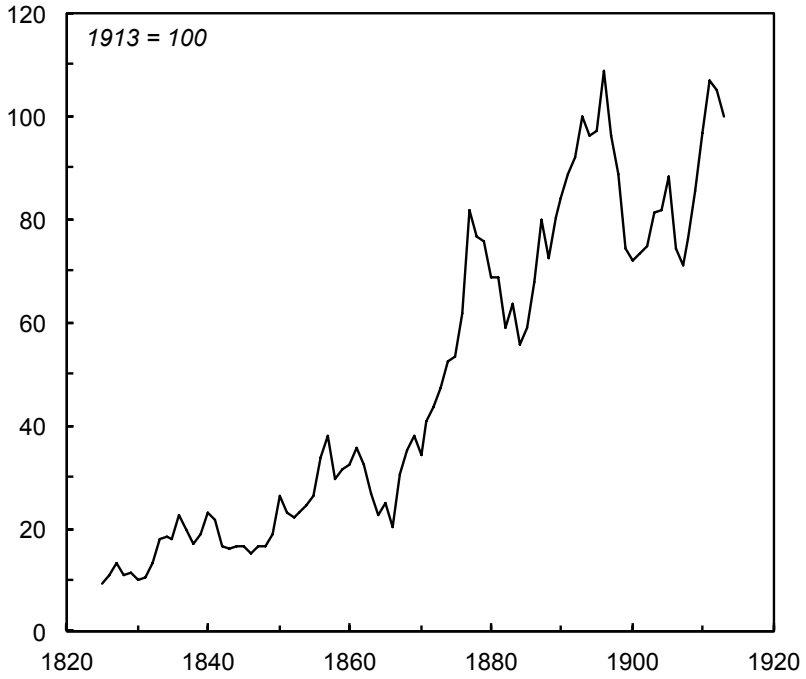
This dependence on proxy estimates suggests that Williamson must have greatly understated the periphery's terms-of-trade boom. Much like Singer before him, Williamson has used prices from the core, particularly from Britain and the United States, as proxies for prices in the periphery. This is why the index of the periphery's terms of trade in Figure 2.1 so closely resembles an inverted version of Britain's terms of trade. In effect, Williamson has simply produced *a mirror image of Britain's terms of trade* by substantially relying on British CIF prices for the periphery's exports and British FOB prices for its imports. The boom he detects, therefore, is merely the reflection of the deterioration of Britain's terms of trade due to the falling prices of its exports up to 1860. Were the effects of price convergence also taken into account, the boom would most likely appear considerably longer, greater, and more widespread than Williamson imagines.

To strengthen this conclusion, tests can be run using data from Indonesia, a peripheral country with an unusually rich collection of price series. Indeed, no other peripheral country can rival the database of wholesale prices that Dutch researchers have compiled for Indonesia, principally by drawing on the East Indies' commercial press.[50] They have used those prices to calculate export and import price indices for Indonesia since 1825, which results in by far the longest own-price terms of trade

50. Korthals Altes, *Changing Economy*, XV.

Figure 2.5

Indonesia's Own-Price Terms of Trade, 1825-1913



Sources: Calculated from the export and import price indices in Korthals Altes, *Changing Economy*, XV, pp. 159-60. For the series, see Table DA.4 in the Data Appendix.

estimate for a peripheral country. Their export price index consists of the wholesale prices of coffee, copra, rubber, sugar, and tobacco, with weights changed every decade; their import price index mainly consists of cotton piece goods, but also copper sheets and iron, with the weights adjusted more sporadically.[51] Dividing the export price index by the import price index gives a terms-of-trade series that, as seen in Figure 2.5, has a roughly 700 percent improvement from the second half of the 1820s up to the decade prior to the First World War. This, it must be stressed again, is the *longest* own-price estimate of a peripheral country's terms of trade, so the magnitude and length of the boom that it shows is especially significant.

The price data underlying the terms-of-trade series in Figure 2.5 can be used to test for the downward bias in proxy estimates. A simple two-good test has the advantage of bypassing questions relating to the type of price index used and the composition of the indices.[52] These questions are irrelevant in a two-good test

51. Ibid., pp. 161-64.
52. These questions have been given much attention in the existing literature on the periphery's terms of trade, generally to the detriment of the far more important issue of where the prices were taken from. For example, Ş. Pamuk, 'Foreign Trade, Foreign Capital and the Peripheralization of the

because no indexing takes place. Instead, the relative prices of just two goods in Indonesia can be compared with the relative prices of the same goods in a core country. In this way, a two-good test isolates the issue of whether or not the prices from the core country can be used as proxies for prices in the peripheral country.

Figure 2.6 presents the basic data to be used in the test. It compares the prices of cotton shirtings in Britain and Indonesia in Panel (a), and the prices of raw sugar in Britain and Indonesia in Panel (b), with all converted to British currency and metric units.[53] The result illustrates how the prices of cotton piece goods fell much more dramatically in Indonesia than in Britain, while the opposite was the case for the price of sugar, which fell more in Britain. The gap between the two series thus narrowed, indicating substantial price convergence.

These four series can be used to calculate own-price and proxy estimates of the terms of trade for the two goods, shown respectively as Panels (a) and (b) in Figure 2.7, with the downward bias in the proxy estimate clearly evident. In Panel (a) the terms of trade show that, measured in wholesale prices in Java, the purchasing power of a kilo of sugar increased from around 0.7 m^2 of cotton shirtings in the 1840s to 1.2 m^2 in the 1890s, then fell back to 0.7 m^2 in the 1900s. By contrast, Panel (b) shows the purchasing power of a kilo of sugar, measured using prices in Britain, persistently falling from 2.8 m^2 to 1.2 m^2 in 1900s. Hence, even though the own-price estimate has the terms of trade improving for much of the nineteenth century, the proxy estimate indicates a secular deterioration – clear evidence of a major downward bias in the trend.

This two-good test can also be used to evaluate the other methods that have been used to estimate the terms of trade in the existing literature. In Panel (a) of Figure 2.8 the thick line is what was described above as a 'part-proxy' estimate, calculated using prices for sugar in Java and cotton shirtings in Manchester. The

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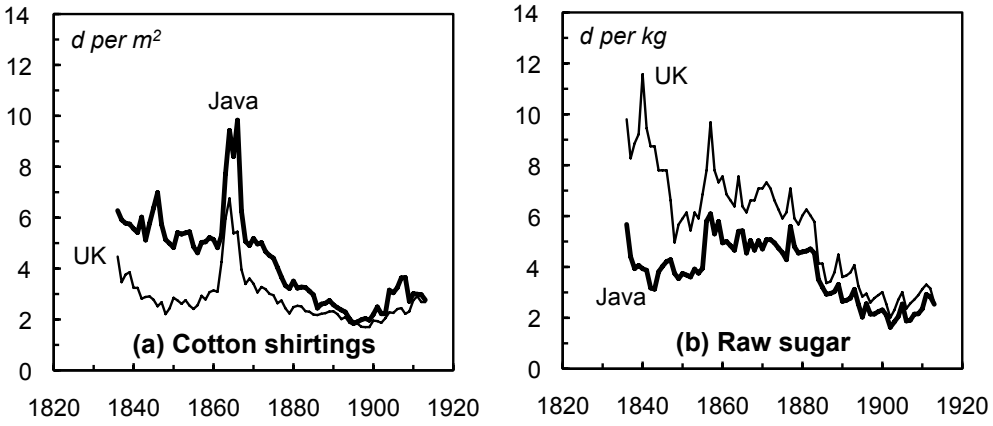
Ottoman Empire', PhD diss., University of California, 1978, pp. 259-73; and L. Prados de la Escosura, 'Las relaciones reales de intercambio entre España y Gran Bretaña durante los siglos XVIII y XIX', in P.M. Aceña and L. Prados de la Escosura, eds., *La nueva historia económica en España*, Madrid, 1985, pp. 129-31.

53. These prices should be treated as close approximations because measuring prices across time is complicated by changes in the quality of goods, especially in the case of cotton shirtings. In Panel (a) of Figure 2.6 the actual prices of cotton shirtings has been used for both places during 1908-13, then extrapolated backward using the prices of other types of cotton shirtings or cloths. Consequently, the prices prior to 1908 are estimates with some margin of error that are probably insufficient to affect the results of the test.

Figure 2.6

Prices in Britain and Indonesia, 1836-1913



Note: The series are in British sterling. There were 20 shillings (s) per pound (£), and 12 pennies (d) per shilling. The series were constructed as follows:

Cotton shirtings in Java: Longfold, white English shirtings for 1908-13, extrapolated back through ratio splicing with another series for white English shirting during 1861-1908, and a series for bleached Dutch calicoes (madapollams) during 1836-61. All series are wholesale prices in Batavia.

Cotton shirtings in Britain: 16 by 15 thread shirtings for 1908-13, extrapolated back through ratio splicing with Lars Sandberg's grey cloth price index for 1836-1908. Both series are wholesale prices in Manchester.

Raw sugar in Java: Sugar in Batavia for 1848-1913, extrapolated back through ratio splicing with another series for sugar in Java for 1836-48. Both series are wholesale prices.

Raw sugar in London: Sugar in London throughout. The series is the 'in bond' (that is, CIF) price.

Sources:

Cotton shirtings in Java: Korthals Altes, *Changing Economy*, XV, pp. 27-31, Table 1A, Series 27.

Cotton shirtings in Manchester: *Economist*, 'Commercial History', supplement, various years; L.G. Sandberg, 'Movements in the Quality of British Cotton Textile Exports, 1815-1913', *Journal of Economic History*, 28:1, 1968, pp. 8, 10-11, Tables 1, 2, and 4; and Korthals Altes, *Changing Economy*, XV, p. 31, Table 1A, Series 60.

Raw sugar in Java: Korthals Altes, *Changing Economy*, XV, pp. 87-96, Table 2A, Series 27, 60, 62.

Raw sugar in London: *Economist*, 'Commercial History', supplement, various years; and Korthals Altes, *Changing Economy in Indonesia*, XV, pp. 27-31, 87-96, Table 2A, Series 68 and 69.

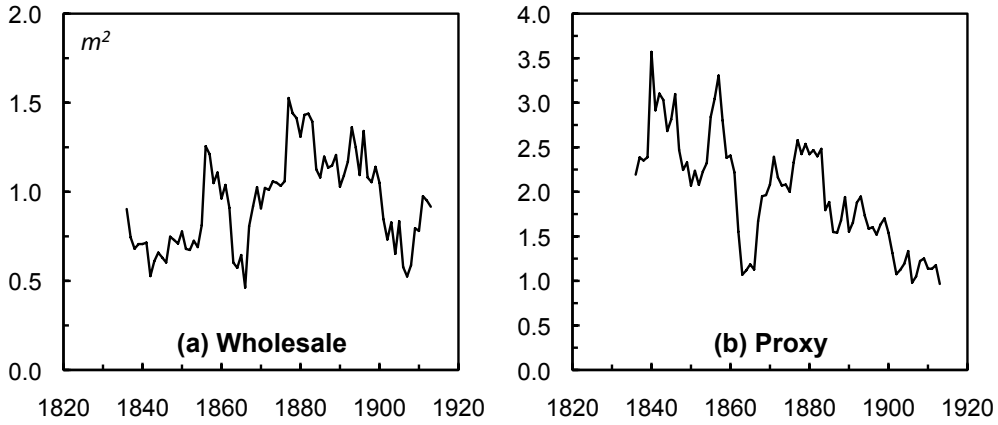
Exchange rate: J.T.M. van Laanen, *Changing Economy in Indonesia*, VI, *Money and Banking 1816-1940*, The Hague, 1980, pp. 123-26, Table 8, Lines 4 and 16.

For the series, see Table DA.7 in the Data Appendix.

resulting terms of trade are still some distance from the wholesale estimate, which is shown by the thin line. Considerably closer is the thick line in Panel (b), in which the

Figure 2.7

Two-Good Terms of Trade for Indonesia, 1836-1913



Note: The series show the purchasing power of a kilo of raw sugar in terms of square metres of cotton shirtings. They are calculated using the following series from Figure 2.6:

(a) Wholesale prices of raw sugar in Java divided by wholesale price of cotton shirtings in Java.

(b) 'In bond' price of raw sugar in London divided by wholesale price of cotton shirtings in Manchester.

Sources: As in Figure 2.6.

proxy estimate has been adjusted by using an Indonesia-to-Europe freight-rate index to deduct trade costs from the British price of sugar and add them to the British price of cotton shirtings, following Equation 2.5. The adjusted proxy estimate that results suggests that, when own-price estimates are impossible, making such adjustments is highly desirable, since it leads to terms of trade that are much closer to the wholesale estimate, again shown by the thin line. More desirable still, however, is what can be called the 'adjusted part-proxy terms of trade' shown in Panel (c). It was calculated using Indonesia's own prices for sugar and adjusted British cotton shirtings prices, as follows:

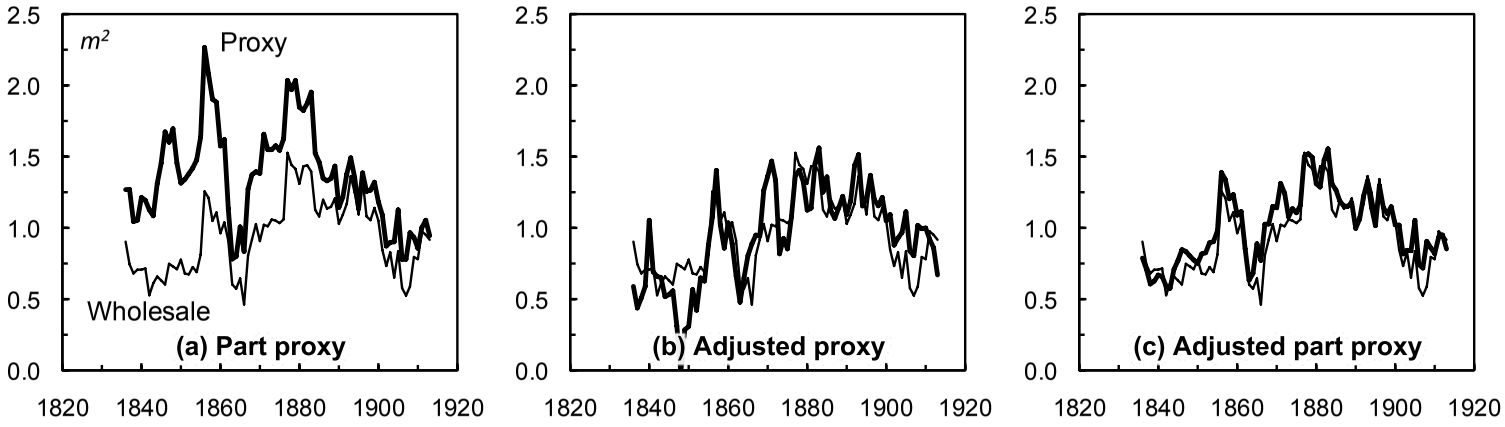
$$Adjusted\ part\ proxy\ NBTT = \frac{Domestic\ export\ price\ index}{Foreign\ import\ price\ index + trade\ costs} \qquad 2.6$$

Panel (c) indicates that such an estimate should result in a series that is very close to the wholesale estimate.

The two-good test suggests, then, that proxy estimates are misleading and that adjusted estimates are preferable. This is confirmed by the simple statistical analysis

Figure 2.8

Other Two-Good Terms of Trade for Indonesia, 1836-1913



Note: The series show the purchasing power of a kilo of raw sugar in terms of square metres of cotton shirtings. In all panels the thick line is the indicated proxy estimate and the thin line is the wholesale estimate. For each panel, the proxy estimates were calculated using the following series from Figure 2.6:

(a) Wholesale prices of raw sugar in Java divided by wholesale price of cotton shirtings in Manchester.

(b) 'In bond' price of raw sugar in London divided by wholesale price of cotton shirtings in Manchester, both adjusted for changes in trade costs. For raw sugar, an Indonesia-to-Europe freight rate index was referenced so that 1908-13 equaled the average gap in prices between sugar in London and Java during this period. The index was then subtracted from the London price of sugar. For cotton shirtings, the freight rate index was referenced in the same way, then added to the price of cotton shirtings in Manchester.

(c) Wholesale prices of raw sugar in Java divided by wholesale price of cotton shirtings in Manchester, with the latter adjusted as in panel (b).

Sources:

Prices: as in Figure 2.6.

Freight-rate index: Korthals Altes, *Changing Economy*, XV, pp. 159-60.

Table 2.4

Indonesia's Two-Good Terms of Trade, 1836-1913

	Pearson correlation coefficients		
	Whole	Components*	
		Trend	Cycles
Proxy	0.15	-0.19	0.61
Part-proxy	0.67	0.49	0.81
Adjusted proxy	0.73	0.91	0.48
Adjusted part-proxy	0.91	0.96	0.81

* The trend and cyclical components were separated using a Hodrick-Prescott Filter, with the smoothing parameter set at 300.

Note: In all cases the coefficients are for the correlation between the wholesale estimate and the estimates from Figures 2.7 and 2.8. 1.00 equals perfect positive correlation, -1.00 perfect negative correlation.

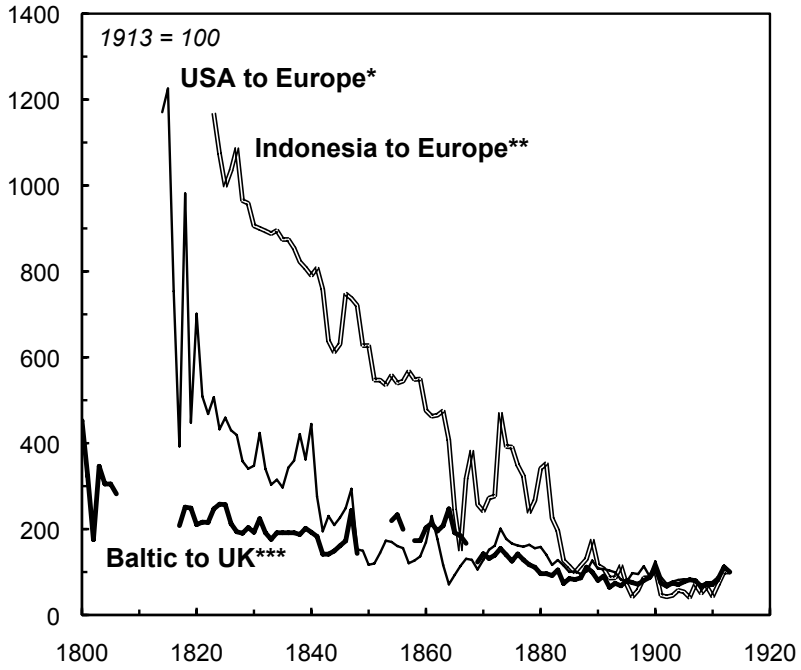
in Table 2.4, in which all the estimates and their trend and cyclical components are correlated with the wholesale estimate during 1836-1913. The coefficients confirm the negative correlation between the trends in the wholesale and proxy estimates, while the cycles in all the estimates are positively correlated with the cycles in the wholesale estimate, although the coefficient is notably lower for the adjusted proxy estimate. The adjusted part-proxy estimate's superiority is clearly seen in the high coefficient for the whole series, as well as for both its trend and cyclical components. Whenever own-price estimates are not available, therefore, proxy or part-proxy estimates should be adjusted for changes in trade costs.

The problem, unfortunately, is that making such adjustments is not easy. Traditionally it has been assumed that trade costs were equivalent to just insurance and freight,[54] yet more recent research on nineteenth-century price convergence has suggested that trade costs should also include not only 'storage costs, tariffs, taxes, and spoilage', but also 'exchange rate risk, prevailing interest rates, and/or the risk aversion of agents',[55] as well as, it can be added, the degree of competition among merchants, which determines the markups on their goods. Furthermore, there is the added problem of variation in the degree to which trade costs fell for different places. Figure 2.9 illustrates this by comparing three freight-rate indices. Whereas the

54. For example, Pamuk, 'Foreign Trade, Foreign Capital', pp. 187-99; and L. Prados de la Escosura, 'El comercio hispano-británico en los siglos XVIII y XIX: I. Reconstrucción', *Revista de Historia Económica*, 2:2, 1984, pp. 134-37.
55. Jacks, 'Intra- and International Commodity Market', p. 384, fn. 1.

Figure 2.9

Freight-Rate Indices, 1800-1913



* Freight rates for ashes, bark, cotton, flour, naval stores, rice, timber, tobacco, and wheat.

** Freight rates for sugar and unspecified cargoes.

*** Freights rates for timber and wheat.

Note: All indices represent freight rates in nominal pounds sterling.

Sources:

Baltic: Calculated from C.K. Harley, 'Ocean Freight Rates and Productivity, 1740-1913: The Primacy of Mechanical Invention Reaffirmed', *Journal of Economic History*, 48:4, 1988, pp. 873-75, Table 9; and Mohammed and Williamson, 'Freight Rates', pp. 179-81, Table 1.

Indonesia: Korthals Altes, *Changing Economy*, XV, pp. 159-60; and van Laanen, *Changing Economy*, VI, pp. 122-26, Table 8.

United States: D.C. North, 'The Role of Transportation in the Economic Development of North America', in Colloque International d'Histoire maritime, ed., *Les grandes voies maritimes dans le monde, XVe-XIXe siècles*, Paris, 1965, p. 236, Table 2; and Officer, 'Dollar-Sterling Exchange Rates'. For the series, see Table DA.8.

Indonesia-to-Europe index fell by 93 percent from the 1840s to the 1900s, the United States-to-Europe index fell by 77 percent, and the Baltic-to-Britain index by 60 percent. Freight rates thus fell by different degrees for different places,[56] and it can be assumed that other trade costs did too. This implies that the good results for the adjusted estimates in Figure 2.8 owe much to the existence of a freight-rate index for

56. Also see S.I.S. Mohammed and J.G. Williamson, 'Freight Rates and Productivity Gains in British Tramp Shipping 1869-1950', *Explorations in Economic History*, 41:2, 2004.

Indonesia, which again reflects the unusually rich data available for this country. Unfortunately, freight-rate indices going back to the first half of the nineteenth century are not currently available for other peripheral countries.

What the available evidence indicates, then, is that there must be a major downward bias in most of the terms-of-trade series used by Williamson. Here this was seen for six countries in Figure 2.4, where their own-price and proxy estimates were compared; then a more detailed and long-term analysis was made using the price data from Indonesia, which are by far the best price data available for any peripheral country. The two-good test calculated with Indonesia's prices demonstrated that the downward bias in the trend of proxy estimates must be large for the nineteenth century; it is likely to be present in the part-proxy estimates that Williamson uses; and possibly even his adjusted proxy estimates have not had sufficient adjustments made. Indonesia's price data in this way suggest that had Williamson's estimates used prices taken from the peripheral countries themselves (or had they been correctly adjusted for trade costs), they would have shown a far longer, greater, and more widespread terms-of-trade boom than he supposes. Many of the details of Williamson's narrative must accordingly be treated with considerable scepticism. Here this will be illustrated using the crucial case of India.

India's Deindustrialisation

India has long been thought of as the principal case of the periphery's nineteenth-century deindustrialisation. It has inspired much debate among historians.[57] At issue is the extent to which cheap imported textiles undermined India's cottage industries. Table 2.5 illustrates this deindustrialisation with the latest estimates of India's textile production during the nineteenth century. They suggest that home production fell from more or less all of domestic consumption in 1795 to just 40 percent by 1900, while per capita output fell from five square metres in 1795 to three in 1880, although it then recovered to four by 1900. Constructing such numbers entails making heroic assumptions about population and consumption levels, yet these estimates are particularly important because they were produced by a historian who is sceptical about claims of India's deindustrialisation.[58] For this reason, it is notable

57. For overviews, see Habib, 'Studying a Colonial Economy'; Roy, *Rethinking Economic Change*, ch. 5; and Parthasarathi, 'Historical Issues'.

Table 2.5

Cotton Cloth Production in India, 1795-1900

	Production of cotton cloth	
	% of consumption	m^2 per capita
1795	78-102	5.0
1820	102	4.8
1840	86	4.4
1860	56	4.1
1880	38	2.9
1900	40	4.0

Sources: Calculated from T. Roy, 'Consumption of Cotton Cloth in India, 1795-1940', *Australian Economic History Review*, 52:1, 2012, pp. 73-74, Tables 3 and 5.

that they imply a fall in the per capita output of textiles due to greater competition with imports.

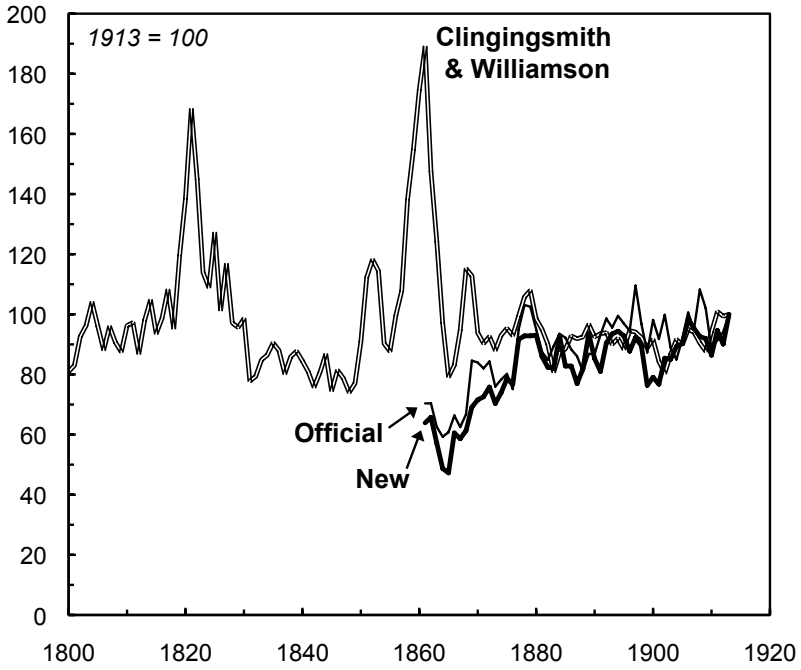
India's deindustrialisation is a problem for Williamson's narrative because he does not find that the subcontinent experienced a terms-of-trade boom; rather, he found that its terms of trade were trendless during the long nineteenth century. Williamson must accordingly explain why deindustrialisation occurred without improved terms of trade. He and his co-author, David Clingingsmith, contend that the combination of war, pestilence, and drought undermined agricultural productivity, which drove up the intersectoral terms of trade between agriculture and industry, leading to deindustrialisation.[59] What they call the 'external' terms of trade did not play a role in this narrative.[60] On this basis, the long boom's capacity to explain deindustrialisation in the periphery appears limited, especially since Williamson has also found that China's terms of trade actually deteriorated. Given that these two countries made up the vast bulk of the periphery's industry prior to the nineteenth century, the relevance of the long boom to the periphery's deindustrialisation seems minimal.[61]

The case of India becomes less problematic, however, once own-price

58. See Roy, *Rethinking Economic Change*, ch. 5.
59. D. Clingingsmith and J.G. Williamson, 'Deindustrialization in 18th and 19th Century India: Mughal Decline, Climate Shocks and British Industrial Ascent', *Explorations in Economic History*, 45:3, 2008; also see Williamson, *Trade and Poverty*, ch. 6.
60. The use of the adjective 'external' is problematic because some use it to describe what have here been called 'at the port' estimates, while others, including Williamson in this case, use it as shorthand for proxy estimates, implicitly justifying them by claiming that they represent 'external' or 'world' prices.
61. Roy, 'Review of *Trade and Poverty*'.

Figure 2.10

Three Estimates of India's Terms of Trade



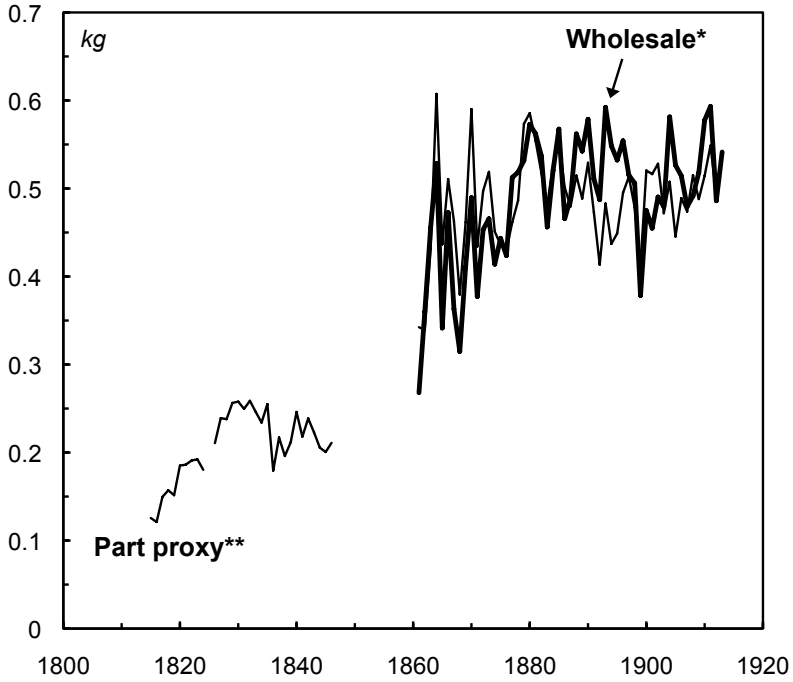
Sources: Data underlying Clingingsmith and Williamson, 'Deindustrialization in 18th and 19th Century India'; kindly provided by Professor Williamson; and DCIS, *Index Numbers of Indian Prices* 1861-1931, Delhi, 1932, p. c, Summary Table 1; and Appendix 2.2. For the series, see Table DA.5.

estimates of its terms of trade are considered. Clingingsmith and Williamson depend on a proxy estimate, mainly calculated from British and US prices,[62] that, as seen in Figure 2.10, is at odds with two own-price estimates for 1861-1913. Both the own-price estimates are calculated from dozens of wholesale prices recorded by the British authorities in several Indian cities. The first uses crude export and import price indices that were calculated as unweighted arithmetic means by those authorities; the second has been newly constructed for this dissertation using the same wholesale prices but combining them in more sophisticated chained weighted geometric Laspreyes indices, as will be detailed in Appendix 2.2. Whereas Williamson's proxy estimate is trendless, both the own-price estimates have strong upward trends until the late 1870s, only becoming trendless thereafter. This leaves the impression that Williamson's failure to find a terms-of-trade boom for India may have been due to the downward bias in the trend of his proxy estimates.

62. Clingingsmith and Williamson, 'Deindustrialization in 18th and 19th Century India', pp. 231-32. Also see Appendix 2.1, page 88.

Figure 2.11

Terms of Trade for Cotton and Cotton Shirtings in India, 1815-1913



* Wholesale price of raw cotton in Bombay divided by the wholesale price of imported grey shirtings in Calcutta.

** Wholesale price of raw cotton in Bombay divided by wholesale price of shirtings in Manchester.

Note: The series show the purchasing power of one kilo of raw cotton in terms of kilos of cotton shirtings.

Sources:

Cotton price in India during 1813-43: Select Committee on the Growth of Cotton in India, 'Report', in *Parliamentary Papers*, IX, 511, 1847-48, pp. 375-76.

Cotton and shirtings prices in India during 1861-1913: DCIS, *Index Numbers*, pp. 7, 9, Table 5.

Exchange rates: DCIS, *Index Numbers*, p. 18, Table 9; and M.A. Denzel, *Handbook of World Exchange Rates, 1590-1914*, Farnham, 2010, pp. 53-54, Table 1.3.1.

Shirtings in Manchester: as in Figure 2.6.

For the series, see Table DA.7 in the Data Appendix.

What price data that are available for India support the impression that it experienced a long terms-of-trade boom. Figure 2.11 gives a pertinent example: the terms of trade of raw cotton and cotton shirtings. The thick line is an own-price estimate calculated using wholesale prices in India, while the thin line is a part-proxy estimate calculated from the wholesale price of raw cotton in Bombay and the price of shirtings in Manchester. The longer, part-proxy estimate suggests that the purchas-

ing power of a kilo of raw cotton in Bombay increased from around 140 grams of cotton shirtings in the second half of the 1810s to 520 grams in the 1880s – an improvement in the terms of trade of 271 percent, and even this is likely to be an underestimate thanks to the downward bias that exists in the trend of part-proxy estimates for the nineteenth century.[63]

The case of India therefore illustrates why the methodological issues discussed in this chapter matter: how the terms of trade are measured can affect the analysis that is made. In Williamson's case, a dubious proxy estimate leads him to undermine his own narrative with an account of how war, pestilence, and drought, rather than the terms of trade, caused India's deindustrialisation. Nevertheless, once the country's own prices, rather than proxy prices, are examined, it can be seen that India's terms of trade probably did improve, so its deindustrialisation *can* be explained by the long boom. Williamson's alternative account then becomes unnecessary, and his central narrative of how improved terms of trade caused deindustrialisation in the periphery is greatly reinforced.

Whither Ricardo?

This chapter has argued that the periphery's nineteenth-century terms-of-trade boom has been greatly under-appreciated as a result of a major methodological error in the existing literature. When measuring the terms of trade in the nineteenth century, prices from the core countries should not be used as proxies for prices in the periphery, unless adjustments are made for price convergence due to falling trade costs, as well as the different degrees to which they fell for different places. The implication is that were more own-price or correctly adjusted proxy estimates available, the periphery's nineteenth-century terms-of-trade boom would appear considerably longer, greater, and more widespread than has previously been supposed.

In making this argument, the chapter has strengthened Williamson's new narrative about the terms of trade, but only by criticising the empirical evidence that

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63. Other data on cotton cloth and raw cotton prices that support this conclusion are presented in Allen, *Global Economic History*, pp. 59-60, Figures 12 and 13. The sources of Allen's data are not given, however, so they should be treated with caution. Unfortunately, most recent research on the price history of India has focused on living standards rather than the terms of trade. See, most notably, idem, 'India in the Great Divergence', in T.J. Hatton, K.H. O'Rourke, and A.M. Taylor, eds., *The New Comparative Economic History: Essays in Honor of Jeffrey G. Williamson*, London, 2007.

he has presented to support it. Proxy estimates, to reiterate, cannot be used to measure the periphery's terms of trade in the nineteenth century because of the massive price convergence that took place. Nevertheless, and despite his claims to the contrary, Williamson relies heavily on such estimates: fully 12 of his 21 series should be classified as proxy estimates, while only two are own-price price estimates. Consequently, as shown in this chapter, Williamson has undermined his own narrative by repeating Singer's original error. His alternative account of India's deindustrialisation, for example, would have been unnecessary had its terms of trade been measured correctly. Perhaps even China, were its own prices used, would be seen as having a terms-of-trade boom that could explain its deindustrialisation as well.

If this conclusion is accepted, the question becomes why deindustrialisation should have led to the periphery's underdevelopment. Indeed, Williamson is not the first to observe that improved terms of trade undermined cottage industries outside the North Atlantic core, as Maurice Lévy-Leboyer before him recognised that they had driven deindustrialisation. In stark contrast to Williamson, however, he could see little negative in it.[64] 'One is hard put', Lévy-Leboyer wrote, 'to see why new nations could not improve their level of living by specialising in primary industry. From that point of view, deindustrialisation is desirable, on the obvious condition that the countries in question have crops which can be used by the West'.[65] Lévy-Leboyer thus begs the question: Whither Ricardo? Why would specialisation in primary-commodity production for export result in underdevelopment? To answer these questions, the following chapter examines the uneven impact of the long boom on different regions across the periphery, in order to explain why it did, indeed, bring prosperity to some, while also making others stagnate.

Appendix 2.1: 21 Terms-of-Trade Estimates, 1750-1913

This appendix provides a survey of the sources of each of the 21 estimates used by Williamson to measure the periphery's terms of trade in the nineteenth century. The results of this survey were already summarised in Table 2.2. To reiterate, the 'net barter terms of trade' (NBTT) are calculated as export prices (Px) divided by import

64. Lévy-Leboyer, *Banques européenes*, ch. 6.
65. Ibid., p. 193; quoted and translated by C. Tilly, 'Flows of Capital and Forms of Industry in Europe, 1500-1900', *Theory and Society*, 12:2, 1983, p. 138.

prices (Pm), so what will be described here is the methodology used to calculate Px and Pm in each of the 21 estimates used by Williamson. For nine countries, the calculations were predominantly done by Williamson and his co-authors, while the remaining 12 were gathered by Williamson from the existing literature. To understand how the series were calculated, it proved necessary to consult all of those sources, as well as Williamson's own work, giving rise to the survey presented here.[66] In Table DA.2 in the Data Appendix Williamson's series, which he kindly provided, are reproduced.

Using the vocabulary developed in this chapter, Williamson's database includes just two series that can be considered own-price terms of trade, although even one of those comes with some caveats:

1) Indonesia. For 1825-1913, both Px and Pm are chained Laspeyres indices calculated from wholesale prices from Java.[67]
2) Japan. For 1857-1865, terms of trade (Px/Pm) interpolated between figures for 1857, 1860, and 1865, which were apparently calculated from Japanese price records.[68] For 1866-75, Williamson used geometric interpolation. For 1876-1913, Px and Pm are chained implicit Paasche indices calculated from unit values taken from Japan's trade statistics. Pm is not strictly an own-price series because prior to 1903 imports were recorded FOB and not CIF. However, considerable effort has been made by the series' authors to adjust the FOB figures to CIF using a freight-rate index, so they can be taken as reasonably accurate representations of domestic prices, although strictly speaking the result is an adjusted part-proxy estimate during 1876-1903.[69]

By contrast, Williamson's database contains fully 12 series that were predom-

66. In the accompanying footnotes, the references are to the pages in the sources where the methodology is described. For a primer on the different types of index described (Fisher, Laspeyres, and Paasche), see C.H. Feinstein and M. Thomas, *Making History Count: A Primer in Quantitative Methods for Historians*, Cambridge, 2002, pp. 507-25.
67. Korthals Altes, *Changing Economy*, XV, pp. 158-60. Also see above, pages 72-80.
68. M. Miyamoto, Y. Sakudō, and Y. Yasuba, 'Economic Development in Preindustrial Japan, 1859-1894', *Journal of Economic History*, 25:4, 1965, p. 553.
69. Yamazawa and Yamamoto, *Estimates of Long-Term Economic Statistics*, XIV, pp. 169-70, 193, 197; for the adjustments, see M. Baba and M. Tatemoto, 'Foreign Trade and Economic Growth in Japan: 1858-1937', in L. Klein and K. Ohkawa, eds., *Economic Growth: The Japanese Experience since the Meiji Era*, Homewood, 1968.

inantly calculated as proxy terms of trade (that is, calculated using prices drawn from the core countries):

3) Argentina. For 1811-70, Px is a Paasche index; Pm is a geometric mean of two Laspeyres indices; both were calculated using wholesale prices and unit values drawn from several core countries.[70] For 1871-85, Px is a chained Laspeyres index calculated from British commodity prices; Pm is a re-weighted US wholesale price index.[71] For 1886-1913, Williamson gives Blattman, Hwang, and Williamson as his source, but from his underlying database it would appear that Px is a chained Laspeyres index originally calculated by Alec Ford from a mixture of Argentine and British price series; while Pm is a Laspeyres index calculated from British wholesale prices and unit values.[72] It should be noted that Ford's estimates are not proxy estimates, as they combine domestic wholesale prices for exports with adjusted proxy prices for other exports and imports. Nonetheless, given that only the end of the whole series used by Williamson has been calculated in this way, it is predominantly a proxy estimate. Also worth noting is that Ford's original work was undermined by Guido di Tella and Manuel Zymelman, when they attempted to chain two of his series for Px.[73] Rather than ratio splicing them, di Tella and Zymelman simply jumped from one series to the other in 1892, resulting in an artificial increase. Unfortunately, other scholars, including Williamson, have tended to use the di Tella and Zymelman version, rather than Ford's original.[74]

4) Ceylon. For 1782-1913, Px is a chained Laspeyres index calculated from British and US wholesale prices and unit values; Pm is an index of British export prices.[75]

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70. Newland, 'Exports and Terms of Trade', pp. 413-15; for the underlying data, see idem, 'Puramente animal: Exportaciones y crecimiento en Argentina 1810-1870', mimeo, 1990.
71. Blattman, Hwang, and Williamson, 'Winners and Losers'.
72. A.G. Ford, 'Export Price Indices for the Argentine Republic, 1881-1914', *Inter-American Economic Affairs*, 9:2, 1955.
73. di Tella and M. Zymelman, *Etapas del desarrollo*, p. 56, Table 10.
74. For example, O.J. Ferreres, *Dos siglos de economía argentina, 1810-2004: Historia argentina en cifras*, Buenos Aires, 2005, p. 658. Williamson seems to have been passed the di Tella and Zymelman series from this source. See Williamson, 'Globalization and the Great Divergence', p. 390; and L. Arroyo Abad, 'Persistent Inequality? Trade, Factor Endowments, and Inequality in Republican Latin America', *Economic History Review*, 73:1, 2013, p. 71.

5) China. For 1782-1913, as for Ceylon, with Indian opium wholesale prices added to the British export prices for Pm.[76]

6) Cuba. For 1826-1884, Px and Pm are chained Fisher ideal indices calculated using unadjusted unit values from British, French, and US trade statistics.[77]

7) India. For 1800-1913, Px is a chained Laspeyres index calculated from British wholesale prices and unit values, supplemented by opium wholesale prices from India itself; Pm is a reweighted US wholesale price index.[78]

8) Italy. For 1817-1913, Px and Pm were calculated from British wholesale prices and unit values; the types of indices are unclear.[79]

9) Malaya. For 1882-1913, Px and Pi are Laspeyres indices calculated from British, Thai, and US wholesale prices and unit values.[80]

10) Mexico. For 1750-1800, silver price in Mexico for Px; Pi is an arithmetic mean of various series of wholesale prices of textiles in Spain.[81] For 1801-28, silver price for Px; Pm is an index of British export prices.[82] For 1829-76, silver for Px; Pm is a chained Laspeyres index calculated from US trade statistics.[83] For 1876-1913, Px is a chained Laspeyres index calculated from British commodity prices; Pm is a reweighted US wholesale price index.[84] In the source for 1750-1828, the treatment of silver prices is unclear – it could be that this period is a part-proxy estimate. For 1829-76, the silver price appears to come from the United States, although again it is somewhat unclear.

11) The Philippines. For 1782-1913, Px is a chained Laspeyres index calculated using British wholesale prices and unit values, as well as US food prices (!)

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75. Williamson, 'Globalization and the Great Divergence', p. 391.
76. Ibid., p. 391.
77. L.K. Salvucci and R.J. Salvucci, 'Cuba and the Latin American Terms of Trade: Old Theories, New Evidence', *Journal of Interdisciplinary History*, 31:2, 2000.
78. Clingingsmith and Williamson, 'Deindustrialization in 18th and 19th Century India', pp. 231-32; and Blattman, Hwang, and Williamson, 'Winners and Losers'.
79. Glazier, Bandera, and Berner, 'Terms of Trade', p. 43.
80. G. Huff and G. Caggiano, 'Globalization and Labor Market Integration in Late Nineteenth- and Early Twentieth-Century Asia', *Research in Economic History*, 25, 2008, p. 345; also see W.G. Huff, 'Boom-or-Bust Commodities and Industrialization in Pre-World War II Malaya', *Journal of Economic History*, 62:4, 2002, p. 1095, Table 4.
81. Dobado González, Gómez Galvarriato, and Williamson, 'Mexican Exceptionalism', p. 802.
82. Ibid., p. 802.
83. R.J. Salvucci, 'The Origins and Progress of U.S.-Mexican Trade, 1825-1884: "Hoc opus, hic labor est"', *Hispanic American Historical Review*, 71:4, 1991, pp. 706, 730-31; and Salvucci and Salvucci, 'Cuba and the Latin American Terms of Trade', pp. 221-22.
84. Blattman, Hwang, and Williamson, 'Winners and Losers'.

as a proxy for copra; Pm is an index of British export prices.[85]

12) Russia. For 1782-1913, Px is a chained Laspeyres index calculated using British and US commodity and wholesale prices; Pm is an index of British export prices.[86]

13) Siam. For 1782-1913, as for Russia.

14) Venezuela. For 1830-1913, the exact sources and methodology underlying both Px and Pi are unclear, but they appear to be based on foreign prices.[87]

Williamson also uses two adjusted proxy estimates, which were mainly calculated using prices from the core that have been adjusted to make them better reflect prices in the periphery:

15) Ottoman Turkey. For 1800-54, Px is a Laspeyres index calculated using British CIF prices for silk and wool, US wholesale prices of tobacco and raisins, Indian wholesale prices of opium, and Turkish wholesale prices of wheat, with the silk, wool, and raisins prices adjusted for changes in freight rates; Pm is an unadjusted index of British export prices.[88] For 1854-1913, both Px and Pm are annually chained Fisher ideal indices calculated from unit values taken from Austrian, British, French, German, and US trade statistics, all adjusted using indices for insurance and freight rates from the United States.[89] These adjustments are probably inadequate because they do not take into account other trade costs, while the US insurance and freight-rate indices may not reflect changes in trade costs for Ottoman Turkey.

16) Spain. For 1750-1913, Px and Pm are both chained Fisher ideal indices calculated from British and Dutch wholesale prices and unit values, adjusted by indices for Belgian, British, and Spanish freight and insurance rates.[90] Again, other trade costs would need to be considered to make the adjustment

85. Williamson, 'Globalization and the Great Divergence', p. 391.
86. Ibid., p. 391.
87. A. Baptista, *Bases cuantitativas de la economía venezolana 1930-1995*, 2nd ed., Caracas, 1997, pp. 269-70.
88. Ş. Pamuk and J.G. Williamson, 'Ottoman De-Industrialization 1800-1913: Assessing the Magnitude, Impact, and Response', *Economic History Review*, 64:S1, 2011, pp. 182-84.
89. Pamuk, 'Foreign Trade', pp. 187-89, 253-76; cf. idem, *Ottoman Empire*, pp. 168-71.
90. Prados de la Escosura, 'Comercio hispano-británico', pp. 121-23, 133-40; and idem, 'Relaciones reales de intercambio', pp. 129-31, 151.

correctly.

Three series used by Williamson were part-proxy estimates, in that they used local prices for exports but unadjusted core prices for imports:

17) Brazil. Px is a Paasche index calculated using unit values from Brazil's trade statistics; Pm is an index of British export prices.[91]

18) Egypt. For 1796-1913, Px is wholesale cotton prices in Alexandria up to 1899, then US wholesale cotton prices; Pm is an index of British export prices.[92]

19) The Levant. For 1839-1913, Px is an unknown type of index, apparently calculated using local wholesale prices; Pm is an index of British export prices.[93]

Neither of Williamson's two remaining series inspires great confidence:

20) Portugal. The series was calculated using unit values from Portugal's trade statistics, but comes with the major caveat that '[g]iven that the valuation of exports in the official Portuguese statistics cannot be considered reliable, the results of the export price and terms of trade indices of Portuguese foreign trade will be presented here without any attempt to interpret them'.[94]

21) Chile. For 1810-1913, both Px and Pm were collated by Oscar Braun and his co-authors from a variety of secondary sources.[95] For 1810-44, Braun et al used a consumer-price index from Lima (!) for Px; Pm is British export prices. For 1845-61, a part-proxy estimate is used, as Px is calculated using unit values from Chile's trade statistics; Pm is an index of British export prices.[96] For 1862-1900, both Px and Pm are Paasche indices calculated using

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91. N.H. Leff, *Underdevelopment and Development in Brazil*, I, London, 1982, p. 82, Table 5.2.
92. Pamuk and Williamson, 'Ottoman De-Industrialization, 1800-1913', p. 35.
93. C. Issawi, *The Fertile Crescent, 1800-1914: A Documentary Economic History*, New York and Oxford, 1988, pp. 147-49.
94. P. Lains, 'Exportações portuguesas, 1850-1913: A tese da dependência revisitada', *Análise Social*, 22:91, 1986, p. 388, author's translation.
95. Compiled by J. Braun, M. Braun, I. Briones, J. Díaz, R. Lüders, and G. Wagner, 'Economía chilena 1810-1995: Estadísticas históricas', Documento de Trabajo 187, Instituto de Economía, Pontificia Universidad Católica de Chile, 2000, pp. 93-94.
96. Both from J.G. Palma, 'Growth and Structure of Chilean Manufacturing Industry from 1930-1935: Origins and Development of a Process of Industrialization in an Export Economy',

unit values from Chile's trade statistics.[97] For 1900-13, the sources are unknown as there is no series for Chile's terms of trade in the reference given by Braun et al.[98] It should be noted that the use of Chile's trade statistics for import unit values is dubious because they were based on fixed 'tariff values'.[99] Taken as a whole, then, Braun et al's series is problematic.

Appendix 2.2: India's Terms of Trade, 1861-1913

The new own-price estimate of India's terms of trade used in Figures 2.4 and 2.10 was calculated from 50 wholesale price series published by the British authorities.[100] Previously those prices were used by the British authorities to calculate export and import price indices as crude unweighted, arithmetic means.[101] Here, by contrast, export and import price indices have been calculated by chaining various geometric Laspeyres indices. Coverage is 80-90 percent of the value of exports and 50-60 percent of imports, and is broadly representative of coastal India.[102] The indices are reproduced in Table DA.5 in the Data Appendix.

To calculate the new indices, trade statistics were used to assign weights to the different price series for 1860, 1870, 1880, et cetera, as shown in Tables A2.1 and A2.2. Geometric Laspeyres indices were then calculated for 10 years either side of the base year, so, for example, a series was calculated for 1860-80, using weights

PhD diss., Oxford University, 1979, p. 76, fn. 1, and Appendices 5, 6, 7, 16, and 18.

97. From C. Clavel, 'Los términos de intercambio en el largo plazo, 1860-1900', paper presented at the Encuentro Anual de Economistas de Chile, 1990, pp. 5-10.
98. ECLA, *Economic Survey of Latin America 1949*, New York, 1951, p. 17, Table 2A.
99. A. Llona, 'On the Accuracy of Chilean Foreign Trade Statistics During the Nitrate Boom: 1870-1935', paper presented at the Conference on Trade, Poverty and Growth in History, Fundación Ramón Areces, Madrid, 17-18 May 2012, pp. 10-11, available online at http://www.uc3m.es/portal/page/portal/instituto_figuerola/home/research/poverty_growth2012/participants/A.LL.pdf (accessed 10 May 2013).
100. Some grain prices were retail, as indicated below. All but one of the series is from DCIS, *Index Numbers*, pp. 10-15, Table 6. The exception is opium, which for 1861-97 is from DFC, *Financial and Commercial Statistics for British India*, 6, 1899, p. 57, Table 4; and for 1898-1913, from various issues of East India Office, *Statistical Abstract Relating to British India*, through the Digital South Asia Library, online at http://dsal.uchicago.edu/statistics (accessed 1-5 November 2012).
101. DCIS, *Index Numbers*, p. 1, Table 1. The series are reproduced in M. McAlpin, 'Price Movements and Fluctuations in Economic Activity (1860-1947)', in D. Dumar and M. Desai, eds., *The Cambridge Economic History of India*, II, *c. 1757-c. 1970*, Cambridge, 1983, pp. 903-04, Appendix Table 11A.1.
102. The British collected the prices from various coastal cities. Fortunately, when two or more series are available for different places, they are similar, which suggests that the terms of trade calculated here can be taken as broadly representative of coastal India as a whole.

Table A2.1

Weights in India's Import Price Index

	1860	1870	1880	1890	1900	1910	1920
Coal (1865+)	.0219	.0195	.0354	.0343	.0068	.0075	.0018
Copper	.0789	.0568	.0462	.0403	.0204	.0472	.0158
Cotton manufactures	.6783	.6547	.6537	.6049	.6075	.5432	.5289
Cotton, yarn	.1274	.1401	.1055	.0837	.0553	.0409	.0811
Iron	.0331	.0334	.0442	.0569	.0698	.1230	.1869
Mineral oil (1888+)			.0148	.0585	.0768	.0439	.0498
Salt (1862+)	.0222	.0299	.0190	.0173	.0126	.0091	.0136
Silk, raw	.0295	.0374	.0304	.0248	.0226	.0111	.0097
Spelter	.0088	.0051	.0048	.0039	.0027	.0025	.0017
Sugar (1870+)		.0232	.0460	.0755	.1256	.1716	.1105

Note: The years are official rather than calendar years, so 1860 equals April 1860 to March 1861. The totals may not equal 1 due to rounding.

Sources: 1860-1910: calculated from East India Office, *Statistical Abstract*, various years, through the Digital South Asia Library; and ibid. 1929, pp. 462-65, Table 207.

from 1870.[103] Geometric means of all the overlapping periods were then calculated and linked through ratio splicing.[104]

The following are notes for specific import prices:

1) Cotton manufactures. This was by far the most important import category. Here it is represented by grey shirtings, which accounted for 18 percent of total imports of cotton manufactures during 1908-12.[105] The representativeness of the evolution of the price series was verified against trade statistics for the early 1870s and the 1910s.
2) Cotton yarn. Geometric mean of two series, one for grey and another for coloured yarn.
3) Mineral oil. A series for kerosene, which represented 76 percent of mineral oil imports during 1908-12.[106]

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103. A chained geometric Laspeyres index was used because it is a shorthand means to approximate a chained Fisher index. See IMF, *Producer Price Index: Theory and Practice*, Washington, DC, 2004, pp. 566, 593.
104. The geometric mean was preferred for splicing due to its mathematical properties. See R.J. Hill and K.J. Fox, 'Splicing Index Numbers', *Journal of Business & Economic Statistics*, 15:3, 1997, pp. 387-89.
105. Calculated from East India Office, *Tables Relating to the Trade of British India with British Possessions and Foreign Countries 1908-09-1912-13*, London, 1914, p. 38, Table 8.
106. Ibid., p. 35, Table 8.

Table A2.2

Weights in India's Export Price Index

	1860	1870	1880	1890	1900	1910	1920
Coal (1889+)			.0000	.0003	.0066	.0044	.0075
Cotton piece goods (1874+)		.0051	.0089	.0130	.0160	.0126	.0406
Cotton, raw	.2547	.3874	.2016	.1910	.1132	.2063	.2091
Cotton, yarn (1874+)		.0013	.0195	.0757	.0466	.0493	.0510
Ghee (1871+)		.0006	.0010	.0010	.0021	.0016	.0025
Grains							
Barley	.0001	.0000	.0001	.0001	.0001	.0006	.0007
Gram	.0024	.0009	.0015	.0012	.0011	.0020	.0006
Jawar and bajra	.0050	.0018	.0032	.0041	.0006	.0011	.0012
Rice	.1028	.0837	.1379	.1490	.1477	.1329	.0913
Wheat	.0047	.0021	.0499	.0699	.0003	.0741	.0206
Hides, raw (1867+)	.0167	.0292	.0286	.0196	.0589	.0309	.0108
Indigo	.0654	.0635	.0544	.0356	.0239	.0019	.0021
Jute manufactures	.0317	.0069	.0172	.0287	.0876	.0972	.2659
Jute, raw	.0142	.0513	.0599	.0880	.1215	.0886	.0821
Lac	.0060	.0027	.0086	.0090	.0119	.0123	.0380
Opium	.3533	.2147	.2071	.1072	.1057	.0730	.0127
Saltpetre	.0230	.0088	.0054	.0044	.0038	.0021	.0036
Seeds							
Linseed	.0123	.0337	.0563	.0577	.0498	.0480	.0273
Poppy	.0001	.0021	.0061	.0055	.0077	.0051	.0029
Rape	.0076	.0208	.0102	.0113	.0138	.0266	.0152
Sesamum or til	.0007	.0093	.0200	.0157	.0174	.0183	.0104
Silk, raw	.0360	.0251	.0083	.0060	.0057	.0029	.0017
Skins, dressed							
Goat (1866+)	.0020	.0035	.0109	.0134	.0192	.0092	.0032
Sheep (1866+)	.0015	.0026	.0080	.0099	.0141	.0067	.0024
Sugar							
Refined	.0007	.0002	.0003	.0004	.0003	.0002	.0011
Unrefined (1867+)	.0358	.0046	.0044	.0044	.0016	.0007	.0037
Tea (1871+)		.0223	.0465	.0604	.1067	.0710	.0610
Vegetable oil	.0069	.0028	.0084	.0061	.0059	.0041	.0145
Wool, raw	.0166	.0132	.0154	.0112	.0101	.0162	.0163

Note: The years are official rather than calendar years, so 1860 equals April 1860 to March 1861. The totals may not equal one due to rounding.

Sources: Calculated from data compiled from Board of Trade, *Statistical Tables Relating to the Colonial and Other Possessions of the United Kingdom*, 8, 1863, pp. 47, 51-61, Tables 50, 54 and 55; East India Office, *Tables Relating to the Trade of British India*, various years; and the sources given in Table A2.1.

In the case of export prices, in some years it was necessary to estimate weights based on the participation of a good in a more aggregated category in other

years. For instance, in 1870 the value for ghee exports was unavailable, so it was estimated as follows: in 1880 ghee was 25.9 percent of the provisions category; in 1870 provisions exports were £115,632; so ghee exports were estimated at £29,984 (that is, 115,632 multiplied by 0.259). These are notes for specific export prices:

1) Barley. Retail prices.
2) Cotton piece goods. Represented by T. cloths, which accounted for 43 percent of cotton piece good exports in 1912.[107]
3) Gram. Retail prices.
4) Jawar and bajra. Geometric mean of two retail prices series, one for jawar, the other for bajra.
5) Jute manufactures. Represented by gunny bags, which accounted for 48 percent of exports of jute manufactures during 1908-12.[108]
6) Jute, raw. Geometric mean of two series, ordinary and picked, both from Calcutta.
7) Lac. Represented by the geometric mean of first and second orange shell lac. Shell lac accounted for 88 percent of lac exports during 1908-12.[109]
8) Linseed. Geometric mean of two series, one from Calcutta, the other from Bombay.
9) Rice. Geometric mean of two series, Moonghy and Ballam (both from Calcutta). For Moonghy, the figures were interpolated based on the evolution of Ballam in 1907 and 1909.
10) Tea. Geometric mean of three series: Peokoe, Souchong, and Congou, all from Calcutta.
11) Vegetable oils. Represented by castor oil, which accounted for just 23 percent of total vegetable oil exports during 1908-12.[110] Nevertheless, castor oil was given the weight of all vegetable oils in order to better represent the importance of this type of good in India's exports.
12) Wheat: Geometric mean of three series when they overlap: Club No. 2 (Calcutta) for 1861-1913, Khandwa (Bombay) for 1867-1913, and Delhi No. 1

107. Ibid., p. 52, Table 10.
108. Ibid., p. 53, Table 10.
109. Ibid., p. 48, Table 10.
110. Ibid., p. 50, Table 10.

(Bombay) for 1871-1913.

13) Wool: Geometric mean of two series when they overlap, one from Bombay for 1861-1913 and the other from Karachi for 1870-1913.

Chapter 3

A New Order

> The bourgeoisie, by the rapid improvement of all instruments of production, by the immensely facilitated means of communication, draws all nations, even the most barbarian, into civilization. The cheap prices of its commodities are the heavy artillery with which it batters down all Chinese walls, with which it forces barbarians' intensely obstinate hatred of foreigners to capitulate.
>
> Karl Marx and Friedrich Engels, *Manifesto of the Communist Party*[1]

The periphery's long terms-of-trade boom drove global divergence through its radically different effects on land-abundant and land-scare regions. Where land was abundant, frontiers could expand, allowing the European offshoots in Australasia and North America to prosper. In the land-scarce periphery, by contrast, deindustrialisation led to stagnation. The result was what Andre Gunder Frank called the 'development of underdevelopment',[2] with progress and decline occurring as parts of the same process. Where this chapter goes beyond Frank is in arguing against many of the assumptions that he and others inherited from Latin American structuralism, according to which an improvement in the terms of trade should be conducive to the periphery's development.[3] Rather, this chapter contends, it was a terms-of-trade

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1. K. Marx and F. Engels, *Manifesto of the Communist Party*, New York, (1848) 1948, p. 13.
2. Frank, *Latin America*, ch. 1, esp. p. 4.
3. Frank is often, arguably incorrectly, classified as a dependentista (see C. Kay, 'André Gunder Frank: From the 'Development of Underdevelopment' to the 'World System'', *Development and Change*, 36:6, 2005, pp. 1180-81), while 'dependency theory' is often amalgamated with Prebisch-inspired 'structuralism'. A failure to discover a deterioration in the terms-of-trade is then taken as a refutation of Frank and other dependentistas. For example, J. Schneider, 'Terms of Trade between France and Latin America, 1826-1856: Causes of Increasing Economic Disparities?', in P. Bairoch and M. Lévy-Leboyer, eds., *Disparities in Economic Development since the Industrial Revolution*, London, 1981, pp. 116-17; Prados de la Escosura, 'Relaciones reales', p. 147; Haber, 'Introduction: Economic Growth', pp. 9, 12; and Coatsworth, 'Structures, Endowments', p. 134. Frank himself, however, was scathing about the structuralists' fixation with the terms of trade. Frank, *Latin America*, pp. 405-06. Moreover, the terms of trade also featured little, if at all, in his own forays into global history. For example, idem, *Dependent Accumulation and Underdevelopment*, London, 1978, esp. pp. 101-03; idem, *World Accumulation*, *1492-1789*, New York, 1978; and idem, *ReOrient: Global Economy*.

boom that drove divergence during the long nineteenth century, as it divided the world into an industrialised North Atlantic core, the prosperous European offshoots, and an 'overpopulated' poor periphery.

This chapter provides a new framework for understanding the nineteenth century's great divergence(s). It begins by discussing how the long boom allowed land-abundant countries to prosper, refuting Jeffrey Williamson's claim that improved terms of trade resulted in a 'resource curse' that impeded growth.[4] Indeed, where land was abundant the expanding frontier could generate a safety-valve effect on labour markets, keeping wages high. The result was rapid intensive (that is, per capita) growth based on heavy investment in labour-saving machinery, as John Habakkuk famously argued.[5] This chapter illustrates these processes with the archetypal case of the United States, then discusses how they also occurred, to varying degrees, in other land-abundant countries. Subsequently, it explores the bifurcation between the land-scarce North Atlantic core and the similarly land-scarce regions of the poor periphery. Following the historiographical debate about the relationship between overseas trade and Britain's industrial revolution,[6] it describes how the industrialisation of the core *caused* and *required* the periphery's deindustrialisation, resulting in the Arthur Lewis-style world of increasing quantities of labour receiving diminishing returns by being applied to a more or less fixed amount of land.[7] In this way, the chapter answers Maurice Lévy-Leboyer's question of why deindustrialisation should have led to underdevelopment.[8] Chapter 4 will then apply this new metanarrative of global divergence to the Argentine case.

Land and Growth

Data on land resources and estimates of historical populations can be used to identify

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4. Williamson, *Trade and Poverty*, pp. 50-51, 183-84.
5. Habakkuk, *American and British Technology*, esp. ch. 3; cf. von Nardroff, 'American Frontier', pp. 138-39.
6. For an overview of the debate, see R. Findlay and K.H. O'Rourke, *Power and Plenty: Trade, War, and the World Economy in the Second Millennium*, Princeton, 2007, pp. 330-45, 358-64. The most important works drawn upon in this chapter are P.K. O'Brien and S.L. Engerman, 'Exports and the Growth of the British Economy from the Glorious Revolution to the Peace of Amiens', in B. Solow, ed., *Slavery and the Rise of the Atlantic System*, Cambridge, 1991, pp. 177-209; Cuenca Esteban, 'Rising Share'; and R.C. Allen, *The British Industrial Revolution in Global Perspective*, Cambridge, 2009, esp. pp. 16-22.
7. Lewis, 'Economic Development', pp. 140-55.
8. Lévy-Leboyer, *Banques européenes*, p. 193; also see Chapter 2, page 85.

the land-abundant regions of the world at the beginning of the long nineteenth century. In the first column of Table 3.1 each region's arable potential is indicated by the amount of land that could potentially be used for rain-fed arable agriculture;[9] in the second column that quantity of potential arable land has been divided by the region's population in 1780, in order to give an idea of how abundant land was relative to labour; in the third and fourth columns, the extent to which that arable potential was realised is measured by showing the amount of cropland in 1780 and 1910 as a percentage of the potential amount of arable land. Given limitations in the data, the results must be treated as approximate, but the general picture is likely to be correct.[10] It suggests that the land-abundant regions – in other words, the places where potential arable land per capita was high – were Oceania, North America, and South America, with Southern Africa trailing by some distance, and with little arable potential in the great Eurasian land mass.

The populations of the land-abundant regions tended to grow the fastest during the nineteenth century, as can be seen in Figure 3.1. Using a sample of 104 countries across four centuries, it can be seen that the availability of land became strongly correlated with whether a country's population expanded or stagnated. On the vertical axis of each panel is the growth in population across the century, while on the horizontal axis is an indicator of the potential arable land per capita at the beginning of each century. During the sixteenth and seventeenth centuries there was no correlation between land and growth, as the populations of the land-abundant countries grew no faster than the land-scarce countries. In the eighteenth century the future United States did begin to grow rapidly, aided by the import of African slaves,[11] as in Haiti, a land-scarce country that also grew at a fast pace thanks to the

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9. This is estimated by the Food and Agriculture Organization (FAO) using maps of the world's climates and soils, combined with a database of the needs of 21 of the world's major crops. The result includes land that is currently under cultivation for rain-fed agriculture and land that could potentially be brought into cultivation. It does not include irrigated land. See A.J. Bort, F.O. Nachtergaele, and A. Young, 'Land Resource Potential and Constraints at Regional and Country Levels, 2000', World Soil Resources Report 90, FAO, 2000, pp. 37-38.
10. On problems with historical population estimates, see Platt, *Mickey Mouse Numbers*, pp. 20-23, 34-35; and Austin, 'Reversal of Fortune', pp. 1001-03. For croplands, the History Database of the Global Environment (HYDE) of the Netherlands Environmental Assessment Agency has been preferred to the Global Land Use Database of the Center for Sustainability and the Global Environment (SAGE) because the HYDE figures seem more reliable. See Appendix 3.1 for further details.
11. D.W. Galenson, 'The Settlement and Growth of the Colonies: Population, Labor, and Economic Development', in S.L. Engerman and R.E. Gallman, eds., *The Cambridge Economic History of*

Table 3.1

Global Arable Potential, 1780-1910

	Arable potential*		Potential used (%)**	
	Million km^2	Ha per capita in 1780	1780	1910
Americas	15.1	66	1	15
North	4.8	93	1	41
Central and Caribbean	0.8	9	5	16
South	9.5	110	1	2
Africa	11.4	14	4	7
North	0.3	3	14	40
West	5.5	11	6	8
East	2.0	12	3	9
Southern	3.6	39	1	3
Asia	7.1	1	28	45
Western	0.5	2	50	65
Central	0.2	3	34	83
East	2.2	1	38	47
South	2.3	1	33	61
Southeast	1.9	6	4	17
Europe	6.3	4	21	46
Northern and central	1.7	2	27	45
Eastern	3.7	11	15	45
Southern	0.9	2	33	51
Oceania	1.3	247	0	8

* Land that could be used for rain-fed arable agriculture.

** Total cropland in cultivation as a percentage of arable potential.

Note: The figures are calculated from the database of 166 countries contained in Table DA.9 in the Data Appendix.

Sources:

Arable potential: Bort, Nachtergaele, and Young, 'Land Resource Potential', pp. 101-10, Table A8.

Croplands and population: data described in K.K. Goldewijk, A. Beusen, G. van Drecht, and M. de Vos, 'The HYDE 3.1 Spatially Explicit Database of Human-Induced Global Land-Use Change Over the Past 12,000 Years', *Global Ecology and Biogeography*, 20:1, 2011, pp. 73–86; data available online at ftp://ftp.pbl.nl/../hyde/supplementary/land_use/his_crop.xls and ftp://ftp.pbl.nl/../hyde/tmp/hispop_2008Rev.xls (accessed 5 September 2013).

For the underlying dataset, see Table DA.9 in the Data Appendix.

the United States, I, *The Colonial Era*, Cambridge, 1996, pp. 169-75

construction of an irrigation system by French engineers and slave labour.[12] In the nineteenth century the other land-abundant countries – especially Australia, Argentina, Brazil, and Canada, but arguably also South Africa[13] – became the fastest-growing countries in the world due to massive inflows of European settlers. As can be seen in Figure 3.1, it was only at this point that a positive correlation between land and growth began. Until then, the coefficients of determination indicate that land played little or no role as a determinant of population growth. In the nineteenth century, by contrast, two thirds of the variation in population growth among these 104 countries became determined by their potential arable land per capita.[14] This was because the other land-abundant countries had begun to follow the path first taken by the United States.

The United States

The United States was the first land-abundant country to begin growing rapidly. From just a quarter of a million people in 1700, the American colonies had expanded to contain 2.8 million by 1780.[15] This population growth was particularly impressive because it did not depress living standards. Indeed, the recent research of Robert Allen and his associates has suggested that the American colonists' living standards improved during the eighteenth century.[16] They have arrived at this finding through

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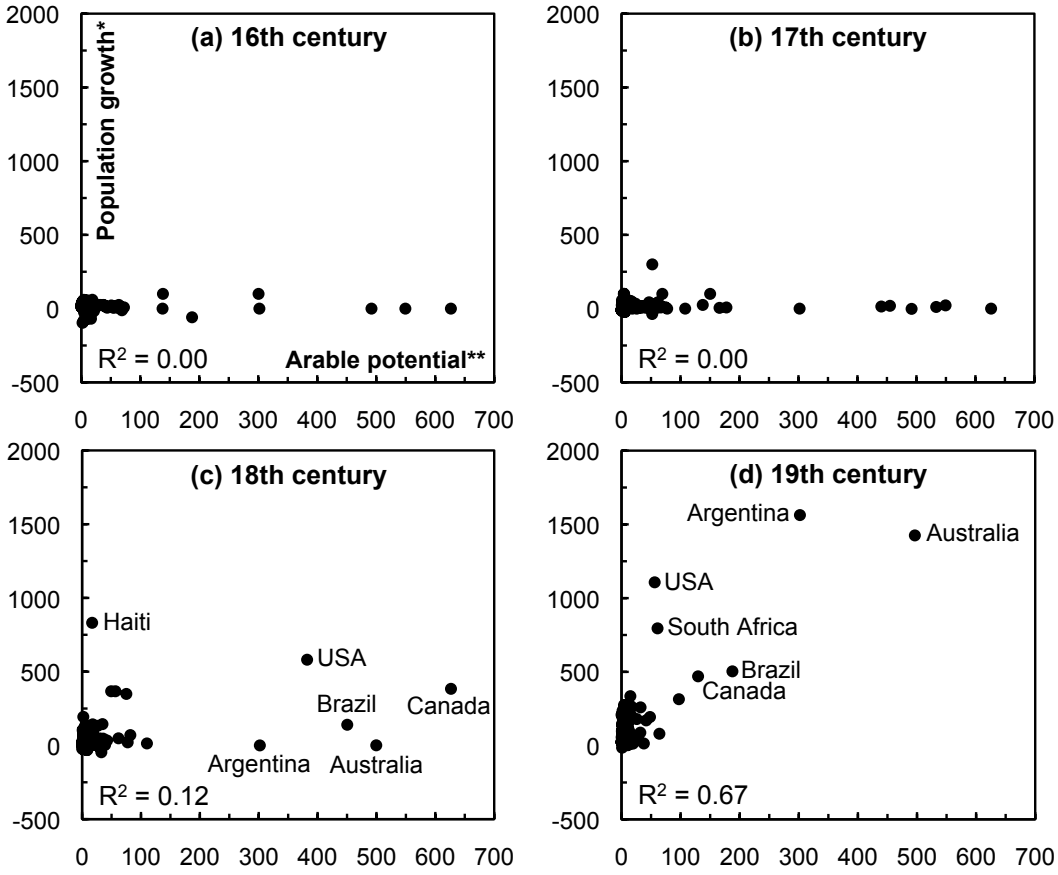
12. It should be remembered that the potential arable land in Figure 3.1 only includes land suitable for rain-fed agriculture. On Haiti, see R. Blackburn, *The Making of New World Slavery: From the Baroque to the Modern 1492-1800*, London, 1997, pp. 434-35, 441-42.
13. South Africa can be considered an artificially land-abundant country, as the African peasantry's land was appropriated for the benefit of European settlers. See C. Bundy, 'The Emergence and Decline of a South African Peasantry', *African Affairs*, 71:285, 1972.
14. In Figure 3.1 the full 166-country database contained in Table DA.9 in the Data Appendix has been reduced to 104 countries, with all those with a population of less than one million in 1900 excluded. With all 166 included, the R^2 equals 0.00 for the seventeenth and eighteenth centuries, 0.14 for the eighteenth, and 0.76 for the nineteenth. This high R^2 for the nineteenth century is, however, due to the phenomenally high growth of the Gambia, a minute land-abundant British colony that grew dramatically. With the Gambia excluded, the R^2 falls to just 0.11. That is, however, largely due to the influence of French Guiana, a small land-abundant French colony that grew little, and Hong Kong, the British city-colony that grew from just 18,000 people in 1800 to 306,000 in 1900. With these two countries excluded, the R^2 goes back up to 0.46. Excluding or including a variety of other minor countries has similar effects, so here they are all excluded to focus the analysis on the more important cases, with a population of one million in 1900 set as an arbitrary cutoff.
15. These figures are for the American colonies, excluding Canada and the Indians. Bureau of the Census, *Historical Statistics of the United States: Colonial Times to the 1970*, II, Washington, DC, 1975, p. 1168, Series Z1. The estimates used in Figure 3.1 are different because they are for the whole of today's United States.
16. R.C. Allen, T.E. Murphy, and E.B. Schneider, 'The Colonial Origins of the Divergence in the

Figure 3.1

Arable Potential and Population Growth, 1500-1900



* Percent population growth from beginning to end of the century.

** Hectares of land suitable for rain-fed agriculture, divided by population at the beginning of the century.

Note: For each century, the sample includes the same 104 countries, based on their early boundaries in the early twentieth-first century. The sample includes all countries included in the dataset in Table DA.10 that had a population of at least one million in 1900.

Sources: As in Table 3.1. For the underlying data, see Table DA.10 in the Data Appendix.

the calculation of 'welfare ratios', which, in Allen's words, give a rough indication of how far people were from the 'line between respectability and destitution'.[17] The ratios are calculated by dividing the wages of a labourer by the cost of a basket of goods sufficient for his family's subsistence, with a ratio of one indicating a subsistence-level standard of living. Hence, welfare ratios provides an indication of how far unskilled workers were from subsistence, with a higher ratio implying better living

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Americas: A Labor Market Approach', *Journal of Economic History*, 72:4, 2012.

17. R.C. Allen, 'The Great Divergence in European Wages and Prices from the Middle Ages to the First World War', *Explorations in Economic History*, 38:4, 2001, p. 426.

standards. How reliable the welfare ratios are depends heavily upon how much care has been taken with an often fragmentary record of wages and prices.[18] Nevertheless, they are preferable to the highly dubious historical estimates of GDP that are commonly used.[19] Reproduced in Table 3.2, the welfare ratios calculated by Allen and his associates suggest that free labourers in the British American colonies enjoyed living standards similar to those of Northern Europe during the first half of the eighteenth century, and probably overtook them during the second half.[20]

Looking back from the end of the eighteenth century, Adam Smith argued that the American colonies had been able to prosper in large part thanks to a benevolent British trade policy. There were 'no colonies of which the progress has been more rapid', Smith wrote, 'than that of the English in North America'.[21] Comparing them to the colonies of France, Portugal, and Spain, he contended that the British American colonies had been unusually blessed by the mother country's policies, which 'had been more favourable to the improvement of and cultivation of this land, than those of any of the other three nations'.[22] Partly this was due to legal institutions that

18. In the case of Allen's own figures, it is possible that his welfare ratios for India are too low. S. Sivramkrishna, 'Ascertaining Living Standards in Erstwhile Mysore, Southern India, from Francis Buchanan's *Journey* of 1800–01: An Empirical Contribution to the Great Divergence Debate', *Journal of the Economic and Social History of the Orient*, 52, 2009; and P. Parthasarathi, *Why Europe Grew Rich and Asia Did Not: Global Economic Divergence, 1600–1850*, Cambridge, 2011, pp. 45-46. Malanima has also suggested there may be some problems with the data for London and Italy. P. Malanima, 'When Did England Overtake Italy? Medieval and Early Modern Divergence in Prices and Wages', *European Review of Economic History*, 17:1, 2013. Far more problematic, however, is a recent estimate of welfare ratios in Buenos Aires in the late colonial era that has sought to replicate Allen's methodology, arriving at the conclusion that they were far higher than in Britain at the end of the long nineteenth century. L. Arroyo Abad, E. Davies and J.L. van Zenden, 'Between Conquest and Independence: Real Wages and Demographic Change in Spanish America, 1530-1820', *Explorations in Economic History*, 49:2, 2012, p. 157, Table 5; and Figure 3.6 below. This is, however, due to two basic errors. Specifically, Arroyo Abad et al have used Coatsworth's erroneously reported version of Johnson's wage series for the years 1775-95 (see Appendix 1.1, page 53, footnote 145), together with a highly dubious method of estimating meat prices for 1775-1800: they divide the price of a cow by 207, which they assume to be the kilos of beef on each animal. To see how clearly bogus such a methodology is, it can be applied to Garavaglia's cattle price series for 1810, which is when Barba's series for retail beef prices, used by Arroyo Abad et al, begins. Garavaglia found that in that year a cow sold for 11 pesos, which, divided by 207, suggests a beef price $0.05 per kilo. Barba, nevertheless, found that beef was selling for $1 per kilo, which gives an indication of just how much Arroyo Abad et al have underestimated beef prices. Calculated from Garavaglia, 'Precios de los productos', p. 102, Cuadro 1; and F.E. Barba, *Aproximación al estudio de los precios y salarios en Buenos Aires desde fines del siglo XVIII hasta 1860*, La Plata, 1999.
19. For the case of Argentina's historical GDP estimates, see Appendix 1.1.
20. This impression is reinforced using a different methodology by A. Hanson Jones, 'Wealth Estimates for the American Middle Colonies, 1774', *Economic Development and Cultural Change*, 18:4, 1970, pp. 129-32.
21. Smith, *Inquiry into the Nature*, II, p. 73.
22. Ibid., II, p. 73.

Table 3.2

Welfare Ratios of Unskilled Labourers Around the World, 1500-1849

	1500-49	1550-99	1600-49	1650-99	1700-49	1750-99	1800-49
North America							
Boston			1.4	2.3	3.0	4.2	
Philadelphia					4.8	5.4	
Maryland				3.7	3.4	4.2	
Latin America							
Bogota				1.3	2.1	2.2	2.1
Mexico - urban					2.5	2.3	1.5
Mexico - rural	0.2	0.6	0.9	1.3	1.5	1.4	0.9
Potosí				1.8	1.8	1.8	1.7
Asia							
Beijing					1.3	1.0	0.8
Lower Yangtze			0.8	2.2	1.8	1.2	0.8
Bengal					1.4	0.8	0.8
Delhi			3.0	3.0			1.3
Northern Europe							
Amsterdam	3.8	3.6	3.8	4.3	4.2	3.8	2.9
Antwerp	2.9	2.9	3.0	2.5	2.8	2.5	2.3
London	3.7	3.0	2.8	3.5	4.2	3.5	3.8
South England towns	2.9	2.2	1.7	2.0	2.8	2.5	3.2
Central Europe							
Leipzig		1.3	1.2	2.3	1.9	1.5	1.7
Vienna	3.6	2.1	1.9	2.2	2.0	1.4	0.7
Southern Europe							
Florence	2.3	1.9	2.1				
Milan			2.6	2.5	1.4	1.0	0.7
Naples	2.6	1.8	2.4	3.0	2.2	1.3	0.9
Madrid		1.5	1.4		1.2	1.1	
Valencia	2.3	1.6	1.6	1.4	1.4	1.0	

Source: Allen, Murphy, and Schneider, 'Colonial Origins', online appendices, pp. 29-31, Appendix Tables 2-4. The figures for central and southern Europe in Appendix Table 4 of this source appear to be errors because the figures are identical for three pairs of cities (Valencia and Naples, Madrid and Leipzig, Florence and Vienna). The welfare ratios for all central and southern European cities were on that account re-estimated by dividing the wages given in Appendix Table 2 by the cost of the subsistence baskets given in Appendix Table 3.

prevented the formation of great estates by obliging landowners to make improvements to land and by limiting primogeniture.[23] Furthermore, Britain had also tended to subsidise its colonies, whereas the other empires had been more extractive.[24] More

23. Ibid., II, pp. 73-75.
24. Ibid., II, pp. 75-76.

important for Smith, however, was the relatively free trade that the British American colonies had enjoyed. While most European states imposed strict trade monopolies on their empires, Smith believed that the British gave their American colonies more liberty to trade with whom they pleased.[25] Consequently, merchants' commercial margins were squeezed, so the colonists enjoyed far better terms of trade. Smith wrote:

> [T]he number and dispersed situation of the different traders renders it impossible for them to enter into any general combination, and their competition is sufficient to hinder them from making very exorbitant profits. Under so liberal a policy the colonies are enabled both to sell their own produce and to buy the goods of Europe at a reasonable price. [...] The profits of the trade, therefore, [...] though no doubt somewhat higher than if the competition was free to all other nations, are, however, by no means exorbitant; and the price of European goods accordingly is not extravagantly high in the greater part of the colonies [...].[26]

Britain had to ensure its American colonies received better terms of trade because Britons had to be provided with the necessary incentives to emigrate there, given the high living standards they enjoyed at home.[27] For this reason, British policy encouraged competition among merchants, which compelled them to innovate to reduce costs. Better packaging, in particular, reduced freight rates for tobacco, the colonies' principal export.[28] A rough illustration of how the terms of trade then improved is given in Figure 3.2. Unfortunately, the own-price series, shown in the thick line in Figure 3.2, only begins in 1790, and there are insufficient price data to extend it further back.[29] Nevertheless, the thin line gives a rough indication of the extent to which the terms of trade improved in the eighteenth century by showing the

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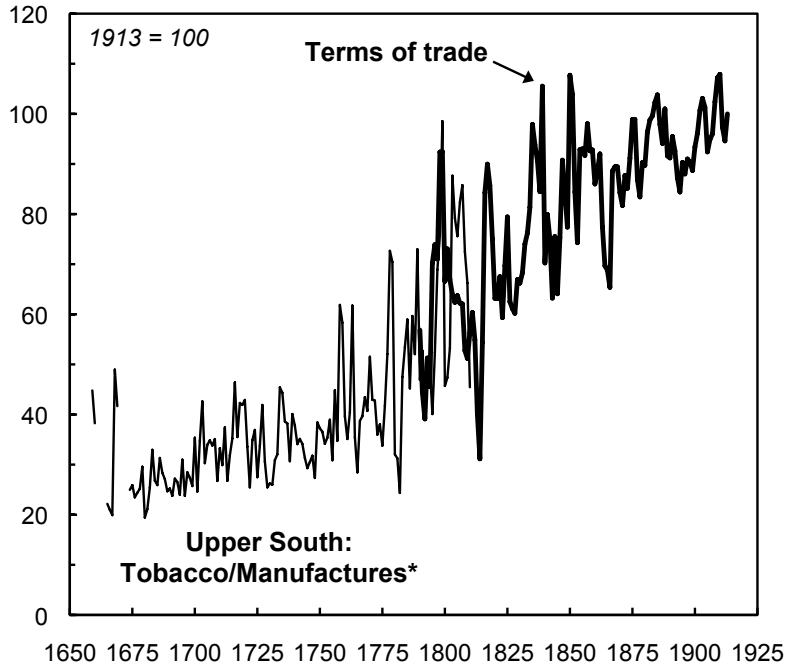
25. Ibid., II, pp. 77-88. For conformation of this, see E.J. Hamilton, 'The Role of Monopoly in the Overseas Expansion and Colonial Trade of Europe Before 1800', *American Economic Review*, 38:2, 1948.
26. Smith, *Inquiry into the Nature*, II, p. 78.
27. Cf. Allen, Murphy, and Schneider, 'Colonial Origins', pp. 879-81.
28. What evidence there is (for rice and tobacco exports) suggests that trade costs fell. See R.R. Menard, 'Transport Costs and Long-Range Trade, 1300-1800: Was There a European 'Transport Revolution' in the Early Modern Era?', in J.D. Tracy, ed., *The Political Economy of Merchant Empires*, Cambridge, 1991, pp. 253-64, 267-69; also J.F. Shepherd and G.M. Walton, *Shipping, Maritime Trade, and the Economic Development of Colonial North America*, Cambridge, 1972, ch. 4.
29. For the construction of the underlying series, see M. Simon, 'The United States Balance of Payments, 1861–1900', in Conference on Research in Income and Wealth, *Trends in the American Economy in the Nineteenth Century*, Princeton, 1960, pp. 647-49; D.C. North, *The Economic Growth of the United States, 1790–1860*, Englewood Cliffs, 1961, Appendix 1; and R.E. Lipsey, *Price and Quantity Trends in the Foreign Trade of the United States*, Princeton, 1963, Appendix A.

Figure 3.2

US Terms of Trade, 1659-1913



* Wholesale price of tobacco relative to the probate prices of manufactured goods (an index of cloth and metals) for Virginia during 1659-1776 and Maryland during 1770-1820. During 1770-76, the geometric mean of the two series was used. The entire series was then referenced so that 1790-1810 equals 62.79, which is the average value of the own-price estimate of the US terms of trade during this period.

Sources:

Terms of trade: D.A. Irwin, 'Exports and Imports of Merchandise – Price Indexes and Terms of Trade: 1790-2002', in Carter et al, *Historical Statistics*, Series Ee433, Ee436, and Ee439.

Upper South manufactures prices: P.M.G. Harris, 'Inflation and Deflation in Early America, 1634-1860: Patterns of Change in the British American Economy', *Social Science History*, 20:4, 1996, pp. 489-94, Table A1.

Upper South tobacco prices: J.J. McCusker, 'Wholesale Tobacco Prices in Virginia and Maryland, by Region: 1647–1820', in Cartel et al, eds., *Historical Statistics*, Series Eg282 and Eg283.

wholesale price of tobacco relative to the prices of manufactured goods, as recorded in probate inventories in Maryland and Virginia. This suggests that the United States' terms-of-trade boom began in the eighteenth century,[30] probably before the long boom started in most of the periphery.[31] It encouraged Britons to emigrate to the colonies by allowing land further from the ports (and, later, from the railway

30. For further evidence that supports this impression, see M. Egnal, *New World Economies: The Growth of the Thirteen Colonies*, New York, 1998, pp. 11-12, 63-67.
31. Cf. O'Rourke and Williamson, 'When Did Globalisation Begin?'.

stations) to be profitably brought into production, since the prices of the settlers' staple commodities were mainly set by the export prices received at the port, and the prices of the manufactured goods that they bought were largely set by imports.

The British colonies' improving terms of trade triggered the kind of extensive growth predicted by staple theory,[32] as periods of rising export prices saw the frontier expand, drawing in new settlers.[33] In the eighteenth century westward expansion became the central process shaping the future United States, as the movement of settlers out from the eastern seaboard provoked a series of conflicts involving the colonies, the Indians, Britain, France, and Spain, which ultimately culminated in the American Revolution and War of Independence during 1775-83. The question of the terms of trade would be one of the major issues that provoked revolution, as the British government had sought to tighten its trade monopoly in the Americas to increase the revenues that it required to service its war debts, while also placing new restrictions on settlement in the West to ensure that its merchant-creditors could continue to profit from the fur trade with the Indians.[34]

Once independence was attained, westward expansion would become the basis for the consensus required for the United States' nascent democracy to function. During the era of democratisation from the mid-1830s through to the mid-1850s, not only southern planters and yeoman farmers but also eastern labourers and artisans came to believe in the new nation's 'manifest destiny' of expansion toward the Pacific and the Rio Grande because all stood to gain from the expanding frontier.[35] Subsequently, the conterminous United States increased its territory from

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32. Cf. North, *Economic Growth*; and J.J. McCusker and R.R. Menard, *The Economy of British America, 1607-1789*, Chapel Hill, 1985, ch. 4. On staple theory, see the discussion in Chapter 1, pages 16 and 25, footnotes 21 and 60.
33. On this relationship during the nineteenth century, see North, *Economic Growth*, pp. 123-25, 136-40; C.K. Harley, 'Western Settlement and the Price of Wheat, 1872-1913', *Journal of Economic History*, 38:4, 1978; and idem, 'Transportation, the World Wheat Trade, and the Kuznets Cycle, 1850-1913', *Explorations in Economic History*, 17:3, 1980.
34. L. Sawers, 'The Navigation Acts Revisited', *Economic History Review*, 45:2, 1992; J.J. McCusker, 'British Mercantilist Policies and the American Colonies', in Engerman and Gallman, eds., *Cambridge Economic History*, I, pp. 342-43; and B. Baack, 'British Versus American Interests in Land and the War of American Independence', *Journal of European Economic History*, 33:3, 2004. Even in nominally 'political' histories of the revolution, these factors loom large. For example, F.D. Cogliano, *Revolutionary America 1763-1815: A Political History*, 2nd ed., New York, 2000, pp. 61-67;
35. A. Saxton, *The Rise and Fall of the White Republic: Class Politics and Mass Culture in Nineteenth-Century America*, London, 1990, p. 145; and D. Walker Howe, *What God Hath Wrought: The Transformation of America, 1815-1848*, Oxford, 2007, p. 705.

1.4 million square kilometres in 1790 to 4.9 million by 1860.[36] The land was obtained through both purchase and conquest, as the federal government bought land from France and Russia, annexed large swaths of Mexico, and routinely signed and broke treaties with the Indians, pushing them into reservations to clear their land for settlement.[37] The new lands incorporated within the expanding frontier were linked to the old by roads, canals, steamboats, and eventually railways, which drastically reduced the costs of moving goods over land.[38] The terms-of-trade boom was thus extended to the whole country, allowing settlers to cultivate the new lands. A major demographic shift followed, with the population rapidly spreading from the land-scarce east coast toward the West.[39] In the Northwest the yeoman settlers would later be celebrated for their individualistic and independent spirit, which, it was argued, formed the basis for American democracy,[40] but they also formed the militias that performed the task of exterminating Indians on the frontier. American democracy in this way came to be based on the collective project of expanding the frontier against the resistance of the Indians.[41]

Democratisation turned staple-theory-style extensive (that is, aggregate) growth into intensive (that is, per capita) growth. As staple theory would predict, industrialisation occurred due to the numerous linkages that formed between manufacturing and the export sector.[42] Industry would, moreover, become highly mechanised as a result of the safety-valve effect of the expanding frontier, with the westward movement ensuring that more easterly labour markets remained tight, so wages were kept high, which encouraged capitalists to invest in labour-saving technologies.[43] For this reason, the United States' growth became highly capital-intens-

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36. Bureau of the Census, *Historical Statistics*, p. 428, Series J2.
37. B. Vandervort, *Indian Wars of Mexico, Canada, and the United States*, New York, 2006, chs. 5 and 7; and B. Cumings, *Dominion from Sea to Sea: Pacific Ascendancy and American Power*, New Haven, 2009, pp. 27-39.
38. North, 'Role of Transportation', pp. 221-25; and A. Fishlow, 'Internal Transportation in the Nineteenth and Early Twentieth Centuries', in S.L. Engerman and R.E. Gallman, eds., *The Cambridge Economic History of the United States*, II, *The Long Nineteenth Century*, Cambridge, 2000, pp. 548-83.
39. M.R. Haines, 'The Population of the United States, 1790-1920', in Engerman and Gallman, eds., *Cambridge Economic History*, II, pp. 188-94.
40. Turner, *Frontier in American History*, ch. 1.
41. M. Mann, *The Dark Side of Democracy: Explaining Ethnic Cleansing*, Cambridge, 2005, pp. 83-98.
42. See D.R. Meyer, 'Emergence of the American Manufacturing Belt: An Interpretation', *Journal of Historical Geography*, 9:2, 1983; and G. Wright, 'The Origins of American Industrial Success, 1879-1940', *American Economic Review*, 80:4, 1990.

ive. Already by mid-century there was almost twice as much capital per worker being sunk into fixed investments as in Britain.[44] The North's victory during the Civil War of 1861-65 would then see the frontier's safety-valve effect amplified, as it ensured that the remaining western lands would become settler, rather than slaveholding, societies.[45] A series of Homestead Acts, beginning during the Civil War, allowed public lands to be distributed to settlers for free, considerably increasing access to the land.[46] The expanding frontier's continuing safety-valve effect then encouraged capitalists to make further investments in labour-saving technologies, so by the First World War the capital per worker being put into fixed investments was over three times the level of Britain.[47] Labour productivity was thereby raised, so workers could enjoy higher wages, which further increased demand for their goods and services. Such a virtuous circle made the United States increasingly self sufficient, with the importance of trade decreasing, as illustrated by the falling ratio between international trade and GDP in Figure 3.3. This represented the transition from a political economy based on land-intensive staple production for export to another based on highly capitalised production oriented toward the domestic market. Ultimately it would become known as 'Fordism' – a situation in which industrial workers were sufficiently well paid to provide the demand for the goods that they produced.[48]

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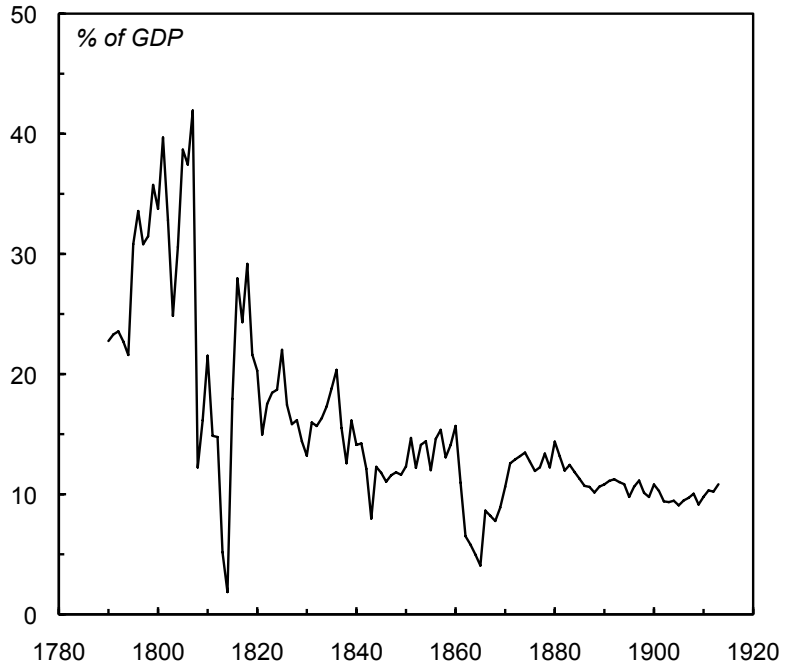
43. Habakkuk, *American and British Technology*, ch. 3.
44. Calculated from R.E. Gallman, 'Gross National Product in the United States, 1834-1909', in D.S. Brady, ed., *Output, Employment, and Productivity in the United States after 1800*, New York, 1966, p. 34, Table A-3; Bureau of the Census, *Historical Statistics*, p. 134, Series 75; C. Feinstein, *National Income, Expenditure and Output of the United Kingdom, 1855-1965*, Cambridge, 1972, p. T125, Table 57; Mitchell, *British Historical Statistics*, pp. 831-33; and P.W. Rhode, 'Gallman's Annual Output Series for the United States, 1834-1909', NBER Working Paper 8860, 2002, pp. 29-32, Tables 2-3. Were the series adjusted for differences in prices, it is likely that US investment levels would appear even higher. Cf. Collins and Williamson, 'Capital-Goods Prices', pp. 67-68, Table 2. Also see the discussion in Chapter 1, page 25, footnote 61.
45. M.A. Morrison, *Slavery and the American West: The Eclipse of Manifest Destiny and the Coming of the Civil War*, Chapel Hill, 1997; and J.M. McPherson, *This Mighty Scourge: Perspectives on the Civil War*, Oxford, 2007, ch. 1.
46. Economic historians have tended to decrie the inefficiencies of the Homestead Acts. For example, J. Atack, F. Bateman, and W.N. Parker, 'Northern Agriculture and the Westward Movement', in S.L. Engerman and R.E. Gallman, eds., *The Cambridge Economic History of the United States*, II, *The Long Nineteenth Century*, Cambridge, 2000, p. 301. In doing so, however, they have generally ignored their undoubtedly massive impact. One estimate suggests that roughly 'one-quarter of the current [that is, early twenty-first-century] US adult population (age 25 and older) potentially has ancestors who were homesteaders'. T.W. Shanks, 'The Homestead Act: A Major Asset-Building Policy in American History, in M. Sherraden, ed., *Inclusion in the American Dream: Assets, Poverty, and Public Policy*, Oxford, 2005, p. 32.
47. Calculated from the same sources as in footnote 44.
48. See M. Aglietta, *A Theory of Capitalist Regulation: The US Experience*, London, (1979) 2000, pp. 116-22; also M. Davis, ''Fordism' in Crisis: A Review of Michel Aglietta's 'Régulation et

Figure 3.3

US Overseas Trade, 1790-1913



Note: Overseas trade includes exports, re-exports, and imports of merchandise.

Sources: Irwin, 'Exports and Imports', Series Ee365 and Ee368; and S.H. Williamson, 'What Was the US GDP Then?', 2013, online at http://www.measuringworth.org/usgdp (accessed 5 September 2013).

The Followers

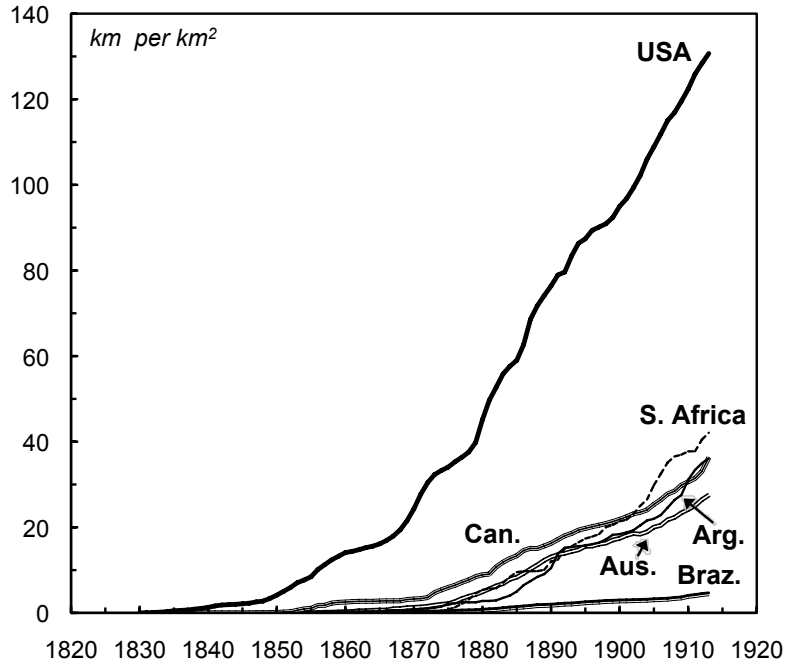
To different degrees, the other land-abundant countries followed the United States' development path up to the First World War, although without catching up. Figure 3.4 shows how the density of their railway networks relative to the amount of potential arable land remained far behind the United States throughout the nineteenth century, despite the rapid expansion that occurred once massive imports of British capital allowed them to construct railway networks at breakneck speed from the 1850s and '60s onwards.[49] Figure 3.5 illustrates how this lateness meant that the

crises: L'expérience des Etats-Unis', *Review (Fernand Braudel Center)*, 2:2, 1978, pp. 215-17. Fordism was originally known as the 'high wage doctrine'. It was espoused by Henry Ford and others at the beginning of the twentieth century. See J.E. Taylor, 'Did Henry Ford Mean to Pay Efficiency Wages?', *Journal of Labor Research*, 24:4, 2003.

49. On British investment, see L.E. Davis and R.E. Gallman, *Evolving Financial Markets and International Capital Flows: Britain, the Americas, and Australia, 1865-1914*, Cambridge, 2001, pp. 377-84, 501, 720-22. Potential arable land has been preferred to total territory in Figure 3.4 because the latter can include large quantities of land that could never be productive. Using potential arable land therefore gives a better indication of the supply of transportation relative to

Figure 3.4

Railway Density, 1830-1910



Note: The series show the kilometres of railway per square kilometre of land that could be used for rain-fed arable agriculture.

Sources:

Potential arable land: As in Table 3.1.

Railways: ABS, *Official Year Book 1907*, Canberra, 1908, p. 552; B.R. Mitchell, *International Historical Statistics: Africa, Asia and Oceania 1750-2005*, 5th ed., Basingstoke, 2007, pp. 714, 717, 728; and idem, *International Historical Statistics: The Americas, 1750-2005*, 6th ed., Basingstoke, 2007, pp. 562-65, 567-68.

realisation of their agricultural potential also trailed the United States. The series gives a rough indication of how much of the six countries' potential arable land was being cultivated for crops during the long nineteenth century by showing the amount of cropland in each as a percentage of the total amount of land that could potentially have been used for rain-fed arable farming. The result indicates that the United States was still far ahead by 1910, as almost half of its arable potential was being used, compared to 30 percent in Canada, from six to eight percent in Argentina, Australia, and South Africa, and less than one percent in Brazil. It should be stressed that these figures are approximate, given the shortage of data on historical land usage, particularly for the first half of the nineteenth century.[50] Nevertheless, the general picture is

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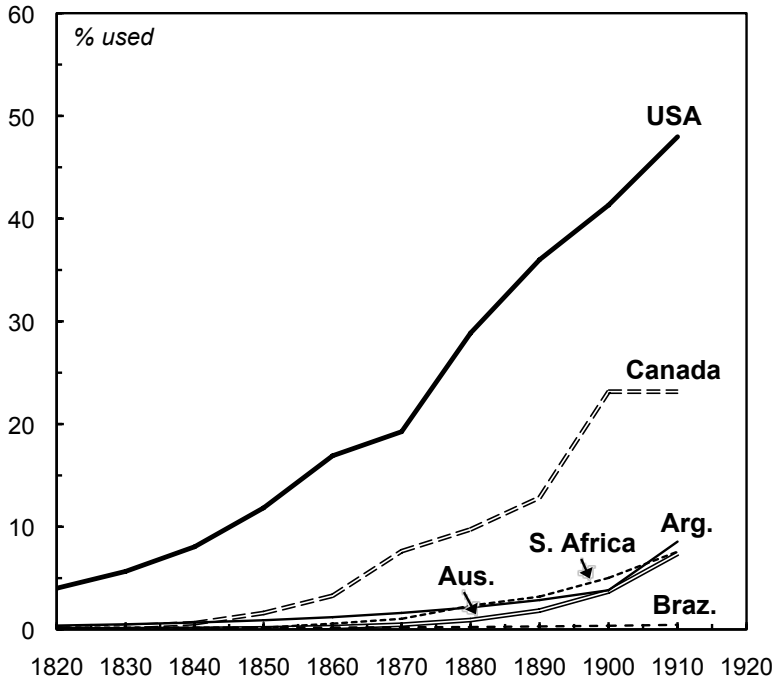
the potential demand for it.

Figure 3.5

Arable Potential Realised, 1780-1910



Note: The series show total cropland in cultivation as a percentage of land that could be used for rain-fed arable agriculture.

Sources: As in Table 3.1.

accurate: relatively little of the other land-abundant countries' agricultural potential had been realised due to their late start compared to the United States.[51]

Their lateness prevented the other land-abundant countries from attaining the same degree of industrialisation as the United States because the linkages predicted by staple theory were only just forming.[52] Consequently, only a relatively low level

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50. See Appendix 3.1.
51. Much arable land was being used for grazing, particularly in the followers. This, however, was itself a sign of land under-utilisation, in that, per hectare, arable farming was considerably more productive than livestock. In Buenos Aires Province during the first half of the 1880s, for example, land could typically take four sheep per hectare, each of which produced 1.8 kg of wool, giving a total yield of 7.2 kg, which sold in the city for o$s2.52, at 35 cents per kg. By contrast, a wheat farm could be expected to produce about 700 kg per ha, which would sell in the city for five cents per kg, giving a total of o$s35. The gross wholesale value of the output was thus 14 times greater for the wheat farm. Calculated from J. Álvarez, *Temas de historia económica argentina*, Buenos Aires, 1929, pp. 208-09, 219; Sabato, *Agrarian Capitalism*, p. 143; and Ferreres, *Dos siglos*, Table 4.1.1. It was, though, far more labour-intensive to produce and expensive to transport wheat, so most of the potential arable land could not be used for that purpose until the arrival of railways and the increase in the labour supply due to immigration. See Chapter 4 for the case of Argentina.
52. For a particularly useful discussion of this, see C.B. Schedvin, 'Staples and Regions of Pax Britannica', *Economic History Review*, 43:4, 1990.

of industrial capacity had been attained by the First World War. Paul Bairoch estimated, for example, that Canada's industrial output per capita was 37 percent of the US level in 1913; in Australia, it was 15 percent; in Brazil, six percent; in South Africa, five percent;[53] and had he included an estimate for Argentina, it would probably have been around eight percent.[54] Estimates for specific sectors confirm this impression. Hence, Argentina, Australia, and South Africa lacked any significant capacity to produce cotton textiles, and Brazilian and Canadian output was small.[55] Only Canada produced notable quantities of steel, but its per capita output was just a third of the US level.[56] In all the countries the small domestic market meant that their industry also suffered from diseconomies of scale that prevented it from becoming competitive with imports, let alone being suitable for exports. Rather, their industrial sectors tended to be heavily dependent upon protective tariffs.[57]

Low levels of industrialisation ensured that the other land-abundant countries' development remained highly outward oriented. Their development strategies were based on borrowing abroad to build the infrastructure required to bring their abundant quantities of land into production, thereby providing the exports that were needed to service their debts and pay for sufficient imports to maintain high levels of consumption and investment.[58] Trade, as a result, remained of far greater importance to the follower countries: whereas US exports and imports together equalled around 10 percent of GDP by the First World War,[59] in Australia they were about 42 percent;[60] in Canada, 35 percent;[61] in South Africa, roughly 40 percent;[62] and they

53. Bairoch, 'International Industrialization Levels', pp. 302, 330, Tables 12 and 15
54. Approximated by adjusting Australia's industrial output by the ratios between Argentina and Australia's dependency rates, share of manufacturing in the labour force, and labour productivity in manufacturing. Calculated from Taylor, 'External Dependence', p. 922, Table 4; and E. Frankema and M. Visker, 'The Reversal of Fortune in Argentina: Exploring Industrial Labour Productivity in Comparison to Australia, 1907-1973', *Tijdschrift voor Sociale en Economische Geschiedenis*, 8:3, 2011, pp. 76, 86, Tables 1 and 5.
55. According to contemporary estimates, in 1908 the United States had 27.5 million spindles; Brazil had 1.3 million; Canada, 795,000; Argentina, just 7,500. From Bureau of the Census, 'Supply and Distribution of Cotton for the Year Ending August 31, 1908', *Bulletin*, 97, 1908, p. 26.
56. League of Nations, *Statistical Yearbook 1926*, Geneva, 1927, pp. 11, 87, Tables 1 and 50.
57. For the case of Canada, the most industrialised of the five, see G. Williams, 'The National Policy Tariffs: Industrial Underdevelopment Through Import Substitution', *Canadian Journal of Political Science*, 12:2, 1979; and idem, *Not for Export: The International Competitiveness of Canadian Manufacturing*, 3rd ed., Toronto, 1994, ch. 2.
58. See H.M. Schwartz, *In the Dominions of Debt: Historical Perspectives on Dependent Development*, Ithaca, 1989, chs. 2 and 8.
59. See Figure 3.3.
60. Annual average for 1909-1913, calculated from M.V. Butlin, 'A Preliminary Annual Database 1900/01 to 1973/74', Research Discussion Paper 7701, Reserve Bank of Australia, 1977, Table

were most likely at similar levels in Argentina and Brazil.[63] This outward orientation could have remarkable results. All five countries experienced dramatic extensive growth, as was seen in Figure 3.1. Australians and Canadians, moreover, enjoyed some of the highest living standards and productivity levels in the world. At the other end of the spectrum, however, Brazil lagged far behind, while Argentina and South Africa were somewhere in between.[64] There was, then, considerable variation among land-abundant countries, although improved terms of trade brought rapid extensive growth to all by allowing frontiers to expand. The question of why in some countries, most paradigmatically the United States, the expanding frontier also had a safety-valve effect that led to more intensive growth will be returned to in Chapter 4.

The Land-Scarce Regions

The land-scarce regions were less fortunate because they had few frontiers to expand. As was seen in Table 3.1, Central America, Eurasia, and most of Africa had relatively little potential arable land per person at the beginning of the long nineteenth century. Much of Eurasia's arable potential had, moreover, already been realised, so frontiers could not be expanded to incorporate new land to the same degree as in Africa, the Americas, or Oceania. Notably, both Europe and Asia suffered from such land scarcity. For such regions, development had to occur by moving labour off the land into industry. If not, an increasing supply of labour would receive diminishing returns by being applied to a limited amount of land.[65]

In Northern Europe the process of moving labour off the land had been ongo-

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IV.1.

61. Annual average for 1909-1913, calculated from Leacy, *Historical Statistics*, Series G383 and G384; and M.C. Urquhart, 'New Estimates of Gross National Product, Canada 1870-1926: Some Implications for Canadian Development', in S.L. Engerman and R.E. Gallman, eds., *Long-Term Factors in American Growth*, New York, 1986, p. 14, Table 2.1.
62. Annual average for 1911-1913, calculated from CSS, *South African Statistics 1994*, Pretoria, 1994, Tables 16.4 and 21.5.
63. The Montevideo-Oxford Latin American Economic History Database (MOxLAD) suggests an average trade ratio of 30 percent for Brazil and 38 percent for Argentina during 1909-1913 (online at http://moxlad.fcs.edu.uy/en/databaseaccess.html, accessed 7 September 2013). Yet it is impossible to see how the authors of this database arrived at nominal GDP series for these two countries, as the reference they provide (B.R. Mitchell, *International Historical Statistics: The Americas, 1750-1988*, Basingstoke, 1993) does not give such series.
64. Living standards in all these countries except South Africa will be assessed in Chapter 5. In South Africa, predictably, there was a major difference between the welfare of Europeans and natives. P. de Zwart, 'South African Living Standards in Global Perspective, 1835–1910', *Economic History of Developing Regions*, 26:1, 2011.
65. Lewis, 'Economic Development', pp. 140-43.

ing since the end of the Middle Ages.[66] Most notably, Britain's agricultural population had fallen from around three quarters of its total population at the beginning of the sixteenth century to just a third by the early nineteenth century.[67] Trade made this shift possible by augmenting the demand for British labour through the extension of the market for its goods and services.[68] Wages were in this way kept high, so capitalists sought to invest in labour-saving machinery, which inspired a wave of inventive activity that led to the British industrial revolution.[69] As industrial productivity increased and the labour force continued to shift from agriculture, trade had to take a rising share of Britain's growing surplus of manufactures, given the limited size of its own market. Hence, by the end of the nineteenth century 80 percent of Britain's annual production of cotton goods was being exported, as was 40 percent of its iron and steel manufactures.[70]

The counterpart of the core's progress became the periphery's decline, as the cheap manufactures being produced by the industrial revolution undermined the cottage industries that had previously provided employment outside of agriculture. This process was essential to the North Atlantic core's industrial revolution because exports to the periphery allowed the 'production possibility frontier' to expand.[71] Around half of British exports consistently went to regions beyond the North Atlantic during the eighteenth and nineteenth centuries,[72] and without the expanded market that came from these exports, mechanised factory production would have produced gluts on the domestic market, driving down profitability. The periphery's markets were, for this reason, required for the core's industrialisation. In southern Europe,

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66. R.C. Allen, 'Economic Structure and Agricultural Productivity in Europe, 1300-1800', *European Review of Economic History*, 4:1, 2000; and idem, *British Industrial Revolution*, pp. 16-22.
67. Allen, 'Economic Structure', p. 9, Table 2; and P. Deane and W.A. Cole, *British Economic Growth 1688-1959*, 2nd ed., Cambridge, 1969, p. 141, Table 30.
68. O'Brien and S.L. Engerman, 'Exports and the Growth', p. 189.
69. Allen, *British Industrial Revolution*. For a useful discussion of Allen's analysis, see N. Crafts, 'Explaining the First Industrial Revolution: Two Views', *European Review of Economic History*, 15:1, 2011.
70. Deane and Cole, *British Economic Growth*, pp. 187, 225, Tables 43 and 56. Also see Cuenca Esteban, 'Rising Share'.
71. See P.K. O'Brien, 'Imperialism and the Rise and Decline of the British Economy, 1688–1989', *New Left Review*, 238, 1999, pp. 60-62. This observation is particularly important because it refutes the same author's previous (but still widely cited) conclusion that 'for the economic growth of the core, the periphery was peripheral' (in idem, 'European Economic Development: The Contribution of the Periphery', *Economic History Review*, 35:1, 1982, p. 18).
72. R. Davis, *The Industrial Revolution and British Overseas Trade*, Leicester, 1979, p. 89, Table 38; and Mitchell, *British Historical Statistics*, pp. 496-502.

particularly Italy, deindustrialisation had already taken place in the seventeenth and eighteenth centuries due to competition with England's fine woollen cloths, the 'new draperies'.[73] In the nineteenth century a similar deindustrialisation would then occur across the land-scarce periphery, as cottage industries virtually everywhere were undermined by cheap British imports.[74] Hence, even as the populations of the land-scarce core were able to move into industry, those of the similarly land-scarce periphery became increasingly concentrated in agriculture.

Pace Lévy-Leboyer, the periphery's deindustrialisation tended to depress living standards because specialisation in agriculture meant that a greater supply of labour had to work a more or less fixed quantity of land, resulting in diminishing returns that depressed average labour productivity. Here, then, is Frank's 'development of underdevelopment', in that the development of one part of the world *caused* and *required* the underdevelopment of another.[75] Improving terms of trade drove this process by depressing the prices of (import-competing) manufactures relative to the prices of (exportable) raw materials. The consequence was to squeeze profit margins in the periphery's cottage industries, so people instead turned to a limited supply of land for employment. Contrary to the assumptions inherited from the Prebisch-Singer Hypothesis, therefore, where land was scarce, improved terms of trade actually tended to cause underdevelopment.[76]

The nineteenth-century divergence between Northern Europe and the poor periphery can be illustrated using Allen's welfare ratios. Figure 3.6 reproduces the estimates of Allen and his associates for the welfare ratios of unskilled labourers in two places in Northern Europe and three in the Eurasian periphery. As Table 3.2 indicated, there was already a gap between London and the rest of Eurasia at the end of the eighteenth century. Figure 3.7 confirms this, as from the 1720s through the 1760s welfare ratios in Beijing, Bengal, Leipzig, and Milan were all 30 to 40 percent

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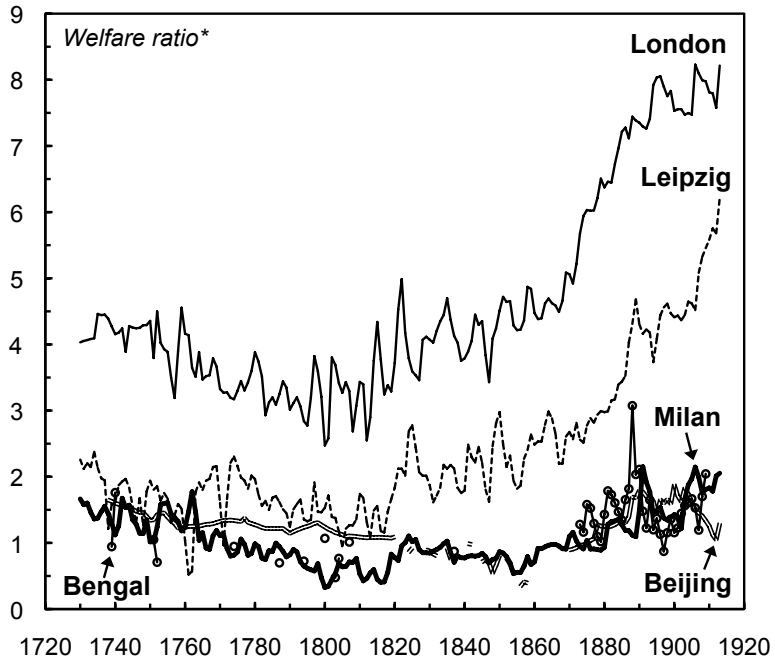
73. R.T. Rapp, 'The Unmaking of the Mediterranean Trade Hegemony: International Trade Rivalry and the Commercial Revolution', *Journal of Economic History*, 35:3, 1975; and C.M. Cipolla, *Before the Industrial Revolution: European Society and Economy, 1000-1700*, London, 1976, pp. 236-44.
74. Apart from the case of India, discussed in Chapter 2, pages 80-84, and further below, see Issawi, *An Economic History*; Pamuk, *Ottoman Empire*, ch. 6; Salvucci, *Textiles and Capitalism*, ch. 5; Amsden, *Rise of 'the Rest'*, pp. 33-39; and van der Eng, 'Why Didn't Colonial Indonesia'.
75. Frank, *Latin America*, ch. 1.
76. It should be stressed again that the Prebisch-Singer Hypothesis was an intrinsic part of 'structuralism' but *not* of 'dependency theory'. See page 96, footnote 3.

Figure 3.6

Welfare Ratios of Unskilled Labourers in Eurasia, 1730-1913



Note: The wage of an unskilled labourer divided by the cost of a basket of goods sufficient for a subsistence-level standard of living for a man, a woman, and two children.

Sources: R.C. Allen et al, 'Wages, Prices, and Living Standards in China, 1738-1925: in Comparison with Europe, Japan, and India', *Economic History Review*, 64:S1, 2011; data available online at http://gpih.ucdavis.edu/files/China_1730-1933_Allen_et_al.xls (accessed 2 January 2012).

of the level in London.[77] But from then on the welfare ratios in both London and Leipzig increased rapidly, whereas they fell in the peripheral locations, only recovering somewhat in the second half of the nineteenth century. By the eve of the First World War, their welfare ratios were all around 20 percent of the level in London, while they had also fallen to a third of the level in Leipzig.[78] This was the bifurcation between the land-scarce regions of the poor periphery and the North Atlantic core

77. Welfare ratios in the rest of Britain were probably also below London levels. See Malanima, 'When Did England', pp. 54-58.
78. Much as Australia and Canada had followed the United States, Germany and the late industrialisers of continental Europe were following Britain. Exports to the periphery did not play a major role in their development, although exports to Britain did. Taking continental western Europe as a whole, 50 percent of exports outside of the bloc went to Britain in 1900, as did 38 percent in 1913. Calculated from United Nations, 'International Trade Statistics 1900-1960', mimeo, 1962, Table 24. Britain's imports were in turn substantially paid for using receipts from its exports to the periphery, as well as profits and interest on foreign investments that were largely concentrated in the land-abundant countries. See S.B. Saul, *Studies in British Overseas Trade, 1870-1914*, Liverpool, 1960, chs. 3-4.

during the long nineteenth century.

British imperialism helped engineer this divergence by promoting trade liberalisation in the periphery. Before the nineteenth century monopolies dominated overseas trade within European empires. They had been conceived of and had become important components of state finance, with companies granted licenses to trade with the colonies on the condition that all exports and imports passed through the mother country, where they could be taxed.[79] This kept trade costs high because there was a lack of competition among merchants, and numerous taxes were imposed on traded goods, both in Europe and the colonies. Inadvertently, high trade costs then gave some protection to the colonies' cottage industries by reducing the competitiveness of European manufactures in the colonies' market. In the first half of the nineteenth century, however, those monopolies were steadily abolished,[80] in large part thanks to the growth of British influence.

The British government sought access to foreign markets for its country's manufactures because it was aware that British industry faced the threat of glut on the home market, which could lead to recessions that would have increased domestic unrest.[81] The extension of British power therefore tended to be followed by trade liberalisation. Hence, in exchange for aiding his escape from Napoleon in 1807, the British government obliged the Prince Regent of Portugal to open Brazil's trade, rapidly bringing his country's trading monopoly to an end;[82] similarly, the promise of trade with Britain helped inspire the revolutionaries who fought the Spanish empire

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79. Hamilton, 'Role of Monopoly'; P. Bairoch, 'European Trade Policy, 1815-1914', in P. Mathias and S. Pollard, eds., *The Cambridge Economic History of Europe*, VIII, *The Industrial Economies: The Development of Economic and Social Policies*, Cambridge, 1989, p. 103; McCusker, 'British Mercantilist Policies', pp. 342-43; and R. Torres Sánchez, 'The Triumph of the Fiscal Military State in the Eighteenth Century: War and Mercantilism', in idem, ed., *War, State and Development: Fiscal-Military States in the Eighteenth Century*, Pamplona, 2007, pp. 32-33, 39-40.
80. Bairoch, 'European Trade Policy', pp. 107-27, 150-60.
81. P.J. Cain and A.G. Hopkins, 'The Political Economy of British Expansion Overseas, 1750-1914', *Economic History Review*, 33:4, 1980, pp. 475-81; and idem, *British Imperialism*, pp. 84-85, 99-100, 102. This is a mildly revised version of the argument made in J. Gallagher and R. Robinson, 'The Imperialism of Free Trade', *Economic History Review*, 6:1, 1953; also see B. Semmel, *The Rise of Free Trade Imperialism: Classical Political Economy, the Empire of Free Trade, and Imperialism, 1750-1850*, Cambridge, 1970, pp. 9-10, ch. 6. For the debate surrounding Gallagher and Robinson's arguments, see Webster, *Debate on the Rise*, ch. 4.
82. L. Bethell, 'The Independence of Brazil', in idem, ed., *The Cambridge History of Latin America*, III, *From Independence to c. 1870*, Cambridge, 1985, pp. 168-73; and J.M. Pedreira, 'From Growth to Collapse: Portugal, Brazil, and the Breakdown of the Old Colonial System (1750-1830)', *Hispanic American Historical Review*, 80:4, 2000, pp. 849-53.

in the 1810s and '20s;[83] the persistent lobbying of British merchants and manufacturers led to the abolition of the East India's Company's trading monopolies with India and China in 1813 and 1833 respectively;[84] the Ottoman Empire was opened by the Anglo-Turkish Convention in 1838;[85] British gunboats forced China to open through the Opium War of 1839-42,[86] which inspired US gunboats to do the same in Japan during 1853-54.[87] Such widespread liberalisation left cottage industries across the periphery exposed to the influx of cheap manufactured goods being produced by the industrial revolution.

India was the archetypal case of how British imperialism brought deindustrialisation to the periphery.[88] In the eighteenth century, Robert Clive had reported that India was the 'Paradise of the Earth' because it abounded 'in very curious and valuable manufactures, sufficient not only for its own use, but for the use of the whole Globe. The Silver of the West and the Gold of the East', Clive continued, 'have for many years been pouring into that Country, and Goods only have been sent out in return'.[89] There were, in other words, few European goods that Indians required, so Europe had been forced to pay for Indian manufactures, especially its textiles, with bullion.[90] The solution to this outflow of precious metals, pioneered by Clive's East India Company, had been to establish a company state that used tax revenues to

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83. J. Lynch, *The Spanish American Revolutions, 1808-1826*, 2nd ed., London, 1986, pp. 13-16; M.P. Costeloe, 'Spain and the Latin American Wars of Independence: The Free Trade Controversy, 1810-1820', *Hispanic American Historical Review*, 61:2, 1981, pp. 209-34; and J. Adelman, *Sovereignty and Revolution in the Iberian Atlantic*, Princeton, 2006, pp. 172, 202-06.
84. A. Webster, 'The Strategies and Limits of Gentlemanly Capitalism: The London East India Agency Houses, Provincial Commercial Interests, and the Evolution of British Economic Policy in South and South East Asia 1800–50', *Economic History Review*, 59:4, 2006, pp. 743-64; idem, *The Twilight of the East India Company: The Evolution of Anglo-Asian Commerce and Politics, 1790-1860*, Woodbridge, 2009, chs. 3 and 5; and Y. Kumagai, *Breaking into the Monopoly: Provincial Merchants and Manufacturers' Campaigns for Access to the Asian Market, 1790-1833*, Leiden, 2013.
85. Issawi, *Economic History*, p. 19; Pamuk, *Ottoman Empire*, p. 20; and Cain and Hopkins, *British Imperialism*, p. 342.
86. J.K. Fairbank, 'The Creation of the Treaty System', in idem, ed., *The Cambridge History of China*, X, *Late Ch'ing, 1800-1911, Part I*, Cambridge, 1978, pp. 221-22; and Cain and Hopkins, *British Imperialism*, pp. 362-63.
87. W.G. Beasly, 'The Foreign Threat and the Opening of the Ports', in M.B. Jansen, ed., *The Cambridge History of Japan*, V, *The Nineteenth Century*, Cambridge, 1989, pp. 268-70.
88. For the debate, see Habib, 'Studying a Colonial Economy', pp. 359-64; Roy, *Rethinking Economic Change*, ch. 5; and Parthasarathi, 'Historical Issues'.
89. R. Clive, *Lord Clive's Speech*, London, 1772, p. 42.
90. See K.N. Chaudhuri, 'Treasure and Trade Balances: The East India Company's Export Trade, 1660-1720', *Economic History Review*, 21:3, 1968, pp. 480-502; and O. Prakash, 'Bullion for Goods: International Trade and the Economy of Early Eighteenth Century Bengal', *Indian Economic and Social History Review*, 13:2, 1976, pp. 159-86.

purchase Indian textiles, which weavers were forced to provide at lower prices.[91] The industrial revolution undermined this trade, however, because falling prices made British textiles competitive on the Indian market. Technical innovations on North American cotton plantations, together with improved packing and shipping, had reduced the price of raw cotton in Britain, while a series of mechanical inventions – the spinning jenny, water frame, and spinning mule – had substantially increased labour productivity in British textile manufacturing in the 1760s and '70s, compensating for wages that were considerably higher than in India.[92] Aware of their greater competitiveness and in need of an outlet for their expanding surplus, British manufacturers lobbied for their products to be given access to the Indian market, which helped persuade the British government to recast India as a supplier of primary commodities. The abolition of the East India Company's trade monopoly followed in 1813,[93] with the Company thereafter obliged to permit British textiles into India at minimal tariff rates. From virtually nothing at the end of the eighteenth century, the British share of the Indian cotton textile market then increased to a peak of around 60 percent by 1880, as India's own production of cotton cloth fell by perhaps a third, and exports of raw cotton grew by over 400 percent.[94] Rising costs of raw materials, combined with the falling prices of imported textiles, then squeezed the incomes of spinners and weavers. Consequently, employment in India's textiles sector fell, both as a percentage of the labour force and absolutely.[95]

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91. P. Parthasarathi, *The Transition to a Colonial Economy: Weavers, Merchants and Kings in South India, 1720-1800*, Cambridge, 2001, ch. 3; O. Prakash, 'From Market-Determined to Coercion-Based: Textile Manufacturing in Eighteenth-Century Bengal', in Riello and Roy, eds., *How India Clothed the World*, pp. 217-52; and H. Hossain, *The Company Weavers of Bengal: The East India Company and the Organization of Textile Production in Bengal 1750-1913*, Dhaka, 2010, ch. 4.
92. S. Broadberry and B. Gupta, 'Lancashire, India, and Shifting Competitive Advantage in Cotton Textiles, 1700-1850: The Neglected Role of Factor Prices', *Economic History Review*, 62:2, 2009, pp. 290-93, Table 8. Wage data for India, particularly for weavers, is problematic, so Broadberry and Gupta's findings should be treated with caution. See Parthasarathi, 'Historical Issues', pp. 419-22; and idem, *Why Europe Grew*, pp. 42-44. On the falling transportation costs for US cotton, see Harley, 'Ocean Freight Rates', pp. 856-60.
93. A. Webster, 'The Political Economy of Trade Liberalization: The East India Company Charter Act of 1813', *Economic History Review*, 43:3, 1990, pp. 404-19; idem, *Twilight of the East India Company,* chs. 3 and 5; and Kumagai, *Breaking into the Monopoly*, chs. 2 and 4.
94. Roy, 'Consumption of Cotton Cloth', pp. 72-73, Tables 2 and 3.
95. A. Bagchi, 'Deindustrialization in Gangetic Bihar 1809-1901', in B. De et al, eds., *Essays in Honour of Prof. S.C. Sarkar,* New Delhi, 1976, pp. 499-523; M.J. Twomey, 'Employment in Nineteenth Century Indian Textiles', *Explorations in Economic History*, 20:1, 1983, pp. 37-57; and Clingingsmith and Williamson, 'Deindustrialization in 18th and 19th Century in India', pp. 218-20. Even a highly skeptical historian suggests that '[i]t is possible, indeed likely, that if we had a good occupational census for 1750 or 1800, the percentage of industrial workers in the total workforce would be as high as 25-30, which collapsed to 8-9 at 1900'. Roy, *Rethinking Econ-*

The decline of cottage industries resulted in a widespread 'traditionalisation' of Indian society that saw it become increasingly agrarian.[96] Many of the subcontinent's largest cities shrank,[97] and the countryside's population of peasants and landless labourers grew. Social conflict then mounted due to a growing population's attempts to work a limited amount of land: landowners clashed with the Company over taxes, landlords with tenants over rents, and peasants with tribal peoples over access to land. Eventually this growing discontent culminated in the mutiny of the Company's army in 1857.[98] Subsequently, the Company itself was abolished and India was formally annexed by the British government, with direct rule used to continue India's conversion into an exporter of agricultural staples. Major infrastructure projects, particularly railways, were promoted to connect the interior to the ports,[99] which allowed exports of cotton, opium, tea, jute, rice, and even wheat to expand massively.[100] What data there are, however, suggest that this export expansion came at the expense of food production for domestic consumption.[101] India's conversion into an exporter of primary commodities in this way undermined food security, as was seen most clearly when tens of millions of people perished during the great famines of the 1870s and '90s.[102]

India's fate during the nineteenth century was broadly representative of the land-scarce periphery as a whole. Across much of Africa, Asia, and Central America deindustrialisation pushed more workers onto a limited quantity of land, leading to rapidly diminishing returns that depressed average productivity levels. Moreover, to the extent that the periphery's industry competed with that of the North Atlantic core,

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omic Change, p. 102.

96. C.A. Bayly, *The New Cambridge History of India*, I:1, *Indian Society and the Making of the British Empire*, Cambridge, 1988, chs. 4-5; and D. Washbrook, 'South India 1770-1840: The Colonial Transition', *Modern Asian Studies*, 38:3, 2004, pp. 479-516.
97. Habib, 'Studying a Colonial Economy', pp. 364-68.
98. Bayly, *New Cambridge History of India*, pp. 170-71.
99. D.R. Headrick, *The Tentacles of Progress: Technology Transfer in the Age of Imperialism, 1850-1940*, New York, 1990, pp. 58-78.
100. K.N. Chaudhuri, 'Foreign Trade and Balance of Payments (1757-1947)', in D. Kumar and M. Desai, eds., *The Cambridge Economic History of India*, II, *c. 1757-c. 1970*, Cambridge, 1983, pp. 841-60.
101. G. Sumit, 'Introduction', in idem, ed. *Growth, Stagnation, or Decline? Agricultural Productivity in British India*, Delhi, 1992, pp. 1-48.
102. D. Washbrook, 'The Commercialization of Agriculture in Colonial India: Production, Subsistence and Reproduction in the 'Dry South', c. 1870-1930', *Modern Asian Studies*, 28:1, 1994, pp. 129-64; and M. Davis, *Late Victorian Holocausts: El Niño Famines and the Making of the Third World*, London, 2001, chs. 1, 5, and 10.

it was by employing more labour, rather than by investing in technology. The 'over-population' that resulted from deindustrialisation – that is, from a falling share of industrial employment in the labour force – thus ensured that what industry the periphery had also suffered from low levels of labour productivity.[103] Only in the second half of the nineteenth century would the population pressure be somewhat relieved due to mass emigration.[104] Most famously, around 40 million Europeans moved to North and South America, possibly leading to some convergence in transatlantic living standards.[105] Even more Chinese and Indians emigrated as well, but where they went was limited by a variety of restrictions placed on their entry by the governments of the land-abundant countries in North America and Oceania.[106] Accordingly, they mainly went to the less densely populated areas of the Pacific, Manchuria, Central Asia, and Siberia. The restrictions on their migration thus reinforced the inequities of the new global order.

The Global Reordering

Global divergence in the long nineteenth century occurred, then, through what Frank called the 'underdevelopment of development', as the same fundamental cause, the long terms-of-trade boom, brought prosperity to some regions but stagnation to others, largely depending upon their endowments of land and labour. The long boom

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103. The results of this labour-intensive (re)industrialisation are analysed by G. Clark, 'Why Isn't the Whole World Developed? Lessons from the Cotton Mills', *Journal of Economic History*, 47:1, 1987, pp. 141-73; also see idem, *A Farewell to Alms: A Brief Economic History of the World*, Princeton, 2007, ch. 16. Clark's own interpretation of his findings is wrong because he assumes that the marginal productivity of labour in the periphery's industry was zero, so there was no good reason for industrialists to keep on employing more labour. This, however, was not the case. See R.C. Allen, 'A Review of Gregory Clark's *A Farewell to Alms: A Brief Economic History of the World*', *Journal of Economic Literature*, 46:4, 2008, pp. 967-68. For this reason, it made sense for industrialists to keep on employing more workers at subsistence-level wages, rather than invest in machinery and equipment. Again, on the close connection between such investments and average productivity levels, see Allen, 'Technology and the Great Divergence'.
104. For an overview, see A. McKeown, 'Global Migration, 1846-1940', *Journal of World History*, 15:2, 2004, pp. 155-89.
105. J.G. Williamson, 'The Evolution of Global Labor Markets since 1830: Background Evidence and Hypotheses', *Explorations in Economic History*, 32:2, 1995, pp. 153-57. On some doubts over this conclusion, see S. Larsson, 'Globalisation, Inequality and Swedish Catch Up in the Late Nineteenth Century', Göteborg Paper in Economic History 2, Göteborg University, 2005; and S. Prado, 'Fallacious Convergence? Williamson's Real Wage Comparisons under Scrutiny', *Cliometrica*, 2010, 4:2, 2011, pp. 171-205.
106. C.A. Price, *The Great White Walls Are Built: Restrictive Immigration to North America and Australasia 1836-1888*, Canberra, 1974; and R.A. Huttenback, *Racism and Empire: White Settlers and Colored Immigrants in the British Self-Governing Colonies, 1830-1910*, Ithaca, 1976.

triggered what has variously been called the 'great land rush' or the 'settler revolution', beginning in the British American colonies in the eighteenth century, then spreading across the world's land-abundant regions in the nineteenth century.[107] Settlers rushed to dispossess indigenous peoples because improved terms of trade allowed their land to be profitably brought into production for the first time. Consequently, during the long nineteenth century a country's arable potential became the principal determinant of the degree to which its population grew. For the prosperous European offshoots, extensive growth would then become intensive growth as the safety-valve effect of the expanding frontier kept wages high, so capitalists were encouraged to invest in labour-saving technologies, which raised average productivity levels. Where land was scarce, by contrast, development had to occur by moving labour out of agriculture into other, higher productivity activities – a process that occurred in the North Atlantic core at the expense of cottage industries in the land-scarce periphery. As deindustrialisation set in, much of the periphery became 'overpopulated', as increased quantities of labour were applied to limited amounts of land, bringing rapidly diminishing returns that lowered average productivity levels.[108] The land-scarce periphery thus stagnated due to deindustrialisation, even as the similarly land-scarce North Atlantic core prospered by moving labour out of agriculture into manufacturing. In this way, the world was reordered.

To understand why this reordering occurred, this chapter has looked at the global political economy of the long boom. It has argued that the terms of trade did not improve simply because of 'exogenous shocks'; specifically, the long boom was not just due to technological change, whether improved shipping or the mechanisation of manufacturing. Rather, government policies, especially those associated with the impacts of British imperialism, played a major role. As Adam Smith realised, the relatively benevolent terms of trade enjoyed by the British American colonies in the

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107. Weaver, *Great Land Rush*; and J. Belich, *Replenishing the Earth: The Settler Revolution and the Rise of the Angloworld*, Oxford, 2009. Both these studies ascribe the phenomenon that they describe to the nineteenth-century zeitgeist of European expansionism – for Belich, in particular, it appears as a result of a kind of collective hysteria whipped up by propagandists for overseas colonisation (see ibid., esp. 153-65). By contrast, the explanation given here, which will be further developed in Chapter 4, is that these periods of exuberance responded to increased opportunities for profit due to improved terms of trade.

108. 'Overpopulated' must be placed in inverted commas because in fact the North Atlantic core was more overcrowded, in terms of population density, than much of the poor periphery. The difference was that there was less underemployment in the core because there was more industry.

eighteenth century were thanks to a liberal trade policy that encouraged more competition among merchants, which squeezed their profit margins, thereby putting pressure upon them to reduce trade costs. Similarly, British pressure to liberalise the periphery's overseas trade in the first half of the nineteenth century played an important role in starting the long boom elsewhere, as the various European trade monopolies were undermined. Improving terms of trade then generated the new global order in which the North Atlantic core industrialised, the European offshoots prospered, and the poor periphery stagnated.

As has been mentioned in this chapter, Argentina was a land-abundant country, comparable to the European offshoots in terms of its arable potential and nineteenth-century population growth. Yet, as Chapter 4 will discuss, it was unlike them because it had been colonised by Europeans considerably earlier, so it was not a 'country of recent settlement'. Crucially, this earlier settlement meant that, unlike those countries, it had a more densely populated interior that lost out once the long boom began. The consequence would be several decades of civil war following independence in 1810, eventually leading to the formation of an oligarchic state that substantially represented the interests of the ruling classes of the country's land-scarce regions. There would, as a result, be no white-egalitarian democracy in Argentina, which, Chapter 4 will argue, would prevent it from realising its potential as a land-abundant country.

Appendix 3.1: Land and Population in 166 Countries

This chapter has drawn on two datasets of land and population in 166 countries. Both datasets include the same estimate of the amount of land that could potentially be used for rain-fed agriculture in each country (that is, each country's arable potential), as calculated by the United Nation's Food and Agriculture Organisation (FAO).[109] The first dataset, which is reproduced in Table DA.9 in the Data Appendix, combines this FAO data with estimates of global cropland coverage during 1780-1910 from the Netherlands Environmental Assessment Agency's History Database of the Global Environment (HYDE).[110] The second database, reproduced in Table DA.10, provides a longer-term perspective by combining the potential arable land series with the

109. Bort, Nachtergaele, and Young, 'Land Resource Potential', pp. 37-38.
110. van Drecht and de Vos, 'HYDE 3.1'.

HYDE estimates of each country's population from 1500 to 1900

It must be stressed that these figures suffer from considerable margins of error, so the figures contained in Tables DA.9 and DA.10 must be treated as indicative rather than precise. Estimating historical populations, for instance, is not an easy task.[111] In fact, it is impossible to know past populations of most places with a high degree of accuracy, as seen most clearly in the long debate about the number of indigenous Americans prior to colonisation.[112] In this respect, the HYDE database appears an improvement on some previous compilations,[113] although it is still not without its problems. Figure A3.1 illustrates this by comparing its series for Argentina's population during 1500-1900 with that of Alfredo Lattes,[114] one of the country's leading historical demographers. Whereas the HYDE series is constant from 1500 to 1800, Lattes estimates that the population fell after the arrival of the Spanish, then recovered somewhat prior to the nineteenth century's rapid expansion – a pattern that seems more likely. The HYDE estimates are, then, far from perfect. Similarly, the HYDE data on historical croplands are speculative, although comparisons with Argentina's official statistics on cultivated land in the twentieth century suggest that they are preferable to the Global Land Use Database of the Center for Sustainability and the Global Environment (SAGE).[115] For instance, the SAGE database inexplicably claims that Argentina had 45 million hectares of cropland in 1940, even though Argentine government statistics, as well as HYDE, put the figure at 22 million.[116] Such anomalies in the SAGE database mean that HYDE has been preferred here.

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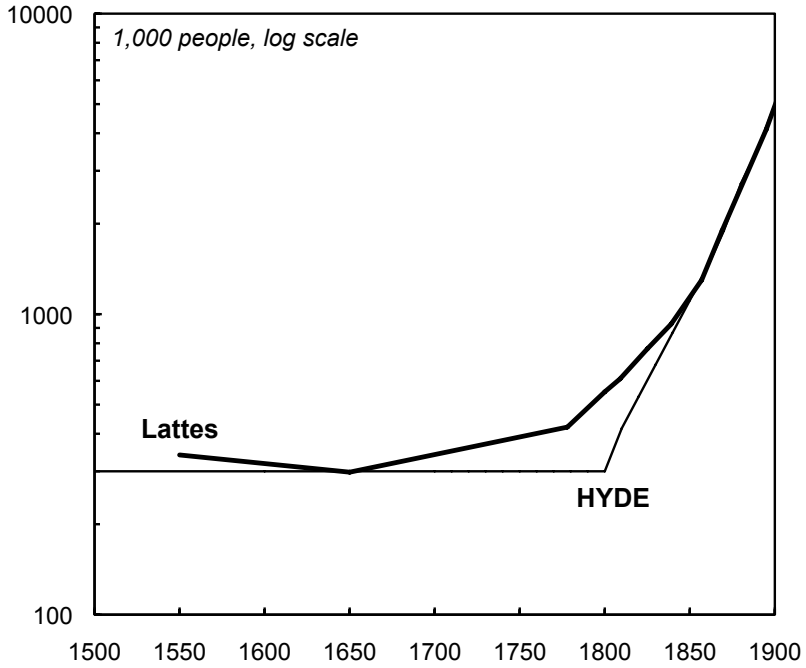
111. Platt, *Mickey Mouse Numbers*, pp. 20-23, 34-35; and Austin, 'Reversal of Fortune', pp. 1001-03.
112. For a summary, see L. Bethell, 'A Note on the Native American Population on the Eve of the European Invasions', idem, ed., *The Cambridge History of Latin America*, I, *Colonial Latin America*, Cambridge, 1984, pp. 145-46.
113. Especially C. McEvedy and R. Jones, *Atlas of World Population History*, Harmondsworth, 1978; and Maddison, *World Economy*, II.
114. A.E. Lattes, 'Perspectiva histórica de la evolución de la población', in Recchini de Lattes and Lattes, eds., *Población de Argentina*, p. 23, Cuadro 1.1.
115. SAGE, 'Global Land Use Database', available online at http://www.sage.wisc.edu/iamdata/ (accessed 5 September 2013).
116. For the official series, see INDEC, *Anuario Estadístico 1981-82*, Buenos Aires, 1984, pp. 447-49.

Figure A3.1

Argentina's Population, 1500-1900



Sources: Lattes, 'Perspectiva histórica', p. 23, Cuadro 1.1; and van Drecht and de Vos, 'HYDE 3.1'.

Chapter 4

Reordering the River Plate

> If any worthy alderman had supped with us that evening, 'carne con cuero', without doubt, would soon have been celebrated in London.
>
> Charles Darwin, *The Voyage of the Beagle*[1]

Argentina too was shaped by its own long boom, as the new nation emerged during the global reordering. This chapter demonstrates that Argentina's terms-of-trade boom was far greater than has previously been supposed, and its effects more profound, as it allowed the land-abundant Littoral to prosper while it also made the relatively land-scarce (or, initially, landlocked) interior stagnate. As Miron Burgin recognised in a classic study, it was these uneven impacts of the long boom that prevented the formation of a unified state in Argentina for several decades after independence in 1810.[2] Here Burgin's account is extended up to the First World War through an analysis of the role played by the terms of trade in the process of state formation from the 1860s onwards. The chapter argues that the presence of the stagnant interior prevented democratisation, so access to the land was restricted, which muted the safety-valve effect of the expanding frontier. Consequently, the kind of intensive growth experienced in the European offshoots was limited in Argentina, so it did not fulfil its potential as a land-abundant country.

This chapter in this way provides a pessimistic revision of Argentina's long nineteenth century. It begins by discussing the extent and origins of the terms-of-trade boom. By taking into account the methodological findings of Chapter 2, it shows that the improvement in Argentina's terms of trade has been massively underestimated. Most likely, they improved by at least 2,000 percent from the 1780s to the first decade of the twentieth century. Initially this was due to trade liberalisation

1. C. Darwin, *The Voyage of the Beagle*, New York, (1835) 1909, p. 205
2. Burgin, *Economic Aspects*, esp. ch. 1. Also see the discussion in Chapter 1, pages 31-32.

under the impact of British imperialism, then it continued because of the falling prices of the core's manufactured goods, combined with lower trade costs. Having demonstrated its extent, the chapter then discusses how this long boom disordered the River Plate by generating decades of intermittent civil conflict that prevented the formation of a unified state. Only with the onset of massive British investment from the 1860s onwards would a unified state be able to form, as a British-financed railway network increased the federal government's capacity to protect its supporters in the provinces.[3] The new state was oligarchic, it is argued, because the losers from the long boom – the interior's peasantries – had to be excluded from politics. A lack of democratisation then prevented the kind of white-egalitarian policies that facilitated access to the land in the European offshoots, so the expanding frontier's safety-valve effect was muted. Argentina, as a result, began the twentieth century in the paradoxical position of being a land-abundant country with widespread landlessness, which prevented it from fulfilling its potential. Chapter 5 will go on to confirm this pessimistic revision by showing that living standards in Argentina remained considerably below the levels of the world's most developed countries prior to the First World War.

The Imperial Impact

Argentina itself played a small but important role in bringing the new global order into being. During the French Wars Britain had sought the dissolution of the Spanish empire because American silver was flowing to France via Spain, while new export markets were also needed as a result of Napoleon's prohibition of British goods from continental Europe in 1806. Yet British politicians were unsure what to promote in the Spanish empire's place, as they vacillated between seeking to colonise Spanish America themselves and supporting the formation of independent states.[4] A synthesis would only emerge following the two failed invasions of Buenos Aires in 1806 and 1807. In the first invasion, the commander of a British naval squadron took it upon

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3. As discussed in Chapter 1, pages 33-34, this interpretation of Argentina's state formation is substantially inspired by de la Fuente, *Children of Facundo*; also see G.L. Paz, 'Province and Nation in Northern Argentina: Peasants, Elite and the State, Jujuy, 1790-1880', PhD diss., Emory University, 1999.
4. J. Lynch, 'British Policy and Spanish America, 1783-1808', *Journal of Latin American Studies*, 1:1, 1969, pp. 1-4, 23; and K. Gallo, *Great Britain and Argentina: From Invasion to Recognition, 1806-26*, New York, 2001, ch. 1.

himself to occupy the city, in order to permit the merchants who accompanied him to disembark their goods. After four months, however, his forces were expelled by the Spanish army and militias formed by the city's inhabitants and gauchos (the rural poor).[5] This failure of the British invasions inspired a major shift in British policy towards a synthesis of colonisation and supporting independence.[6]

Viscount Castlereagh, then Secretary of State for War, outlined the British policy toward South America in a cabinet memorandum soon after the failure of the first invasion of Buenos Aires. He maintained that it would be unwise to engage further in 'the hopeless task of conquering this extensive country, against the temper of its population',[7] but at the same time, neither should Britain unconditionally promote independence from Spain due to the 'probability that any local government which might be established would become democratic and revolutionary, and that, in endeavouring to promote and combine the happiness of the people with extension of our own commerce, we might, in destroying a bad government, leave them without any government at all'.[8] Instead, Castlereagh argued, the British government should support the formation of a sovereign state that would be governed by a local ruling class that was amenable to British interests. Given that it has previously been misinterpreted, Castlereagh's conclusion is worth quoting at length.[9] He wrote:

> In looking to any scheme for liberating South America, it seems indispensable that we should not present ourselves in any other light than as auxiliaries and protectors. In order to prove our sincerity in this respect, *we should be prepared to pursue our object by a native force, to be created under our countenance*; and the particular interest which we should be understood alone to propose to ourselves should be the depriving our enemy of one of his chief resources, and the opening to our manufactures the markets of that great Continent.[10]

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5. H.S. Ferns, *Britain and Argentina in the Nineteenth Century*, Oxford, 1960, pp. 20-35; and Gallo, *Great Britain and Argentina*, pp. 37-41.
6. Cf. Ferns, *Britain and Argentina*, pp. 45-49; and Lynch. 'British Policy', pp. 21-24.
7. Castlereagh, Viscount, 'Memorandum for the Cabinet, Relative to South America', 1 May 1807, in C.W. Vane, ed., *Correspondence, Despatches, and Other Papers, of Viscount Castlereagh, Second Marquess of Londonderry*, VII, London, 1851, p. 319.
8. Ibid., p. 320.
9. Much was made of this document by Ferns, *Britain and Argentina*, pp. 46-48. Platt then used Ferns' selective quotations to criticise Gallagher and Robinson's notion of the 'imperialism of free trade'. D.C.M. Platt, 'The Imperialism of Free Trade: Some Reservations', *Economic History Review*, 21:2, 1968, p. 299; cf. idem, 'Further Objections to an 'Imperialism of Free Trade', 1830-60', *Economic History Review*, 26:1, 1973; and Gallagher and Robinson, 'Imperialism of Free Trade'. The full quotation from Castlereagh's memorandum is, however, far more compatible with Robinson and Gallagher's analysis than Platt realised.
10. Castlereagh, 'Memorandum for the Cabinet', p. 321, emphasis added.

Castlereagh's argument was reinforced shortly thereafter when another invasion of Buenos Aires failed,[11] leading to a decisive reorientation of British policy toward a more informal kind of empire. From then on, not only in Spanish America but across the periphery, formal colonisation would be avoided as long as there was a collaborative elite – a 'native force' – to work with.[12]

The promise of improved terms of trade was the key to the initial formation of a collaborative elite in the River Plate. Under the Spanish empire the terms of trade had been depressed by the Spanish trade monopoly, which sought to channel silver from the mines of Upper Peru to Spain for the benefit of the Spanish state.[13] This system generated great price differentials between Europe and the Americas due to the high trade costs that it entailed. Hence, even following substantial trade liberalisation in the eighteenth century, competition among Spanish merchants in Buenos Aires remained minimal, so their markups were high.[14] Moreover, their shipping was inefficient, and their goods were heavily taxed – in both Spain and Buenos Aires – by the Spanish authorities,[15] which depressed export prices and inflated import prices in

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11. Ferns, *Britain and Argentina*, pp. 37-45; and Gallo, *Great Britain and Argentina*, pp. 43-47.
12. R. Robinson, 'Non-European Foundations of European Imperialism: Sketch for a Theory of Collaboration', in R. Owen and B. Sutcliffe, eds., *Studies in the Theory of Imperialism*, London, 1972, pp. 117-42; and idem, 'The Excentric Idea of Imperialism, With or Without Empire', in J. Osterhammel and W.J. Mommsen, eds. *Imperialism and After: Continuities and Discontinuities*, London, 1986. For a useful discussion of Robinson's 'peripheral' theory of European imperialism, see Cain and Hopkins, *British Imperialism*, pp. 26-30.
13. The fiscal logic of the Spanish trade monopoly has often been missed, as economic historians have instead seen it as intended to 'build a rich and solid economy' in Spain. G. Márquez, 'Commercial Monopolies and External Trade', in V. Bulmer-Thomas, J. Coatsworth, and R. Cortés Conde, eds., *The Cambridge History of Latin America*, I, *The Colonial Era and the Short Nineteenth Century*, Cambridge, 2005, p. 397. In establishing the monopoly, however, the crown's principal goal was to finance its own war-making. Subsequently, the monopoly came to play an important role in Spain's fiscal system, as much of the crown's revenues came from taxing American exports and imports when they passed through Spain, especially those colonial goods that the crown itself imported. Moreover, by the late eighteenth century a disproportionate amount of its domestic revenues came from Cádiz, the region of Spain that benefited most from the trade monopoly. See J.A. Barbier and H.S. Klein, 'Revolutionary Wars and Public Finance: The Madrid Treasury, 1784-1807', *Journal of Economic History*, 41:2, 1981, pp. 327-28, 328-30; C. Marichal, 'Beneficios y costes fiscales del colonialismo: Las remesas americanas a España, 1760-1814', *Revista de Historia Económica*, 15:3, 1997, p. 480; and J. Cuenca-Esteban, 'Was Spain a Viable Fiscal-Military State on the Eve of the French Wars?', in S. Conway and R. Torres Sánchez, eds., *The Spending of States: Military Expenditure During the Long Eighteenth Century: Patterns, Organisation, and Consequences, 1650-1815*, Saarbrücken, 2011, pp. 247-56.
14. Socolow suggests that 70 percent was considered an 'acceptable markup'. S.M. Socolow, *The Merchants of Buenos Aires, 1778-1810*, Cambridge, 1978, p. 60.
15. Many goods imported from Spain came from other parts of Europe, so they were taxed when they entered Spain, taxed again when they were reexported, then taxed again upon arrival in Buenos Aires. The River Plate's exports would pay the same taxes, although in the opposite order. Newland and Ortíz, 'Economic Consequences', pp. 276-78.

the River Plate. Thus, in the first half of the 1790s cattle hides sold in Buenos Aires for as little as 20 percent of their wholesale price in Cádiz.[16] Ranchers accordingly tended to be impoverished, with most illiterate and many lacking basic goods, such as shoes and socks.[17] When they heard of the greatly improved terms of trade that British merchants were providing in Montevideo, the city across the River Plate estuary that was occupied during the British invasions, they therefore lobbied the Spanish authorities for trade liberalisation. Mariano Moreno, a prominent young lawyer, famously appealed to the Spanish viceroy on their behalf.[18] He noted that in Montevideo '[s]ales were made at advantageous prices, goods were bought at minimal values, and the rural world wore fabrics that it had never known before, having sold at high values hides that its grandparents had thrown away as useless'.[19] The ranchers and their representatives had recognised, then, that the terms of trade had improved dramatically under the British, so they sought the end of the Spanish trade monopoly, through independence if necessary.[20]

Spain's trade monopoly ended with the disintegration of the empire. Already in November 1809 the Spanish viceroy had been persuaded by Moreno and others to allow two British merchants to disembark and sell their cargoes.[21] Then, three days after an independent government was declared in late May 1810, the remaining restrictions on trade with foreigners were removed.[22] Subsequently, the number of merchants arriving rose: whereas 50 ships had docked per year at Buenos Aires in the mid-1790s, before the French Wars began, there were over 250 foreign merchant vessels entering annually by the early 1820s.[23] Increased competition among

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16. Amaral, *Rise of Capitalism*, p. 234, Table 11.1.
17. C.A. Mayo, 'Landed but not Powerful: The Colonial Estancieros of Buenos Aires (1750-1810)', *Hispanic American Historical Review*, 71:4, 1991, pp. 769-70; and idem, *Estancia y sociedad en la Pampa 1740-1820*, Buenos Aires, 1995, pp. 60-61.
18. Lynch, *Spanish American Revolutions*, pp. 49-50.
19. D.M. Moreno, *Representación que el apoderado de los hacendados de las campañas del Río de la Plata*, Buenos Aires, (1809) 1874, p. 29, author's translation.
20. As Adelman has stressed, independence in itself was not necessarily the goal of revolutionaries such as Moreno. Rather, they sought trade liberalisation so that the country would be able to exploit its land resources. J. Adelman, *Republic of Capital: Buenos Aires and the Legal Transformation of the Atlantic World*, Stanford, 1999, ch. 3. On the failure of Spain to come to a compromise with the Latin American revolutionaries on this issue, see Costeloe, 'Spain and the Latin American Wars'.
21. Lynch, *Spanish American Revolutions*, pp. 49-50.
22. Ferns, *Britain and Argentina*, p. 65.
23. Z. Moutoukias, 'El crecimiento en una economía colonial de antiguo regimen: Reformismo y sector externo en el Río de la Plata', *Arquivos do Centro Cultural Calouste Gulbenkian*, 34, 1995, p. 803, Table 2; and Llorca-Jaña, *British Textile Trade*, p. 341.

merchants then turned Buenos Aires into more of a sellers' market for pastoral producers and a buyer's market for consumers of imported goods. Hence, in the early 1820s, a resident British merchant claimed to 'have bought English stockings cheaper than I could buy them in London', and that it was 'cheaper to purchase a stock of linen [in Buenos Aires] than at home'.[24] Furthermore, export duties were lowered considerably,[25] British and other foreign shipping was more efficient than Spanish vessels, and merchants were no longer obliged to ship their goods via Spain, so falling trade costs led to rapid price convergence: in the first half of the 1790s hides had sold in Buenos Aires for around 20 percent of their CIF price in Britain, but they were selling for 80-90 percent by the 1820s.[26] The terms of trade would then continue to improve thanks to the falling prices of the core's manufactured goods, as well as falling trade costs due to more efficient shipping, faster flows of information, better packaging of goods, and more competition among merchants.[27]

The available price record confirms that Argentina experienced a massive terms-of-trade boom during the long nineteenth century. As indicated by the findings of Chapter 2, Argentina's own prices should ideally be used to measure its terms of trade. The price record is, however, fragmentary, so historians up to now have mainly relied upon prices from European countries as proxies for prices in Argentina itself.[28]

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24. An Englishman, *A Five Years Residence in Buenos Ayres During the Years 1820 to 1825*, 2nd ed., London, 1827, p. 93.
25. Within two weeks of independence, export taxes would be lowered (Buenos Ayres, *Gazeta*, 1, 1810, p. 6), and then they would be further eroded by inflation, falling to just four percent on dry ox hides by the end of the 1820s. Calculated from J. Broide, 'La evolución de los precios pecuarios argentinos en el periodo 1830-1850', mimeo, 1951, p. 41, Cuadro 16; also published in *Revista de la Facultad de Ciencias Económicas*, 4:32, pp. 113-83; and M.A. Irigoin, 'Finance, Politics and Economics in Buenos Aires, 1820s-1860s: The Political Economy of Currency Stabilisation', PhD diss., University of London, 2000, p. 126, Table II.1.6. Export taxes were eroded by inflation because, from 1822 onward, they were in fixed paper money amounts that were only sporadically adjusted for rising prices. See ibid., pp. 129-30.
26. Calculated from the price data in Tables DA.12-DA.14. For discussion of the hide price data, see Appendix 4.1, pages 176-81. The differential varies according to which series of hide prices in Britain is used.
27. For evidence of these process specific to the River Plate, see D.C.M. Platt, *Latin America and British Trade 1806-1914*, London, 1972, p. 14; J.E. Oribe Stemmer, 'Freight Rates in the Trade between Europe and South America, 1840-1914', *Journal of Latin American Studies*, 21:1, 1989, pp. 23-59; Y. Kaukiainen, 'Shrinking the World: Improvements in the Speed of Information Transmission, c. 1820–1870', *European Review of Economic History*, 5:1, 2001, pp. 5, 20, Tables 1 and 4; and Llorca-Jaña, *British Textile Trade*, ch. 7.
28. For example, Newland, 'Exports and Terms of Trade'; and Llorca-Jaña, *British Textile Trade*, p. 195, Figure 7.4. As noted in the introduction, this is still preferable to those works that have looked just at the prices of Argentina's exports in foreign countries, without deflating them. Most notably, Halperín Donghi, 'Expansión ganadera', pp. 62-66.

Typically this has produced estimates that imply an improvement in the terms of trade of at most 200 percent from 1810 to 1913.[29] A careful reconstruction of the existing price record nevertheless suggests that this is a significant underestimate. Figure 4.1 illustrates this using the domestic wholesale prices of nine of the country's main exports, which were compiled for this dissertation from various sources, as will be described at length in Appendix 4.1.[30] They are here shown relative to a crude proxy import price index that consists of the export prices of six of Argentina's major trade partners,[31] with the result indicating a far greater terms-of-trade boom than is normally supposed. Indeed, when all the series are indexed to make a 'part-proxy' estimate of Argentina's terms of trade, as in Figure 4.2, they show an improvement of 1,700 percent from the 1780s to the 1900s, and even this is likely to be an under-estimate due to the downward bias in the trend in part-proxy estimates for the nineteenth century.[32] If adjustments are made for the effects of falling trade costs on import prices, it seems likely that the improvement would be more than 2,000 percent over the same period. Assuming, for instance, that the differential of import prices in Argentina to export prices in the core fell from 100 percent in the 1780s to 20 percent in the 1900s, which is plausible, the terms of trade would have improved by 2,500 percent.[33] What is more, the terms of trade also appear to have become

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29. For example, Ferreres, *Dos siglos*, Table 8.1.7. The sources used by Ferreres are substantially the same as those of Williamson, as previously discussed in Appendix 2.1, page 87: Newland, 'Exports and Terms of Trade'; and Ford, 'Export Price Indices'; via di Tella and Zymelman, *Etapas del desarrollo*, p. 56, Table 10.
30. To preempt Appendix 4.1, the sources used were Anon., 'Report on the Trade of the River Plate', reproduced in R.A. Humphreys, *British Consular Reports on the Trade and Politics of Latin America 1824-26*, London, (1824) 1940, p. 33; idem, 'Precios corrientes de productos en Buenos Aires en los años 1821, 1822 y 1823', in E.M. Barba, ed., *Informes sobre el comercio exterior de Buenos Aires durante el gobierno de Martín Rodríguez*, Buenos Aires, (1824) 1978, p. 60; DGEN, *Extracto estadístico de la República Argentina correspondiente al año 1915*, Buenos Aires, 1916, pp. 204-17; A. Bunge, *Intercambio económico de la República, 1910-1917*, Buenos Aires, 1919, ch. 11; Álvarez, *Temas de historia*, pp. 208-26; Broide, 'Evolución de los precios', pp. 41-43, 50, Cuadros 16-18, and 22; R. Cortés Conde, T. Halperin Donghi, and H. Gorostegui de Torres, 'Evolución del comercio exterior argentino: Tomo I Exportaciones: Parte primera 1864-1930', mimeo, 1965, pp. 73-79; V. Vázquez-Presedo, *Estadísticas históricas argentinas (comparadas)*, II, *Segunda parte 1914-1939*, Buenos Aires, 1971, pp. 194-221; and Moutoukias, 'Crecimiento en una economía', p. 804, Cuadro 3.
31. The use of such a proxy index is crude because it assumes that the composition of Argentina's imports from each of the six countries was similar to the composition of their exports to all countries. Nevertheless, it is still preferable to the common practice of just using Britain's export prices as a proxy for a peripheral country's import prices (see Chapter 2). How the six countries' export prices were indexed will be detailed in Appendix 4.1, pages 187-88.
32. On the downward bias in part-proxy estimates, see Chapter 2, pages 64-80.
33. See Appendix 4.1, pages 189-92.

Figure 4.1

Part-Proxy Terms of Trade for Nine Argentine Exports, 1780-1913

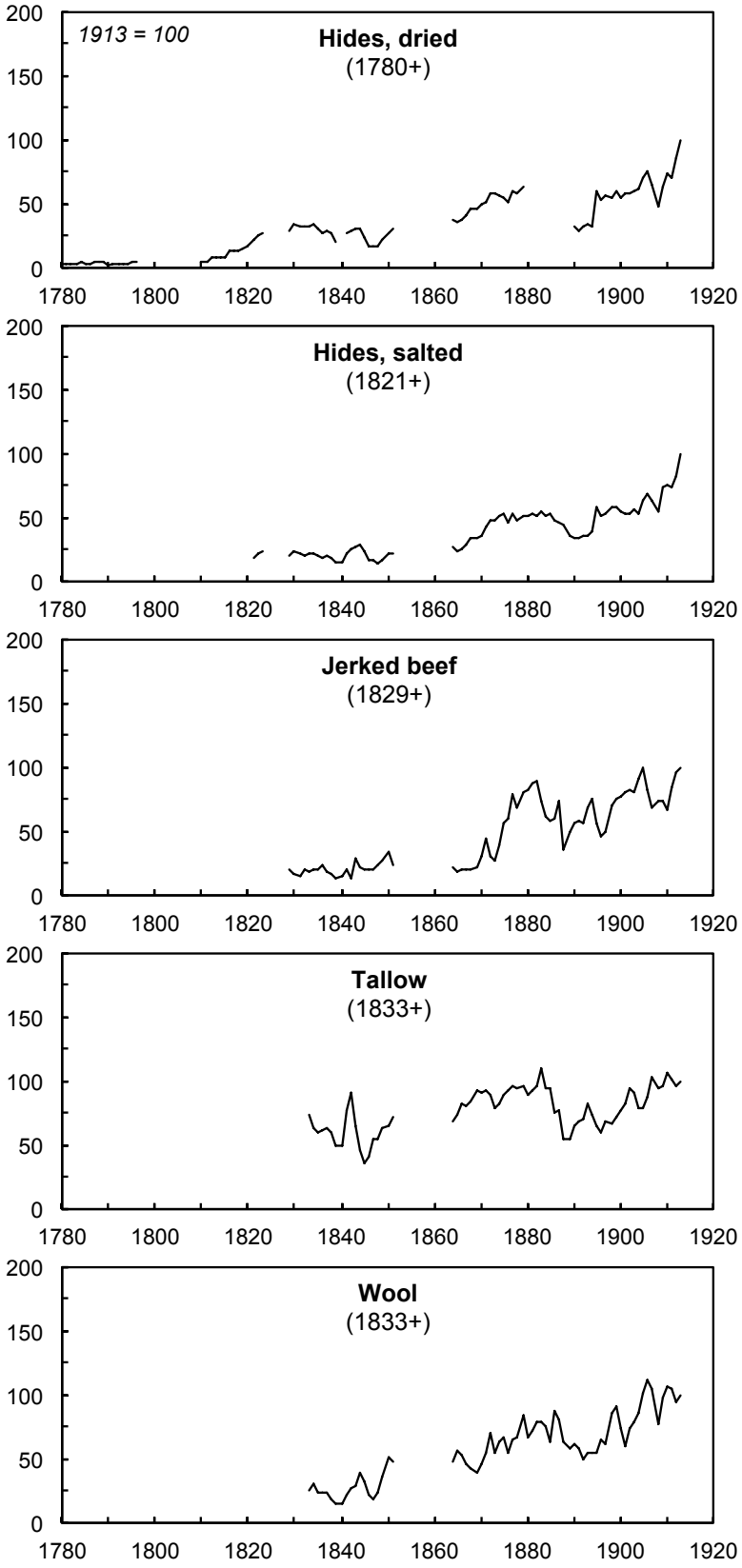
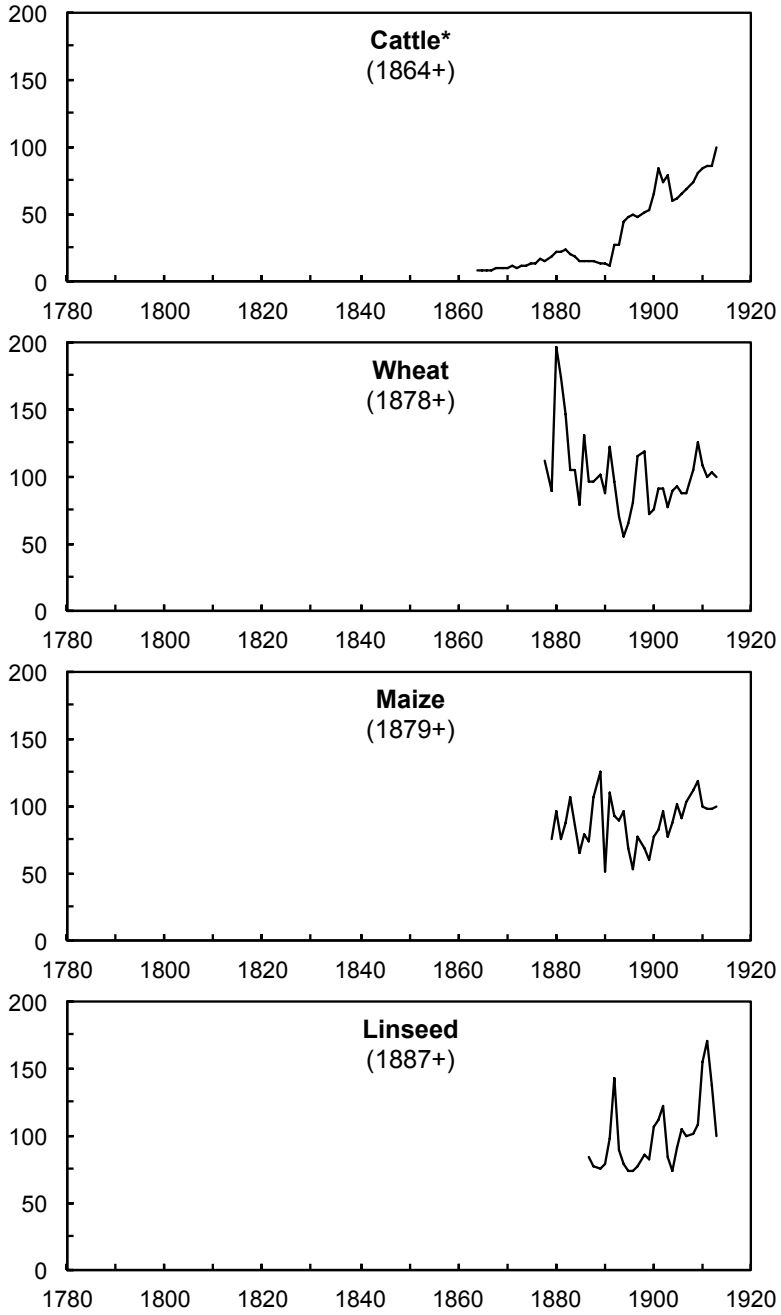


Figure 4.1 (cont.)

Part-Proxy Terms of Trade for Nine Argentine Exports, 1780-1913



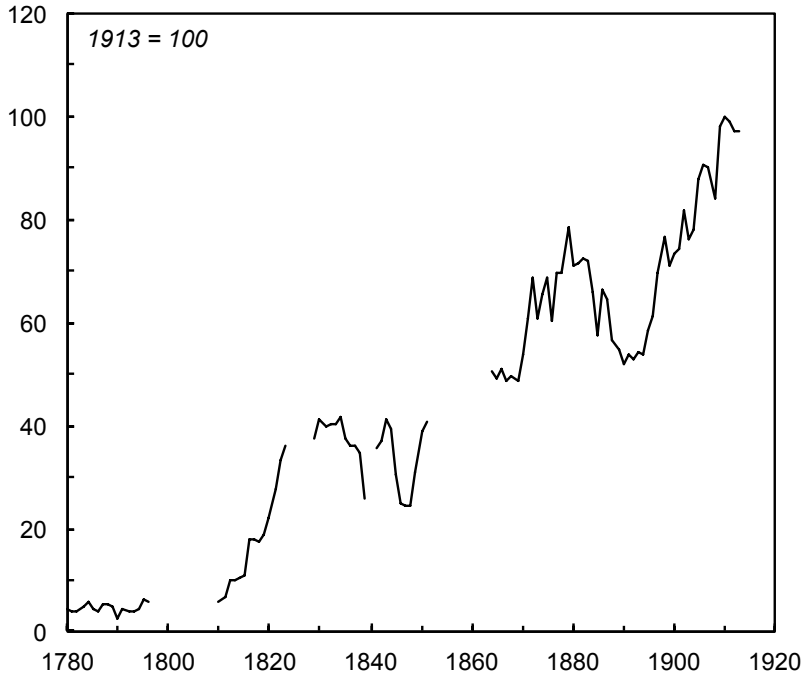
* Also used as a proxy for chilled and frozen beef in the export price index.

Note: The wholesale price of each good in Buenos Aires was divided by a chained, geometric Laspeyres index of the export prices of Argentina's major trade partners, then all series were referenced so that 1913 equalled 100. The trade partners included in the proxy import price index are Britain (from 1780), the United States (from 1790), France (from 1809), Brazil (from 1821), Italy (from 1862), and Germany (from 1880).

Sources: See Appendix 4.1. The underlying series are reproduced in Tables DA.13-DA.17 in the Data Appendix.

Figure 4.2

Part-Proxy Terms of Trade for Argentina, 1780-1913



Note: The series is a chained, geometric Laspeyres index, calculated from the nine series in Figure 4.1, together with series for sheep skins (1864+), flour (1880+), goat skins (1893+), and numerous other minor exports from 1910 onward.

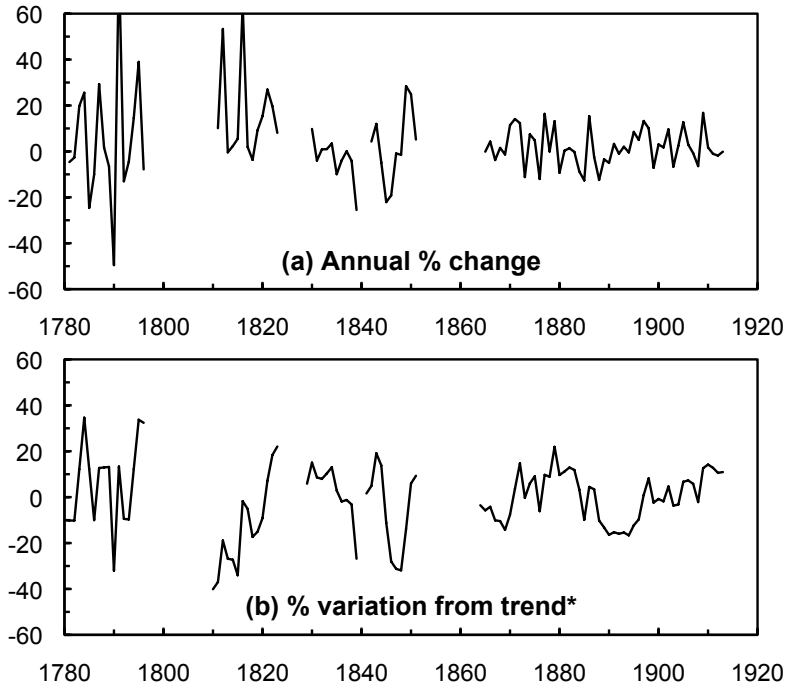
Sources: See Appendix 4.1. The underlying series are reproduced in Tables DA.13-DA.17 in the Data Appendix.

increasingly stable, as indicated by the two measures of volatility shown in Figure 4.3. Panel (a) simply shows the annual percentage change in the series; Panel (b) shows the cyclical component in the series as a percentage of its trend component. Both suggest decreasing volatility.[34] The impact of British expansion had thus triggered an unprecedented terms-of-trade boom in the River Plate, during which the terms of trade improved persistently for over a century, while also becoming less volatile. In time, this long boom would generate the kind of 'native force' imagined by Castlereagh, as global capitalism, through the terms of trade, reordered the River Plate.

34. Some caution should be exercised in interpreting the strong volatility during the 1810s because the source for the export price index for this period is based on hide prices that are given as several-year averages (from anon., 'Report on the Trade', p. 33). Nonetheless, even if the 1810s were excluded from the picture, the impression of declining volatility would remain.

Figure 4.3

Volatility in Argentina's Part-Proxy Terms of Trade, 1780-1913



* The cyclical component as a percentage of the trend component. Both were calculated using a Hodrick-Prescott Filter, with the smoothing parameter set at 1,000.

Sources: Calculated from the series in Figure 4.2.

Native Forces

The long terms-of-trade boom radically changed the incentives that people faced. The rest of this chapter outlines that process and its results. It first argues, following Burgin,[35] that the long boom drove River Plate's descent into civil war after independence because of its uneven impacts on land-abundant and land-scarce regions. Whereas improved terms of trade allowed the Littoral to prosper thanks to its vast land resources and river system, they made the more densely populated and/or landlocked interior stagnate.[36] The conflicts generated by these opposite paths then prevented the formation of a unified state, as the interior's Federalists sought provincial autonomy, in order to protect their cottage industries from the influx of cheap imports, while landowners in the Littoral opposed a unified state since they did not

35. Burgin, *Economic Aspects*, ch. 1.
36. As noted in Chapter 1, page 31, footnote 85, Argentina's North and West are Andean regions with similar land resources to Bolivia. The centre of the country has vast plains of Pampean land, but does not have a river system to connect it to the sea.

wish to see Buenos Aires City made a federal capital, juridically separate from its rural hinterland.[37] Only massive injections of British capital, attracted to the country by its ongoing terms-of-trade boom, allowed these conflicts to be resolved, as a British-financed network augmented the federal government's capacity to intervene in favour of its supporters in the provinces, while also giving the provincial ruling classes the opportunity to profit from the expansion that was taking place in the Littoral. From this perspective, then, state formation in Argentina was not inevitable,[38] since it was highly contingent upon developments in the global political economy. Moreover, the impression given in the existing literature of the state being pulled outward from Buenos Aires is also misleading because the federal government was effectively pulled into the interior by elements of the provincial ruling classes.[39] For this reason, when it formed, Argentina's state would be an oligarchic state, heavily influenced by the power structures of the most backward parts of the country, which had lost out from the long boom.

The Civil Wars

In 1820s it appeared that Castlereagh's collaborative elite had already formed. Bernardino Rivadavia was its most prominent representative. The creole (that is, American-born) son of a Spanish merchant and lawyer, Rivadavia's rise to prominence began when he participated in the militias that had repelled the British invasions; he then went on to fight in the wars of independence against Spanish rule. In 1814 the new government in Buenos Aires sent Rivadavia to Europe to drum up support for its cause in London and Paris. During his six-year sojourn he would familiarise himself with the emerging ideas of liberalism, particularly through the works of Jeremy Bentham, with whom he corresponded. Upon his return to Argentina in 1821, Rivadavia became the principal minister to Martín Rodríguez, the governor of Buenos Aires Province, under whom he implemented reforms that were intended to win diplomatic recognition from the British government and attract British capital. Riva-

37. In making this argument about Buenos Aires' landowners, this chapter draws on K.M. Monsma, 'Ranchers, Rural People, and the State in Post-Colonial Argentina', PhD diss., University of Michigan, 1992, ch. 8.
38. As it often appears in Oszlak, *Formación del estado*, esp. 272-75.
39. Again, as discussed in Chapter 1, pages 33-34, in making this point, this chapter is inspired by de la Fuente's critique of Oszlak. See de la Fuente, *Children of Facundo*, p. 188; cf. Oszlak, *Formación del estado*, esp. 272-75.

davia, once a resistance fighter against British domination, had thus become the River Plate's main collaborator.[40]

Predictably, the British merchants who had flocked to Buenos Aires following independence profusely praised Rivadavia. In an 1824 report to Woodbine Parish, the new British consul to Buenos Aires, the merchants credited the Rodriguez government with having engineered a great increase in prosperity by promoting trade.[41] On that basis, Parish advised George Canning, the new Foreign Secretary, that 'the benefits of a good government, which has been at last established, are now quite sufficiently known and understood to ensure the support of all classes of the people'.[42] It seemed, in other words, that, under British countenance, a suitable native force was forming, so the next year the United Provinces of the River Plate were formally recognised by the British government, consolidating their position as an independent state.[43]

The River Plate soon descended, however, into civil war. In a constitutional assembly begun in 1823 Rodríguez and Rivadavia had pushed for a unitary constitution for the new republic that would have established a strong central government in Buenos Aires City, which was to be juridically separated from its surrounding province. In doing so, the Unitarians antagonised the governors of the interior provinces, who wished to retain their provincial militias, while they also provoked the opposition of Buenos Aires' landowners, who did not wish to see their rural landholdings separated from the city. Consequently, having been appointed president under the new unitary constitution in 1826, Rivadavia was forced to resign just a year later. His successor, Manuel Dorrego, annulled the new constitution, but was executed in 1828, following a military coup led by Juan Lavalle, a Unitarian army officer. Frontier militias led by Juan Manuel de Rosas, a major landowner, together with the forces of Estanislao López, the governor of Santa Fe, then besieged Buenos Aires to dislodge Lavalle, which they succeeded in doing in 1829. Rosas was then made governor of Buenos Aires, with the provincial assembly granting him extraordinary powers to rule as a dictator until order was restored – powers which he

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40. See K. Gallo, *The Struggle for an Enlightened Republic: Buenos Aires and Rivadavia*, London, 2006.
41. Anon., 'Report on the Trade', p. 34.
42. Quoted in Gallo, *Great Britain and Argentina*, p. 142.
43. Gallo, *Great Britain and Argentina*, ch. 6; cf. Ferns, *Britain and Argentina*, ch. 4.

continued to use as governor for much of the 1830s and all of the 1840s. Rosas became the de facto leader of the Argentine Confederation, which functioned as a loose alliance of autonomous provinces, with Buenos Aires given control of foreign policy.[44]

To understand why Argentina fragmented, it is necessary consider the River Plate's development up to independence. Prior to colonisation in the sixteenth century, the mountainous interior had been populated by sedentary agriculturalists, living on the southern periphery of the Incan empire. Spanish settlers rapidly established themselves as overlords of the Andean peasant populations, using Indian labour to supply Potosí, the great mining city in Upper Peru. They provided it with mules, sugar, wine, and tobacco, the production of which was protected by the high trade costs that resulted from the Spanish trade monopoly. All goods legally imported from Europe had to be shipped from Seville (and later Cádiz) to the Isthmus of Panama, carried across land to the Pacific, shipped to Callao, Lima's Pacific port, then taken 4,000 kilometres overland in mule trains to the River Plate. Such a lengthy journey brought high trade costs, which inflated the prices of imports, thereby providing a considerable degree of protection for the Andean peasants' industries. In the Littoral region, meanwhile, Buenos Aires developed as an entrepôt for a flourishing contraband trade, with imports of slaves, European manufactures, and tropical goods from Brazil illicitly exchanged for silver from Upper Peru.[45]

In the eighteenth century trade was gradually liberalised, especially once Buenos Aires was made the capital of a new Viceroyalty of the River Plate in 1776, after which free trade with Spain was permitted. Buenos Aires, moreover, was given control over Potosí, so its treasury became the recipient of large fiscal transfers from the treasury of the mining region.[46] Greater government expenditure then increased

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44. See J. Lynch, *Argentine Dictator: Juan Manuel de Rosas 1829-1852*, Oxford, 1981, pp. 31-43.; and J.C. Chiaramonte, 'El federalismo argentino en la primera mitad del siglo XIX', in M. Carmagnani, ed., *Federalismos latinoamericanos: México, Brasil y Argentina*, México, DF, 1993, pp. 91-93. On the constitutional basis of Rosas' rule, see idem, 'The 'Ancient Constitution' after Independence (1808–1852)', *Hispanic American Historical Review*, 90:3, 2010, pp. 455-88.
45. See Halperín Donghi, *Politics, Economics*, pp. 6-16; Brown, *Socioeconomic History,* pp. 9-25; E. Tandeter, 'El eje Potosí-Buenos Aires en el imperio español', in M. Ganci and R. Romano, eds., *Governare il mondo: L'imperio spagnolo dal XV al XIX secolo*, Palermo, 1991, pp. 185-94; and Z. Moutoukias, 'Comercio y producción', in Academia Nacional de Historia, ed., *Nueva historia de la Nación Argentina*, IV, Buenos Aires, 2000, pp. 72-81.
46. See Brown, *Socioeconomic History*, ch. 2; Tandeter, 'El eje Potosí-Buenos Aires', pp. 194-201; Moutoukias, 'Crecimiento en una economía'; and idem, 'Comercio y producción', pp. 81-92.

demand for imported goods, which Spanish merchants provided, taking Potosí's silver as payment and remitting it back to Spain.[47] The terms of trade probably improved somewhat during this period,[48] although they still remained depressed because of the lack of competition among the Spanish merchants, their inefficient shipping, and the numerous taxes that were imposed on their goods in Spain and Buenos Aires.[49]

In the Littoral region the terms-of-trade boom that began after independence sparked an expansion in exports, leading to staple theory-style extensive growth.[50] The Robertson brothers, two prominent Scottish merchants, provided a vivid account of how they spurred growth in Corrientes, a Littoral province, in the 1810s.[51] When the Robertsons arrived, they found that the region's ranchers 'paid high prices for their goods, and got low ones for their produce'[52] – their terms of trade were, in other

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47. Bizarrely, such flows of silver from treasuries in mining regions to the treasuries of ports have been taken as evidence that the Spanish imperial system 'successfully aimed at making the colonies self-sufficient, with intra-colonial transfers covering the needs of regions that either could not or would not raise sufficient revenue'. R. Grafe and M.A. Irigoin, 'The Spanish Empire and Its Legacy: Fiscal Redistribution and Political Conflict in Colonial and Post-Colonial Spanish America', *Journal of Global History*, 1:2, 2006, p. 263; cf. idem, 'Bargaining for Absolutism: A Spanish Path to Nation-State and Empire Building', *Hispanic American Historical Review*, 88:2, 2008. This argument seems oblivious to the fiscal role of the trade monopoly, as it ignores the numerous taxes imposed on exports and imports in Spain, as well as the tax revenues it generated in Cádiz. Once this aspect of the trade monopoly is taken into consideration, channeling silver from mining regions to the ports can be seen as a means to increase the crown's revenues by ensuring that the silver would be used to purchase imports form Spain; it was not an attempt at colonial developmentalism. On the imperial fiscal system, see page 129, footnote 13.
48. The price record is, unfortunately, extremely fragmentary. There are prices of cattle, but few on the prices of hides. See J.C. Garavaglia, 'Precios de los productos rurales y precios de la tierra en la campeña de Buenos Aires: 1750-1826', *Boletín del Instituto de Historia Argentina y Americana 'Dr. Emilio Ravignani'*, 3:11, 1995; and Moutoukias, 'Crecimiento en una economía'. The prices of some imported goods are available from Johnson, 'Salarios, precios', with the data online at http://gpih.ucdavis.edu/files/Buenos_Aires_1770-1812.xls (accessed 6 October 2013); and M. Cuesta, *Precios, población, impuestos y producción: La economía de Buenos Aires en el siglo XVIII*, Buenos Aires, 2009, with the data online at http://gpih.ucdavis.edu/files/Buenos_Aires_1700-1800.xls (accessed 6 October 2013). These prices suggest that there was some improvement in the terms of trade, but it was minimal compared to what would happen after independence. Thus, from the first decade of the eighteenth century to the last, the price of a cow increased by around 230 percent relative to both wine and paper, and by about 100 percent relative to wood.
49. Newland and Ortíz, 'Economic Consequences', pp. 276-78.
50. The classic application of staple theory to the Littoral in this period is Brown, *Socioeconomic History*, chs. 3-7.
51. J.P. Robertson and W.P. Robertson, *Letters on South America: Comprising Travels on the Banks of the Paraná and Rio de la Plata*, I, London, 1843. On the Robertsons, see Halperín Donghi, *Politics, Economics*, pp. 87-88; V.B. Reber, *British Mercantile Houses in Buenos Aires, 1810-1880*, Cambridge, MA, 1979, pp. 112-13; and R.D. Salvatore, 'The Breakdown of Social Discipline in the Banda Oriental and the Littoral, 1790-1820', in M.D. Szuchman and J.C. Brown, eds., *Revolution and Restoration: The Rearrangement of Power in Argentina 1860*, Lincoln, NE, 1994, pp. 90-95.

words, depressed. According to their own account, the Robertsons transformed that situation by reversing 'the plan of the Old Spaniards: we gave high prices for hides, and took low ones for goods'.[53] They described the result as follows:

> [T]he country, as if by magic, started into industrious life and mercantile activity, in every section of its wide extent. Herds and flocks were gathered together, – thousands and tens of thousands of the wild cattle were slaughtered for their hides; and in all directions the creaking of the large wheels of huge and ponderous wagons, laden with the produce of the estancias and villages, as they uninterruptedly traversed the country, gave token of renewed prosperity and peace, where a few months, nay a few weeks, before, all had been rapine, desolation, and decay.[54]

Such optimism reflected the experience of the Littoral provinces because they were able to take advantage of the terms-of-trade boom due to the navigable rivers that connected them to the oceans, which meant they could export their produce.

Buenos Aires, in particular, had a uniquely privileged position, not only because there were roughly 400,000 square kilometres of Pampas grasslands to its south and west,[55] but also due to the city's strategic location on the River Plate estuary, which allowed it to monopolise the customshouse revenues that came from taxing overseas trade. By the end of the 1820s, the customshouse was providing around 80 percent of revenues,[56] giving Buenos Aires vastly greater fiscal resources than the other provinces.[57] To increase these revenues, the government encouraged the expansion of ranching, thereby beginning a long-term commitment to promoting the export sector.[58] Land grants had already been made soon after independence to

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52. Robertson and Robertson, *Letters on South America*, pp. 174-75
53. Ibid., pp. 176-77
54. Ibid., p. 179.
55. Cortés Conde, *Progreso argentino*, p. 56, Cuadro 2.1.
56. T. Halperín Donghi, *Guerra y finanzas en los origenes del Estado argentino (1791-1850)*, Buenos Aires, (1982) 2005, pp. 175-77.
57. In the 1820s, Buenos Aires's revenues per capita were roughly four times those of Corrientes, five times those of Entre Ríos, 11 times those of Mendoza, 16 times those of Santa Fe, and 22 times those of Tucumán. Revenues from ibid., pp. 169, 173, 177; and R. Cortés Conde, F. Converso, L. Coria, A.I. Ferreyra, and E.C. Schaller, 'Las finanzas públicas y la moneda en las provincias del interior (1810-1860)', in Academia Naional de Historia, ed., *Nueva historia de la Nación Argentina*, V, Buenos Aires, 2000, pp. 518, 521-24, Tables 3-7. An idea of the population of each province can be gained by interpolating between estimates for 1809 and 1869 in J. Comadrán Ruiz, *Evolución demográfica argentina durante el período hispano: 1535-1810*, Buenos Aires, 1969, p. 115; and Superintendente del Censo, *Primer censo de la República Argentina*, Buenos Aires, 1872, p. 633, Tabla 1. The population figures for 1809 are extremely approximate.
58. T. Halperín Donghi, 'The Buenos Aires Landed Class and the Shape of Argentine Politics (1820-1930)', in E. Huber and F. Safford, eds., *Agrarian Structure & Political Power: Landlord & Peasant in the Making of Latin America*, Pittsburgh, 1995, pp. 44-45.

encourage ranchers to push Buenos Aires' frontiers into Indian territory,[59] and in the 1820s large tracts of Pampean land, which was mostly publicly owned, became available on 20-year, transferable leaseholds, most of which would later be converted to freehold titles under Rosas in the 1830s.[60] A new landowning class would then become the principal beneficiary of the export expansion that began in the 1840s.[61] Cattle hides accounted for most of the growth, although jerked beef, other skins and hides, tallow, and increasingly wool also became important exports. Initially, these pastoral goods mainly went to Britain, but continental Europe and the United States subsequently became the major importers.[62]

The interior provinces, where approximately two thirds of the population lived at independence,[63] were less fortunate because a relative scarcity of land and/or high internal transportation costs largely excluded them from the benefits of the long boom.[64] Córdoba, most notably, was an interior province that had an abundance of Pampas land, but it could not bring it into production for export because it was landlocked. Hence, in the 1830s and '40s just two percent of hides exported from Buenos

59. Cárcano, *Evolución histórica*, ch. 3; and M.E. Infesta, 'Aportes para el estudio del poblamiento de la frontera del Salado', in Archivo Histórico de la Provincia de Buenos Aires, ed., *Estudios sobre la Provincia de Buenos Aires*, La Plata, 1991.
60. M.E. Infesta, 'La enfiteusis en Buenos Aires, 1820-1850', in S. Amaral and M. Valencia, eds., *Argentina: El país puevo: Problemas de historian económica, 1800-1914*, La Plata, 1999; and idem, *La pampa criolla: Usufructo y apropiación privada de tierras públicas en Buenos Aires, 1820-1850*, Mar del Plata, 2006.
61. The historiography on the rise of Argentina's landowning class has been heavily influenced by Halperín Donghi. See R.O. Fradkin, 'Tulio Halperin Donghi y la formación de la clase terrateniente porteña', in R. Hora, and J. Trímboli, eds., *Discutir Halperin: Siete ensayos sobre la contribución de Tulio Halperin Donghi a la historia argentina*, Buenos Aires, 1997. Unable to see any price incentive for its formation, Halperín Donghi concluded that Argentina's capitalists must have begun to invest in land because the British forced them out of commerce. See Halperín Donghi, 'Expansion ganadera', pp. 72-73; and idem, 'The Buenos Aires Landed Class', p. 42. The problem with this argument is that both creole and Spanish merchants remained heavily involved in trade long after independence. K. Robinson, 'The Merchants of Post-Independence Buenos Aires', in M.L. Moorhead and W.S. Coker, eds., *Hispanic-American Essays in Honor of Max Leon Moorhead*, Pensacola, 1979. As an alternative explanation, which again, following Halperín Donghi, assumed there was no terms-of-trade boom, Amaral suggested that the rise of the landowners was due to the institution of the estancia. Amaral, *Rise of Capitalism*, esp. ch. 1. Irigoin then argued that capitalists invested in land as a hedge against inflation. A. Irigoin, 'Inconvertible Paper Money, Inflation and Economic Performance in Early Nineteenth Century Argentina', *Journal of Latin American Studies*, 32:2, 2000, pp. 333-59. Such explanations nevertheless become unnecessary once the extent of the terms-of-trade boom is recognised.
62. Amaral, *Rise of Capitalism*, ch. 12; and M.A. Rosal and R. Schmit, 'Del reformismo colonial borbónico al libre comercio: Las exportaciones pecuarias del Río de la Plata (1768-1854)', *Boletín del Instituto de Historia Argentina y Americana 'Dr Emilio Ravignani'*, 3:20, 1999.
63. Again, this is an approximation, and does not include the indigenous populations beyond the frontiers. Comadrán Ruiz, *Evolución demográfica*, p. 115.
64. Brown, *Socioeconomic History*, ch. 8. Even this optimistic take fails to find prosperity in the interior.

Aires originated from Córdoba, compared to around three quarters from Buenos Aires itself, with the remainder coming from the other Littoral provinces.[65] What hides Córdoba did export were a byproduct of its own consumption of meat, given that it was not worth slaughtering cattle for their hides alone.[66] For similar reasons, other interior provinces found that their products struggled to compete with cheaper imports in the Littoral's expanding market. In 1825, for example, it was estimated that at a distance of 1,040 km the cost of transporting wine overland to Buenos Aires equalled half the price of wine in that city.[67] For distant wine-producing regions such as Mendoza or San Juan, both around 1,000 km away from Buenos Aires, such high transportation costs meant that their wines struggled to compete in the Littoral's market.[68] Worse still, the interior's textiles, which were mainly produced by peasant women, not only lost their place in the Littoral's market to imports,[69] but were also threatened by the cheap machine-produced goods being imported from Europe into Buenos Aires and then reexported to other provinces.[70] Federalist strongmen (caudillos) in the interior therefore sought to maintain their autonomy from Buenos Aires to protect the cottage industries of the peasantries that formed their power base.[71]

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65. Calculated from Rosal and Schmit, 'Del reformismo colonial', p. 101, Gráfico 6.
66. Assadourian, *Sistema de la economía*, p. 238-39.
67. Burgin, *Economic Aspects*, p. 118, Table 17. Conversion factor from leagues to kilometres from Tornquist, *Economic Development*, p. 326.
68. This analysis has been disputed by S. Amaral, 'Free Trade and Regional Economies: San Juan and Mendoza, 1780-1820', in Szuchman and Brown, eds., *Revolution and Restoration*. Amaral argues that it was actually the civil wars that destroyed the West's wine industry after independence, rather than competition with foreign imports, and that it then took decades for grape production to recover 'because of its slower rhythms' ('Free Trade', p. 144). It seems more likely, however, that competition with imports in the Littoral markets reduced profit margins, so vineyards were converted to alfalfa, in order to feed the cattle that were being exported from Córdoba to Chile. B. Bragoni, 'Condiciones y estímulos en la recuperación de una economía regional: Prácticas mercantiles e instituciones empresarias en Mendoza, 1820-1880', in M.A. Irigoin and R. Schmit, eds., *La desintegración de la economía colonial: Comercio y moneda en el interior del espacio colonial (1800-1860)*, Buenos Aires, 2003, pp. 278-79.
69. Assadourian, *Sistema de la economía*, pp. 253-65; Garavaglia and Wentzel, 'Un nuevo aporte', pp. 227-36*;* Palomeque, 'Esteros de Santiago', pp. 40-43; and Romano, *Economía, sociedad*, pp. 123-26, 162-65.
70. These imports could travel overland because they were less bulky than the export staples. On their penetration into the interior, see C.S. Assadourian and S. Palomeque, 'Las relaciones mercantiles de Córdoba (1800-1830): Desarticulación y desmonetización del mercado interno colonial en el nacimiento del espacio económico nacional', in Irigoin and Schmit, eds., *Desintegración de la economía*, pp. 177-79, 182-84.
71. Burgin, *Economic Aspects*, pp. 16-17, also pp. 134-36; also see the discussion in Chapter 1, pages 31-32. On the power base of the caudillos, see de la Fuente, *Children of Facundo*; and Paz, 'Province and Nation', ch. 4. If foreign textiles had been allowed into the interior without restrictions it would have increased underemployment among the rural poor, thereby lowering wages, which would have negated the welfare benefits of cheaper cloth.

Within the Littoral too, the terms-of-trade boom generated powerful interests that opposed the formation of a unified state. Whereas the colonial Spanish merchants had shunned rural activities,[72] following independence, many merchants responded to improved terms of trade by investing in rural assets, while remaining an essentially urban elite.[73] The Anchorena family was the most successful.[74] They began as merchants enjoying the protection of the Spanish trade monopoly, but then adapted rapidly to its abolition by establishing themselves as middlemen for British and other foreign merchants. From the late 1810s they invested much of their profits in land, but remained residents of the city, where they also participated in politics. In the first half of the 1820s the Anchorenas, together with Rosas, their cousin and ranch manager, led the opposition to Rivadavia's attempt to create a unitary state since they did not wish to see their city juridically separated from the countryside. Many of those who actually lived in the countryside, by contrast, wished Buenos Aires City to be federalised because the decisions of local magistrates (justices of the peace) could only be appealed in courts in the capital, which gave absentee landowners such as the Anchorenas a major advantage, as they lived in the city, where they enjoyed considerable influence over the legal system. The Anchorenas for this reason opposed a unitary state, as federalising Buenos Aires would have risked having magistrates in the countryside who responded more to rural society, rather than to urban capitalists such as themselves.[75]

The long boom thus disordered the River Plate by generating opposition to a unitary state in both the interior and the Littoral. In the land-scarce and/or landlocked interior, strongmen sought to maintain provincial autonomy to protect their peasantries from the influx of cheaper imports, while the Littoral's absentee landowners were opposed to the formation of a unified state because it might weaken their influ-

72. Socolow, *Merchants of Buenos Aires*, p. 65.
73. The results of this transformation are described in R. Hora, 'El perfil económico de la elite de Buenos Aires en las décadas centrales del siglo XIX', *Revista de Historia Económica*, 24:2, 2006. Also see D. Hernando, 'Casa y Familia: Spatial Biographies in 19th Century Buenos Aires', PhD diss., University of California, 1973, pp. 30-34; D. Balmori, S.F. Voss, and M. Wortman, *Notable Family Networks in Latin America*, Chicago, 1984, pp. 138-40; Monsma, 'Ranchers, Rural People', pp. 74-78; J. Gelman and D. Santilli, *De Rivadavia a Rosas: Desigualdad y crecimiento económico*, Buenos Aires, 2006, ch. 4; and Losada, *Historia de las élites*, pp. 89-93.
74. See Brown, *Socioeconomic History*, ch. 8; R. Hora, 'Del comercio a la tierra y más alla: Los negocios de Juan José y Nicolás de Anchorena (1810-1856)', *Desarrollo Económico*, 44:176, 2005; and idem, 'Los Anchorena: Patrones de inversión, fortuna y negocios (1760-1950)', *América Latina en la Historia Económica*, 19:1, 2012.
75. Monsma, 'Ranchers, Rural People', ch. 8.

ence in the countryside. Rosas formed a bridge between these two interests by using the revenues given by the customshouse in Buenos Aires to subsidise his federalist allies in the other provinces.[76] Within Buenos Aires, meanwhile, he used the revenues to build a highly militarised state[77] – one in every four or five of the province's adult male population was in arms by the late 1830s.[78] He used it to shape a new social order for the benefit of the urban capitalists that supported him: the long-term leaseholds of public land were privatised;[79] he sought to regulate rural markets so that only hides that came from the animals of titled landowners could be sold, thereby excluding the hides of wild or rustled cattle killed by gauchos or Indians;[80] gauchos were, moreover, supposed to show a certificate of employment by a titled landowner to avoid conscription into the army, turning them into wage labourers on ranches.[81] Such policies helped make the distribution of wealth markedly more unequal under Rosas,[82] with Nicolás Anchorena, the family patriarch, becoming the richest man in the country, its most important absentee landowner.[83]

Unitarianism could only regain the upper hand thanks to foreign intervention. Rosas' weakness was a vulnerability to the blockades that were occasionally imposed by foreign powers, especially in response to his involvement in Uruguay's civil wars. First France blockaded Buenos Aires in the late 1830s, then Britain and France

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76. See, for example, the case of Rosas' ally Estansilao López in Santa Fe. J.C. Chiaramonte, G.E. Cussianovich, and S. Tedeschi de Brunet, 'Finanzas públicas y política interprovincial: Santa Fe y su dependencia de Buenos Aires en tiempos de Estanislao López', *Boletín del Instituto de Historia Argentina y Americana 'Dr. Emilio Ravignani'*, 8, 1993.
77. Lynch, *Argentine Dictator*, ch. 5.
78. J.C. Garavaglia, 'La apoteosis del Leviathan: El estado en Buenos Aires durante la primera mitad del XIX' *Latin American Research Review*, 38:1, 2003, pp. 154-55.
79. Infesta, *Pampa criolla*, pp. 97-110.
80. K.L. Jones, 'Warfare, Reorganization, and Readaptation at the Margins of Spanish Rule: The Southern Margin (1573-1882)', in F. Salomon and S.B. Shwartz, eds., *The Cambridge History of the Native Peoples of the Americas*, III:2, *South America*, Cambridge, 1999, pp. 173-5; and R.D. Salvatore, *Wandering Paysanos: State Order and Subaltern Experience in Buenos Aires During the Rosas Era*, Durham, NC, 2003, pp. 38-9.
81. R.W. Slatta, *Gauchos and the Vanishing Frontier*, Lincoln, NE, 1983, pp. 111-12; R. Salvatore, 'Reclutamiento militar, disciplinamiento y proletarianización en la era de Rosas', *Boletín del Instituto de Historia Argentina y Americana 'Dr Emilio Ravignani'*, 3:5, 1992; and J.C. Garavaglia, 'Paz, orden y trabajo en la campaña: La justicia rural y los juzgados de paz en Buenos Aires, 1830-1852', *Desarrollo Económico*, 37:146, 1997.
82. One estimate based on probate inventories resulted in a Gini coefficient that fell from 0.71 in 1800 to 0.61 in 1829-30, but then rose again under Rosas to 0.80 in 1855-56. L.L. Johnson, 'Distribution of Wealth in Nineteenth-Century Buenos Aires Province: The Issue of Social Justice in a Changing Economy', in K.J. Andrien and L.L. Johnson, eds., *The Political Economy of Spanish America in the Age of Revolution, 1750-1850*, Albuquerque, 1994, p. 204, Table 2.
83. Hora, 'Perfil económico', p. 303.

blockaded it together during the second half of the 1840s. These blockades not only sabotaged state finances in Buenos Aires by reducing customshouse revenues, but they also made the terms of trade deteriorate dramatically, which undermined support for Rosas among the landowners. In 1839, in the midst of the French blockade, there was an uprising against him among the smaller, rural landowners in the south of the province.[84] From then on, his state became more terroristic, with paramilitary groups used to assassinate his enemies. Few supported him, therefore, when a Brazilian army, aided by forces from Entre Rios, invaded Buenos Aires in 1852, defeating Rosas at the Battle of Caseros.[85] After Caseros, a unified state would slowly emerge.

The Oligarchic State

The liberal intellectuals who had lived in exile under Rosas saw a railway network as a key to state building.[86] Juan Bautista Alberdi, for instance, believed that railways would unite the newly prosperous Littoral with the populations of the interior, which he saw as relics of Spanish colonialism. He wrote:

> The railway is the means to put right what colonising Spain did back to front in this continent. She placed the heads of our States where their feet should have been. According to the Spanish vision of isolation and monopoly, this system was wise; for our vision of expansion and free trade, it is fatal. The seats of power must be brought to the coasts, or the Littoral taken to the continent's interior. The railway and the electric telegraph, these are the suppression of space, they perform this marvel better than all the earth's potentates. The railway innovates, reforms, and changes the most difficult things, without decrees nor uprisings.[87]

Crucially, Alberdi believed, a railway network would allow a central government to control the whole territory of Argentina, thereby bringing political unity. He

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84. Halperín Donghi, *Guerra y finanzas*, pp. 141-42; idem, 'Bloqueos, emisiones monetarias y precios el Buenos Aires rosista (1838-1850)', in F. Miró Quesada, F. Pease, and D. Sobrevilla, eds., *Historia: Problema y promesa*, Lima, 1978; and J. Gelman, *Rosas bajo fuego: Los franceses, Lavalle y la rebelión de los estancieros*, Buenos Aires, 2009, ch. 2. Foreign historians have often ignored these internal impacts of the blockades. For example, Ferns, *Britain and Argentina*, ch. 9; and D. McClean, *War, Diplomacy and Informal Empire: Britain and the Republics of La Plata*, London, 1995, ch. 13.
85. Lynch, *Argentine Dictator*, chs. 6 and 8.
86. On the 'Generation of 1837', see Shumway, *Invention of Argentina*, chs. 5-7; and Losada, *Historia de las elites*, pp. 95-99. The role of railways in their thought is described in C.M. Lewis, *British Railways in Argentina 1857-1914: A Case Study of Foreign Investment*, London, 1983, pp. 6-8; and S.A. Palermo, 'The Nation Building Mission: The State-Owned Railways in Modern Argentina, 1870-1930', PhD diss., State University of New York, 2001, pp. 30-53.
87. J.B. Alberdi, *Bases y puntos de partida para la organización política de la República Argentina*, revised ed., Buenos Aires, 1915, pp. 96-97, author's translation.

continued:

> Without the railway you will not have political unity in countries where distance makes it impossible to assert central authority. You want, for example, the government, the legislators, and tribunals of the Littoral's capital to legislate and judge the affairs of the provinces of San Juan and Mendoza? Then bring the Littoral to these places via the railway, or vice versa; at least put these extremities at three days' distance. But to have the metropolis or capital at 20 days' journey is little better than having it in Spain [...]. Therefore, political unity must begin with territorial integrity, and only the railway can make two places separated by 500 leagues one single place.[88]

Alberdi concluded that foreign capital was necessary to construct such a railway network because there were insufficient domestic savings to pay for such a major infrastructure project.[89] Consequently, the 1853 constitution, which Alberdi's work inspired, called for the new federal government to actively promote foreign investment in railways.[90]

British capital would finance most of Argentina's railway network from the 1860s onwards.[91] It was not only pulled into the country by the various subsidies and incentives provided by the Argentine government,[92] but also due to a growing interest

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88. Ibid., p. 97, author's translation.
89. Ibid., p. 98. This point has been disputed by D.C.M. Platt, 'Foreign Finance in Argentina for the First Half-Century of Independence', *Journal of Latin American Studies*, 15:1, 1983, pp. 41-45; also T. Gómez and J. Schvarzer, 'Ferrocarriles, expansión agraria y distribución de la tierra: Los debates de 1860', J. Schvarzer, T. Gómez, and A. Regalsky, eds., *Estudios sobre la Historia de los Ferrocarriles Argentinos (1857-1940)*, Buenos Aires, 2007. Platt is probably correct that savings were sufficient to construct a railway network in the Littoral, but they were insufficient to construct the kind of *national* network imagined by Alberdi. Cf. Ferns, *Britain and Argentina*, pp. 312-15.
90. Representantes del Pueblo de la Nación Argentina, 'Constitución de 1853 con reformas de 1860', reproduced in N.P. Sagüés, ed., *Constituciones iberoamericanas: Argentina*, México, DF, (1860) 2006, p. 300, Article 67, Part 16.
91. Lewis, *British Railways*. At the end of the long nineteenth century, French capital would also be invested in the railway network. See A.M. Regalsky, 'Foreign Capital, Local Interests and Railway Development in Argentina: French Investments in Railways, 1900-1914', *Journal of Latin American Studies*, 21:3, 1989.
92. This aspect of the construction of the railway network has been much emphasised in the recent literature. As one particularly bold statement puts it, '[t]he construction of the railway system in Argentina was the result of decisions taken locally, fundamentally by those who exercised political power in the country'. M. Justo López, 'Los ferrocarriles argentinos durante la primera presidencia de Julio Argentino Roca', *Revista Cruz de Sur*, 3:4, 2013, p. 113, author's translation; also see C.M. Lewis, ''Anglo-Criollo' Rather than British: Early Investments in Argentinian Railways and Utilities', in J. Schvarzer, A. Regalsky, and T. Gómez, eds., *Estudios sobre la Historia de los Ferrocarriles Argentinos (1857-1940)*, Buenos Aires, 2007; and A.M. Regalsky, 'Políticas públicas, capital extranjero y estructura de mercado: El desarrollo de los ferrocarriles en la Argentina antes de 1914', *Revista de Instituciones, Ideas y Mercados*, 46, 2007. What such accounts overlook is the changes in the global political economy that made it possible for local actors to take such decisions.

in foreign securities in Britain. British farming was struggling to compete with the greatly increased supply of agricultural imports from the land-abundant countries,[93] so the landed gentry, Britain's traditional ruling class, diversified its assets out of land, substantially fusing with the City of London's financial sector. This gave birth to a new ruling class of 'gentlemanly investors' who sought secure fixed-income assets to provide a sufficient income to fund a gentleman's lifestyle in government, the arts, and the professions.[94] Within Britain itself such assets were not available in sufficient quantities, so the City of London increasingly looked abroad for investment opportunities, particularly to the land-abundant countries, where the long boom was generating demand for investment in the infrastructure required to expand frontiers, at the same time as buoyant exports provided the tax revenues that the governments of these countries needed to service foreign debts.[95] During the second half of the nineteenth century, the City of London thus came to specialise in exporting British capital overseas. Hence, foreign and colonial government bonds and railways rose from eight percent of the value of the London Stock Exchange at mid-century to 59 percent in 1913.[96] In total, there were listed £219 million of Argentine railway securities, £129 million of Argentine government debt, and £76 million of securities of companies that were predominantly operating in Argentina.[97] Together, they made up four percent of the nominal value of the London Stock Exchange, and roughly two thirds of the stock of all foreign capital invested in Argentina.[98]

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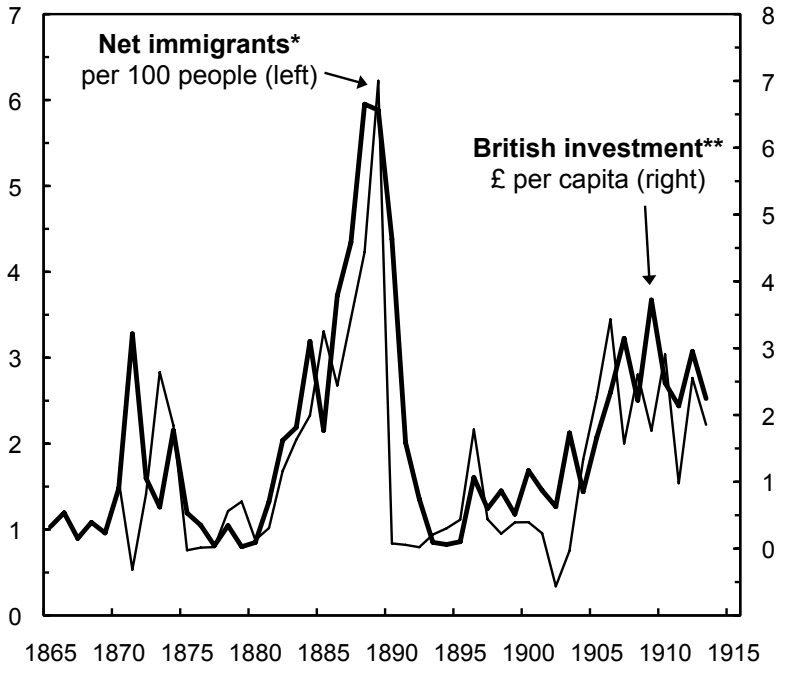
93. C.Ó. Gráda, 'Agricultural Decline 1860-1914', in R. Floud and D.N. McCloskey, eds., *The Economic History of Britain since 1700*, II, *1860 to the 1970s*, Cambridge, 1981; and M. Turner, 'Agriculture, 1860-1914', in R. Floud and P. Johnson, eds., *The Cambridge Economic History of Modern Britain*, II, *Economic Maturity, 1860-1939*, Cambridge, 2004.
94. Cain and Hopkins, *British Imperialism*, chs. 2 and 3. The shift in sources of wealth is documented in W.D. Rubinstein, *Men of Property: The Very Wealthy in Britain since the Industrial Revolution*, 2nd ed., London, 2006, ch. 7.
95. Cain and Hopkins, *British Imperialism*, ch. 6; also R.C. Michie, *The London Stock Exchange: A History*, Oxford, 1999, ch. 3.
96. Based on the nominal value of all shares on the official list. Michie, *London Stock Exchange*, p. 88, Table 3.2.
97. This is a corrected version of the widely used estimates of I. Stone, 'The Composition and Distribution of British Investment in Latin America, 1865 to 1913', PhD diss., Columbia University, 1962, p. 153A, Table 43; also used in idem, 'British Long-Term Investment in Latin America, 1865-1913', *Business History Review*, 42:3, 1968; and idem, 'British Direct and Portfolio Investment in Latin America Before 1914', *Journal of Economic History*, 37:3, 1977. Stone's calculations ('Composition and Distribution', pp. 337, 406) show that he misunderstood the way in which Argentina's currency system worked: for 1905 he used an exchange rate of $6.40 per pound to convert paper pesos, and in 1913 he used $5.04 per pound, whereas the correct exchange rate was $11.45 per pound, which has been applied to his figures here.
98. Calculated by dividing Stone's adjusted figure of £424 million by an estimate of £645 million of foreign capital in Argentina in 1913, from V.L. Phelps, *The International Economic Position of*

Figure 4.4

Immigration and British Investment in Argentina, 1865-1913



* Net immigration, calculated by subtracting departures from arrivals.

** New capital issues for Argentine government bonds and Argentina-based companies issued on the London Stock Exchange.

Sources:

New capital issues: I. Stone, *The Global Export of Capital from Great Britain, 1865-1914: A Statistical Survey*, Basingstoke, 1999, pp. 62-71, Table 3.

Net immigration and population: Recchini de Lattes and Lattes, eds., *Población de Argentina*, pp. 199-200, Tablas 1 and 2.

Figure 4.4 illustrates how British investment came in three waves, with each accompanied by a wave of immigrants, mainly from Southern Europe. The first wave peaked in 1871, the second in 1888, and the third in 1909.[99] They occurred as part of

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Argentina, London, 1938, p. 246, Table 6. Not all of that capital was British because some would have come from foreigners investing in London, but, on the other hand, much of the investment coming into Argentina from continental European stock markets would have been from British investors moving their capital abroad. See R. Michie, 'Different in Name Only? The London Stock Exchange and Foreign Bourses, c. 1850–1914', *Business History*, 30:1, 1988. On the numerous problems involved in the measurement of stocks of foreign capital in this period, see D.C.M. Platt, *Britain's Investment Overseas on the Eve of the First World War: The Use and Abuse of Numbers*, Basingstoke, 1986; and C. Feinstein, 'Britain's Overseas Investments in 1913', *Economic History Review*, 43:2, 1990.

99. These estimates of British capital exports are calculated from new issues on the British stock exchanges, with adjustments made for issues bought by foreigners. See M. Simon, 'The Pattern of New British Portfolio Foreign Investment, 1865-1914', in I. Stone, *The Global Export of Capital from Great Britain, 1865-1914: A Statistical Survey*, Basingstoke, 1999, pp. 421-30.

Table 4.1

British Capital Exports, 1865-1913

	Argentina	Australia	Brazil	Canada	South Africa	USA
Argentina	1.00					
Australia	0.14	1.00				
Brazil	0.47	0.05	1.00			
Canada	0.42	0.06	0.63	1.00		
South Africa	0.02	0.01	0.00	0.01	1.00	
USA	0.50	0.05	0.38	0.56	0.06	1.00

Note: The matrix shows the coefficients of determination (R^2s) between the British capital exports to each country during 1865-1913. R^2 measures the proportion of variation in one series that is determined by the variation in the other.

Source: Calculated from Stone, *Global Export*, pp. 42-81, 92-111, Tables 1-4, 6, and 7.

the transatlantic 'Kuznets cycles', which were named after Simon Kuznets, the economist who first observed them in the United States.[100] Kuznets, and subsequently many others, suggested that they were caused by the migration of Europeans to the Americas, which increased the demand for infrastructure, so European capital followed European labour across the Atlantic to finance it.[101] Yet it seems more likely that both were responding to the boom-bust cycles of westward expansion in the United States, which were intimately linked to the terms of trade. When export prices, especially wheat prices, rose, the frontier was pushed westward, attracting European capital and labour due to greater enthusiasm for the prospects of settlement in the new world.[102] Argentina would ride on the coattails of the United States' expanding frontier, as it benefited from the temporary mania in London for the securities of land-abundant countries. As illustrated by the coefficient-of-determination (R^2) matrix shown in Table 4.1, there were strong correlations between the flows to Argentina, Brazil, Canada, and the United States, with all four Atlantic countries experiencing similar movements in their inflows of British capital. Hence, in statistical terms, half of the variation in the flow of British capital to Argentina was determ-

100. S. Kuznets, *Capital in the American Economy: Its Formation and Financing*, Princeton, 1961, ch. 7; also idem, 'Long Swings in the Growth of Population and in Related Economic Variables', *Proceedings of the American Philosophical Society*, 102:1, 1958.
101. Kuznets, *Capital in the American Economy*, pp. 327-41; also M. Abramovitz, 'The Nature and Significance of Kuznets Cycles', *Economic Development and Cultural Change*, 9:3, 1961; R.A. Easterlin, 'Economic–Demographic Interactions and Long Swings in Economic Growth', *American Economic Review*, 56:5, 1966; and B. Thomas, *Migration and Economic Growth*, rev. ed., Cambridge, 1973.
102. North, *Economic Growth*, pp. 91, 94, 123-25, 136-40; Harley, 'Transportation, the World Wheat Trade', pp. 233-37; cf. idem, 'Western Settlement'.

ined by flows to the United States.[103] European immigrants then followed it across the Atlantic because the demand for labour in Argentina increased as a result of the construction of the new infrastructure and the new land that it brought into production.[104]

The waves of British capital exports ebbed once it became apparent that frontiers had been overextended in the land-abundant countries. With the new land being brought into production, the supply of agricultural products to European markets grew, so grain prices fell, resulting in a slower westward movement in the United States. American railway companies then found that they had overextended the network, reducing their profitability.[105] The mania in London for foreign securities then turned into a panic, typically leading to financial crises in the land-abundant countries when capital inflows dried up. In Argentina these crises began because government finances remained heavily dependent upon the customshouse, which fluctuated with the ebbs and flows of British capital. When capital was flowing in, imports increased, leading to greater revenues, which allowed more expenditure. When the wave ebbed, however, austerity had to be imposed, which brought a recession that reduced demand for labour, so the flow of immigrants dried up. In both the early 1870s and the early '90s these recessions were accompanied by major unrest, as the rhythms of Argentina's political economy came to be determined by the cycles of a globalising capitalism centred on the North Atlantic.[106]

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103. Davis and Gallman claim that there was little correlation in the timing of the flows of British capital to the various land-abundant countries based on the R^2s between annual series of the new issues on the London Stock Exchange for Argentina, Australia, Canada, and United States during 1865-1914; they conclude that 'there is little evidence of any significant degree of association between them'. Davis and Gallman, *Emerging Financial Markets*, p. 34. Their findings are at odds, however, with the better-document Simon-Stone estimates of British capital exports. As can be seen in Table 4.1, replicating Davis and Gallman's methodology (from *Emerging Financial Markets*, p. 35, Table 1:4-8) with the Simon-Stone data shows that 50 percent of the variations in Argentina's flows were determined by variations in the flows to the United States, yet, in their equivalent R^2 matrix, Davis and Gallman claim that it was just 0.1 percent! Explaining this difference is difficult because Davis and Gallman did not reproduce their annual series for the United States, which is where the problem must lie, given that their series for Argentina (*Emerging Financial Markets*, pp. 706-07, Table 6:4-6(a)) is very similar to the Simon-Stone estimates. The only major difference is for 1903, when Davis and Gallman claim there were an astonishing £55 million of new calls for Argentine railway companies, compared to just £3.7 million in the Simon-Stone series (Stone, *Global Export*, p. 69, Table 3).
104. This direction of causality from capital flows to labour flows is demonstrated for the case of Italian emigration in S. Fenoalta, 'International Resource Flows and Construction Movements in the Atlantic Economy: The Kuznets Cycle in Italy, 1861-1913', *Journal of Economic History*, 48:3, 1988.
105. Harley, 'Transportation, the World Wheat Trade', pp. 235, 237.
106. Belich provides a useful overview of these boom-bust cycles, although he does not see their

The first, least substantial wave of British investment occurred during 1865-77, mainly under the presidencies of Bartolemé Mitre (1862-68) and Domingo Sarmiento (1868-74), two liberal intellectuals who had been exiled under Rosas.[107] Following the downfall of Rosas, they had returned with the goal of resurrecting Rivadavia's project of unifying Argentina under a strong central government based in Buenos Aires – a project that was finally becoming feasible due to the outward turn in Britain's gentlemanly capitalism. Buenos Aires had always enjoyed a financial superiority vis-à-vis the other provinces thanks to its customshouse revenues. Yet it was only once those revenues were capitalised – that is, when future customshouse revenues were discounted into present values – that it became possible to construct the kind of infrastructure that a government based in Buenos Aires required to properly control its territory, thus facilitating state building based on 'capitalised coercion'.[108] In 1862 a concession was given to a North American businessman in which the government guaranteed a fixed rate of return on the railway that he was to construct and operate.[109] Anglo-Argentine merchants and financiers were then able to use the promise of such concessions to promote Argentine railways among British investors, also taking the opportunity to invest their own capital in Argentine companies floated in London.[110] Moreover, the public railways began to expand after 1863, when the government promised that all its foreign loans would be repaid in London in sterling, thereby reassuring British investors that the country's debts would be serviced.[111] With this institutional framework in place, the first wave of British investment began. During 1865-77, 25 percent went into railway companies, and 60 percent was placed in government bonds, although much of that was in turn invested in the public railway companies.[112] The network consequently expanded from just 47 km in 1865 to 2,200 km in 1877, while 204,000 immigrants settled, mainly in the Littoral region.[113] The railways then not only gave the national army a

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connection to the terms of trade, believing them instead to be the result of collective hysteria. Belich, *Replenishing the Earth*, pp. 85-89.

107. On these philosopher-statesmen, see Shumway, *Invention of Argentina*, chs. 7-8.
108. Cf. C. Tilly, *Coercion, Capital, and European States, AD 990-1992*, Oxford, 1992.
109. Lewis, *British Railways*, pp. 10-13; and Regalsky, 'Políticas públicas', pp. 178-79.
110. Ferns, *Britain and Argentina*, pp. 329-38; Reber, *British Mercantile Houses*, ch. 6; Lewis, *British Railways*, pp. 18-22; and idem, 'Anglo-Criollo', pp. 256-59.
111. Ferns, *Britain and Argentina*, p. 326.
112. Palermo, 'Nation Building Mission', pp. 68-70.
113. Here and in the subsequent paragraph, numbers on British investment are calculated from Stone, *Global Export*, pp. 62-71, Table 3; numbers on net immigration are from I. Ferenczi and W.F.

far greater mobility, but a greater labour supply also made it easier to conscript soldiers.[114] A new transportation system, together with an expanding population, in this way increased the federal government's capacity to put down the revolts against it that occurred during the 1860s and '70s,[115] so it was able to secure the position of its supporters among the provincial ruling classes, insulating them against the discontent of their peasantries.[116]

During the second and third waves of British investment, the provincial ruling classes would themselves take the lead. After the peak of the first wave in 1871, there followed a major financial crisis in 1873, which substantially undermined support for the Buenos Aires liberals. As a result, in the 1874 elections a coalition of provincial governors was able to engineer the victory of their candidate, Nicolás Avellaneda of the National Autonomist Party (PAN). Mitre immediately rebelled, but his uprising was put down, as was another rebellion in Buenos Aires in 1880, which finally led to the city's juridical separation from its province and establishment as the Federal Capital. The PAN would then exercise a long hegemony over Argentine politics, with its power base largely in the interior, where the governors used widespread electoral fraud to maintain its rule.[117]

During the administrations of Avellaneda (1874-80), Julio Roca (1880-86), and Miguel Ángel Juarez Celman (1886-90) the PAN channelled further British investment into the interior's railway network. This required more public subsidies to encourage investors to build what would be less heavily trafficked lines, so the profit guarantees for private railway companies were continued, with foreign loans also

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Willcox, *International Migrations*, I, *Statistics*, New York, 1929, pp. 453-46, Table 5; and Recchini de Lattes and Lattes, eds., *Población de Argentina*, pp. 199-200, Tablas 1 and 2; and numbers on the railway network are from Tornquist, *Economic Development*, pp. 116-17.

114. Resistance to conscription had long been a problem in the Littoral. Salvatore, 'Reclutamiento militar', pp. 38-41; and idem, *Wandering Paysanos*, pp. 264-67. It was also resented by landowners due to its effects on the labour supply. Halperín Donghi, 'Buenos Aires Landed Class', pp. 52-53.
115. Rock, *State Building*, ch. 2.
116. Again, this had long been a problem in the interior that had prevented the formation of a unified state. See de la Fuente, *Caudillo and Gaucho*; also Paz, 'Province and Nation'. Under the 1853 constitution, after the railway network was established, federal interventions in the provinces would become common. N.R. Botana, *El orden conservador: La política argentina entre 1880 y 1916*, 2nd ed., Buenos Aires, 1985, pp. 121-37.
117. On the PAN's rule, see Botana, *Orden conservador*, chs. 3-6; Alonso, *Between Revolution*, ch. 1; and Rock, *State Building*, chs. 3-5. Politics was somewhat more competitive in Buenos Aires, although elections were still far from being free and fair. H. Sabato, *The Many and the Few: Political Participation in Republican Buenos Aires*, Stanford, 2001.

used to establish more state-owned railways.[118] By the early 1890s, almost three quarters of the length of the interior's railways were either state owned or being subsidised by a profit guarantee, whereas most of the Littoral's line were being operated without such subsidies.[119] In total, during the 1878-93 wave 47 percent of British investment went directly into railway companies, and 36 percent went to the government, which spent much of it on profit guarantees and on financing its own railway companies. Consequently, the network expanded from 2,200 km in 1877 to 13,900 km in 1893, while 739,000 immigrants settled. Again, however, the peak of the wave in 1888 was followed by a major financial crisis when the government found that it was unable to service its foreign debts without fresh inflows of foreign capital. The result would become known as the Barings Crisis after the government defaulted in 1891, leaving its principal underwriter, Barings Bank, with millions of pounds of Argentine stock that it had underwritten but could not sell, which almost bankrupted it.[120] Austerity then provoked a recession that made immigration dry up and triggered an armed rebellion by the Radical Civil Union (UCR), a newly formed political party mainly based in Buenos Aires.[121] Prosperity was nevertheless restored by the third wave. During 1894-1913 the railways expanded to 32,500 km, and 2.1 million immigrants settled. This time, 67 percent of British investment went into railway companies, with just 11 percent going into government debt, as the PAN avoided a repeat of massive government borrowing. Instead, it consolidated its finances by abolishing the profit guarantees, placing constraints on the provinces' capacity to borrow, restructuring the public debt, and increasing its revenue base by imposing a series of taxes on domestic production, thereby reducing its historical dependence on the customshouse and insulating it somewhat from future financial crises.[122]

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118. Palermo, 'Nation Building Mission', pp. 70-71; and Llach, 'Wealth of the Provinces', pp. 70-90.
119. Calculated from DFN, *Estadística de los Ferrocarriles en Explotación*, 1892, pp. 64-6, Table 2. According to these figures, in 1892 just 16 percent of the lines (in terms of length) in the Littoral were being operated with a profit guarantee, compared to 54 percent in the interior, with another 38 percent of the interior's lines owned by the government, with no public lines operated in the Littoral. That said, it should be remembered that *all* lines were operating with some kind of government support, particularly tax breaks in the form of low or non-existent import tariffs, as well as land grants. See A.M. Regalsky, *Las inversiones extranjeras en la Argentina (1860-1914)*, Buenos Aires, 1986, pp. 34-35; and idem, 'Políticas públicas', pp. 183-84.
120. A.G. Ford, 'Argentina and the Baring Crisis of 1890', *Oxford Economic Papers*, 8:2, 1956; Ferns, *Britain and Argentina*, ch. 14; idem, 'The Baring Crisis Revisited', *Journal of Latin American Studies*, 24:2, 1992; and Duncan, 'Política fiscal'.
121. Alonso, *Between Revolution*, chs. 2-3.
122. D.J. Guy, 'Carlos Pellegrini and the Politics of Early Argentine Industrialization, 1873–1906',

Much as Alberdi had predicted, these waves of British investment unified the country territorially, which then brought political unity. The greater mobility given to the national army by the railways allowed the federal government to bolster the position of those who supported it in the provinces. Furthermore, the railways also provided opportunities for provincial ruling classes to profit from the terms-of-trade boom.[123] For the first time, ruling-class groups across the country stood to gain from the long boom: landowners in Córdoba could bring their land into production for export thanks to the reduced costs of internal transportation; leading families in the North and West could, for the same reason, invest in industries to supply the Littoral's expanding market;[124] the Littoral's merchants could become financiers working with foreign investors or could invest in industries to supply the newly enlarged national market;[125] and Buenos Aires' landowners benefited from the expansion of the frontier, especially after the railways had facilitated the final defeat of the Pampean Indians.[126] As different interests were reconciled, ruling-class families across the country started to fuse, resulting in the emergence of a national ruling class.

Roca, twice president during 1880-86 and 1898-1904, embodied what became known as the 'oligarchy'. Having begun as an army officer from a prominent family in Tucumán, he had married into a prominent family from Córdoba, then came to national prominence by leading the Conquest of the Desert against the Pampean Indians in 1879-80.[127] Once president, the provincial government of Buenos Aires, also controlled by the PAN, made a generous donation of land that, together with the donations received by his two brothers in the newly conquered La Pampa territory, turned the Rocas into one of the Pampas' most significant landowning families.[128] Such use of public offices to accumulate Pampean land would

Journal of Latin American Studies, 11:1, 1979, pp. 131-40.

123. Cf. Ansaldi, 'Notas sobre la formación', pp. 550-52.
124. Balán, 'Cuestión regional'; D.J. Guy, *Argentine Sugar Politics: Tucumán and the Generation of Eighty*, Tempe, 1980, ch. 2; and Losada, *Historia de la elites*, pp. 146-52.
125. Reber, *British Mercantile Houses*, ch. 6; C.M. Lewis, ''Anglo-Criollo' Rather than British: Early Investments in Argentinian Railways and Utilities', in Schvarzer, Regalsky, and Gómez, eds., *Estudios sobre la Historia*, pp. 223-70; Rocchi, *Chimneys in the Desert*, ch. 4; and Pineda, *Industrial Development*, ch. 4.
126. C.M. Lewis, 'La consolidación de la frontera argentina a fines de la década del 70: Los indios, Roca y los ferrocarriles', in G. Ferrari and E. Gallo, eds., *La Argentina del ochenta al centenario*, Buenos Aires, 1980; and R. Hora, *The Landowners of the Argentine Pampas: A Social and Political History 1860-1945*, Oxford, 2001, pp. 41-44.
127. Rock, *State Building*, pp. 93-95, 100-01, 104-05.

become widespread among the PAN's leaders, many of whom turned themselves into major landowners.[129] Meanwhile, members of the Pampean landowning class moved in the opposite direction by integrating with the leading families of the interior through marriage,[130] and associations, particularly the Jockey Club in Buenos Aires, provided an environment where even those who were not family could bond.[131] A national ruling class would thus form at the summit of an oligarchic state, linked by family and social networks that mirrored those of the new transportation system.

British investment was, then, the key to the emergence of Castlereagh's native force. Big business became dominated by foreigners, especially the British, at the same time as Argentina's national ruling class – its 'internal bourgeoisie'[132] – specialised in landownership. Of Argentina's top 100 corporations, according to a survey included in the 1914 census, only 22 were purely Argentine, with the first and third largest Argentine companies both public banks. Another 44 corporations were mixed Argentine-foreign, with the remaining 34 completely foreign. The 24 British corporations made up fully 46 percent of the capital issued by all 100.[133] Domestic investors, by contrast, made up the bulk of the landowning class. Hence, the 1908 agricultural census found that just four percent of the value of the country's rural establishments consisted of properties owned by foreign residents.[134] Land had instead become the primary asset of Argentina's own ruling class. In the interior the railway network allowed provincial ruling classes to use their land to supply the Littoral's market,[135] while in the Littoral itself those families that had diversified into

128. Hora, *Landowners of the Argentine Pampas*, pp. 37, 62.
129. Sesto, 'Implementación de la política', esp. pp. 410-11; and Rock, *State Building*, p. 105-06.
130. Balmori, Voss, and Wortman, *Notable Family Networks*, p. 134; and O. Favaro and M.B. Morinelli, 'El Noroeste y su vinculación con el estado nacional: Repensando la alianza del 80', in W. Ansaldi, A. Pucciarelli, and J.C. Villarruel, eds., *Argentina en la paz de dos guerras 1914-1945*, Buenos Aires, 1993, p. 138.
131. T.M. Edsall, 'Elites, Oligarchs, and Aristocrats: The Jockey Club of Buenos Aires and the Argentine Upper Class, 1920-1940', PhD diss., Tulane University, 1999, ch. 1; and L. Losada, 'Sociabilidad, distinción y alta sociedad en Buenos Aires: Los clubes sociales de la elite porteña', *Desarrollo Económico*, 45:180, 2006, pp. 547-72.
132. On the concept of the internal bourgeoisie, see N. Poulantzas, *Classes in Contemporary Capitalism*, London, 1975, pp. 72-73. It is somewhere between the ideal types of a 'comprador bourgeoisie' (that is, entirely subservient to foreign capital) and a 'national bourgeoisie' (that is, wholeheartedly committed to national development).
133. Nationality was established based on where the share and bonds were emitted and/or held. Calculated from CNC, *Tercer censo nacional*, X, *Valores mobiliarios y estadísticas diversas*, Buenos Aires, 1917, pp. 2-81. For the list of the 100 corporations, see Table DA.18 in the Data Appendix.
134. Calculated from República Argentina, *Censo agropecuario nacional: La agricultura y la ganadería en 1908*, II, *Agricultura*, Buenos Aires, 1909, pp. 438-49.
135. Balán, 'Cuestión regional'.

landownership in the first half of the century, such as the Anchorenas,[136] increasingly specialised in it during the second half, becoming conscious of themselves as a landowning class.[137] Their probate inventories demonstrate the extend to which their assets were dominated by land.[138]

Having disordered the River Plate during the first half of the nineteenth century, the long boom had thus created a new order in Argentina based on an oligarchic state dominated by a landowning ruling class. This had been made possible because, responding to the crisis in British agriculture provoked by the greater supply of imported food, Britain's gentlemanly investors had sought alternative assets. They found them in land-abundant countries such as Argentina, which required substantial investment in infrastructure to expand its frontiers and, more importantly, had the means to service foreign investments due to the growing export sector. In Argentina the result of the outward turn in Britain's gentlemanly capitalism was the construction of a railway network that greatly augmented the capacity of the federal government to control its territory, thereby enabling it to reinforce the position of its supporters in the provinces. What is more, territorial unity would then encourage business, family, and social links between the country's different ruling classes, leading to the formation of a national ruling class that increasingly specialised in landownership, even as Britain's old landed gentry diversified into finance.[139]

The Emerging Nation

Optimistic historians have enthusiastically celebrated Argentina's progress under the oligarchic state.[140] Progress was seen most clearly in the growth of territory, popula-

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136. Hora, *Landowners of the Argentine Pampas*, pp. 82-83; and idem, 'Anchorena: Patrones', pp. 50-51.
137. Hora, *Landowners of the Argentine Pampas*, chs. 1-2.
138. R. Hora, 'Landowning Bourgeoisie or Business Bourgeoisie? On the Peculiarities of the Argentine Economic Elite, 1880-1945', *Journal of Latin American Studies*, 34:3, 2002; and idem, 'El perfil económico'. Hora's research has refuted Sábato's hypothesis that Argentina's ruling class had highly diversified assets. J.F. Sábato, *La clase dominante en la Argentina moderna: Formación y características*, 2nd ed., Buenos Aires, 1991. Where both agree is that it was a capitalist class, as opposed to some remnant of feudalism. On the debate surrounding Sábato's hypothesis, see M.I. Barbero, 'La historia de empresas en la Argentina: Trayectoria y temas en debate en las últimas dos décadas', in Gelman, ed., *Historia económica argentina*, pp. 158-61.
139. For illustrations of how this opposite movement also occurred on a cultural level, see R. Hora, 'Britain, the British Landed Class, and Argentine Landowners', *Canadian Journal of Latin American and Caribbean Studies*, 30:59, 2005.
140. See, above all, Cortés Conde, *Progreso argentino*; idem, 'Export Economy'; idem, 'Growth of the Argentine Economy'; idem, *Economía argentina*; and idem, 'Vicissitudes of an Exporting

tion, and trade. By facilitating the final defeat of the Indians, the railways allowed the federal government to enlarge the territory under its control from around 1.9 million square kilometres at the end of the 1860s to 2.8 million by the eve of the First World War.[141] Reduced internal transportation costs then permitted more land to be brought into production: the hectares under cultivation increased from around 600,000 at the beginning of the 1870s to 24 million in 1913.[142] This arable expansion brought rapidly growing exports of cereals and oilseeds, which drove an annual growth rate of around five percent in the volume of exports.[143] Immigrants provided much of the labour for this expansion, with around three million foreigners, mainly Italians and Spanish, settling from the 1860s through to the First World War, leading to a population growth of 3.3 percent per year[144] – faster than any of the other major land-abundant countries.[145] These were the most important signs of progress in Argentina during the late nineteenth century.[146]

Through this extensive growth a new society came into being centred on the Littoral. Having accounted for roughly a third of the country's population in 1809,[147] the Littoral's share rose to 46 percent by 1869, then further to 68 percent in 1914, as seen in Table 4.2. From 1869 to 1895 this was because of the faster expansion of the Littoral as a whole, but from 1895 to 1914 it was purely due to the rising share of Buenos Aires. Immigrants flocked to the city: in 1914 fully 68 percent of the Federal Capital's adult population was foreign, compared to 48 percent in the rest of the Littoral, and just 28 percent in the interior.[148] The foreigners were mainly Southern Europeans who had been attracted to Argentina by higher wages and cheaper land.

Economy'.

141. Estimated from Superintendente del Censo, *Primer censo*, p. 672; and CNC, *Tercer censo nacional*, III, *Población*, Buenos Aires, 1916, p. 58. It was assumed that the indigenous-occupied 'national territories' were not under the federal government's control when the 1869 census was taken. For the role of the railways, see Lewis, 'Consolidación de la frontera'.
142. Tornquist, *Economic Development*, p. 26.
143. H. Diéguez, 'Crecimiento e inestablidad del valor y el volumen físico de las exportaciones argentinas en el periodo, 1864-1963', *Desarrollo Económico*, 12:46, 1972, p. 349, Cuadro 18.
144. Recchini de Lattes and Lattes, eds., *Población de Argentina*, pp. 199-200.
145. Australia grew at a trend rate of 2.4 percent per year; Canada at 1.5 percent; the United States at 2.1 percent. Calculated from Maddison, *World Economy*, II, pp. 459-60, Table 2a.
146. Optimists also point toward dramatic GDP per capita growth. They make these observations, however, on the basis of Mickey Mouse numbers, as was discussed in Appendix 1.1, especially pages 45-53.
147. Comadrán Ruiz, *Evolución demográfica argentina*, p. 115.
148. In the Centre they were 28 percent; in the North, 21 percent; in the West, 30 percent; in the newly colonised South, 63 percent. Calculated for the population aged 18 and over from CNC, *Tercer censo*, III, pp. 18-294.

Table 4.2

Argentina's Population, 1869-1914

	Total	Greater Buenos Aires*	Other Littoral	Total Littoral	Centre	West	North	South
	(a) 1,000s of people							
1869	1,830	225	623	848	418	254	287	24
1895	3,955	767	1,747	2,514	620	375	432	15
1914	7,885	1,999	3,316	5,315	1,215	606	672	78
	(b) % of total population							
1869	100.0	12.3	34.0	46.3	22.8	13.9	15.7	1.3
1895	100.0	19.4	44.2	63.6	15.7	9.5	10.9	0.4
1914	100.0	25.4	42.1	67.5	15.4	7.7	8.5	1.0

* Metropolitan area, including the Federal Capital and the surrounding urban counties of Buenos Aires Province.

Note: The composition of the regions is as follows:

Littoral: Buenos Aires, Corrientes, Entre Rios, Federal Capital, and Santa Fe.

Centre: Córdoba, La Pampa, San Luís, and Santiago.

West: Catamarca, La Rioja, Mendoza, Neuquén, and San Juan.

North: Chaco, Formosa, Jujuy, Los Andes, Misiones, Salta, and Tucumán.

South: Chubut, Rio Negro, Santa Cruz, and Tierra del Fuego.

Sources: Comisión Directiva, *Segundo censo de la República Argentina*, II, *Población*, Buenos Aires, 1898, p. cxlix, Cuadro 1; CNC, *Tercer censo nacional*, I, *Población*, Buenos Aires, 1916, p. 65; and G. Germani, *Estructura social de la argentina: Análisis estadístico*, Buenos Aires, 1955, p. 74, Cuadro 26.

Many became tenant farmers in the Pampean zone, then moved to the city with their savings to establish themselves when their contracts ended. Others used their connections in Europe to access lines of credit that could be invested in trade and industry, which allowed them to take advantage of linkages with the export sector. Immigrants also tended to be better trained than the native born, so they provided much of the manpower for the Littoral's growing industrial sector. Often they could enjoy rapid social mobility, forming the bulk of the country's middle classes.[149] They, together

149. J.R. Scobie, *Revolution on the Pampas: A Social History of Argentine Wheat, 1860-1910*, Austin, 1964, ch. 3; Germani, *Política y sociedad*, pp. 253-67; H.S. Klein, 'The Integration of Italian Immigrants into the United States and Argentina: A Comparative Analysis', *American Historical Review*, 88:2, 1983, pp. 313-15, 319-23; D.J. Guy, 'Dependency, the Credit Market, and Argentine Industrialization, 1860-1940', *Business History Review*, 58:4, 1984, p. 540; Adelman, *Frontier Development*, pp. 108-16; J.C. Moya, *Cousins and Strangers: Spanish Immigrants in Buenos Aires, 1850-1930*, Berkeley, 1998, ch. 5; and S.L. Baily, *Immigrants in the Lands of Promise: Italians in Buenos Aires and New York City, 1870-1914*, Ithaca, 1999, pp. 100-01, 113-15, 118-19.

with the landowning class, were the main beneficiaries of Argentina's extensive growth.

Yet the new society centred on Buenos Aires was not representative of Argentina as a whole: outside the capital city much of the emerging nation consisted of a floating population of unskilled, landless labourers who depended upon unsteady forms of employment to survive. Their principal period of employment came during the harvest, when around 600,000 extra people were needed every year by the eve of the First World War.[150] Once the harvest was over, they dispersed, with some going to the cities to find work, and others farming small plots of marginal land that they either owned or were squatting.[151] In the census data on occupations, compiled in Table 4.3, the growth of this floating population can be seen: the 1869 census found that day labourers (also described as 'hard up people without fixed work') made up 19 percent of the labour force, which then increased to 21 percent in the 1895 census, and to 26 percent in the 1914 census, which recorded 807,297 men and 21,982 women who were described as 'jornaleros' and 'peones';[152] half were Argentines, half were foreigners. Hence, the floating population had been formed by the confluence of Argentina's landless labourers with those of Southern Europe.[153]

The floating population grew so rapidly because access to the land was restricted by the concentration of landownership. While there were some successful attempts to establish 'colonies' of smallholding arable farmers,[154] most of the publicly-owned lands continued to be privatised in a way that favoured the concen-

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150. The estimates vary considerably. See M.A. Ballesteros, 'Argentine Agriculture, 1908-1954: A Study in Growth and Decline', PhD diss., University of Chicago, 1958, pp. 75-81.
151. Traditionally it was assumed that most of the harvest workers were so-called 'swallows' (golondrinas) – that is, Southern Europeans who would come each year to work on the harvest in the Southern Hemisphere, before returning for the harvest in their own country. However, this phenomenon must have been massively overstated simply because the amount that could be earned in a single harvest was insufficient to cover the return fare back to Europe. Rather, most were long-term residents – whether native born or immigrant. See Adelman, *Frontier Development*, pp. 118-22.
152. The previous censuses did not separate them in this way, so it is necessary to group them here to make the 1914 census comparable. In 1914, 85 percent were jornaleros, 13 percent peones, and two percent peones de campo.
153. For the Pampean zone, see Solberg, 'Farm Workers'; also Adelman, 'Harvest Hand'; idem, *Frontier Development,* pp. 116-30. For the North and West, see Balán, 'Migraciones, mano de obra'; Guy, 'Rural Working Class'; and Salvatore, 'Labor Control'.
154. The classic study is E. Gallo, *La pampa gringa: La colonización agrícola de Santa Fe, 1870-1879*, Buenos Aires, 1983; see F. Rocchi, 'Una pasión inquebrantable por la historia: Ezequiel Gallo y la historiografía argentina', *Revista de Instituciones, Ideas y Mercados*, 46, 2007, pp. 22-25.

Table 4.3

Argentina's Day Labourers, 1869-1914

	Total	Federal Capital	Other Littoral	Centre	West	North	South
				(a) Number of workers			
1869	163,989	10,200	84,413	33,176	19,513	16,687	...
1895	342,493	28,463	196,217	45,285	27,084	44,046	1,398
1914	829,269	82,659	476,761	121,810	52,135	82,210	13,694
				(b) % of total occupations			
1869	19.1	10.3	29.1	15.2	15.7	13.2	...
1895	20.8	9.3	27.1	17.8	16.3	23.2	21.9
1914	25.6	10.4	34.0	25.2	23.3	27.5	40.1

* Includes the following categories:

1869: jornaleros, peones, gañanes, etc.

1895: jornaleros.

1914: jornaleros; peones de campo; peones.

Note: For the composition of the regions, see Table 4.2.

Sources: Calculated from Superintendente del Censo, *Primer censo*, pp. 642-669; Comisión Directiva, *Segundo censo*, II, pp. 47-50, 139-142, 183-186, 216-219, 257-60, 297-300, 326-29, 365-68, 402-05, 439-42, 476-79, 515-16, 552-55, 592-95, 624-27, 706-09; and CNC, *Tercer censo*, IV, *Población*, Buenos Aires, 1916, pp. 201-329.

tration of landownership. Land conquered during the Conquest of the Desert in 1879-80 was mainly distributed in vast lots to capitalists who had taken up the bonds that financed the military campaign against the Indians.[155] Some 11 million hectares of Pampean land were distributed to 344 landowners, which was equivalent to over 31,000 hectares each.[156] By the mid-1880s there was no more publicly-owned Pampean land to distribute.[157] Thereafter, what is more, laws ostensibly designed to redistribute the land were often abused. Most notoriously, Buenos Aires Province's Arable Centres Law of 1887 was supposed to encourage great landowners to sell small lots to arable farmers, yet national and provincial deputies and senators, magistrates, and other members of the PAN instead used it to accumulate land themselves with public funds.[158] Furthermore, the banking system established under the PAN

155. R. Gaignard, *La Pampa Argentina: Ocupación, poblamiento, explotación: De la conquista a la crisis mundial (1550-1930)*, Buenos Aires, 1989, pp. 227-66; also Cárcano, *Evolución histórica*, ch. 14.
156. Gaignard, *Pampa argentina*, p. 261.
157. Ibid., p. 253.
158. Sesto, 'Implementación de la política', esp. pp. 410-11.

also encouraged concentration by making landownership the principle means of obtaining credit from the large public banks; landowners then used that credit to increase their holdings,[159] which further concentrated ownership. Argentina attracted more unskilled Southern European labourers, as a result, given that they were willing to farm the land as tenants. Even they, nevertheless, found it more difficult to rent land as their numbers grew, so instead they swelled the ranks of the floating population.[160]

Landownership even became more concentrated in long-settled regions, despite the breakup of the greatest estates due to their division among heirs. Optimistic historians have often misunderstood this process because they have confused a reduction in the number of massive holdings and a proliferation of smaller ones with less concentration.[161] Hilda Sabato, however, found that 'although the number of large holdings and the total amount of land under the control of the latifundistas may have diminished significantly, inequalities were enlarged, and fewer men had ownership of relatively more land'.[162] Figure 4.5 reproduces her evidence, which comes from a study of holdings of over 100 hectares in the property-registry maps of 16 counties in northern Buenos Aires Province in 1836, 1864, and 1890.[163] The Lorenz curves show rising inequality over time, as they move further away from the diagonal line of perfect equality. The top 10 percent of holdings increased their share of the land from 41 percent in 1836 to 49 percent in 1864, and to 55 percent in 1890, with the Gini coefficients derived from these curves climbing from 0.52 in 1836 to 0.61 in 1864, and to 0.66 in 1890.[164] Despite the claims of more optimistic historians,

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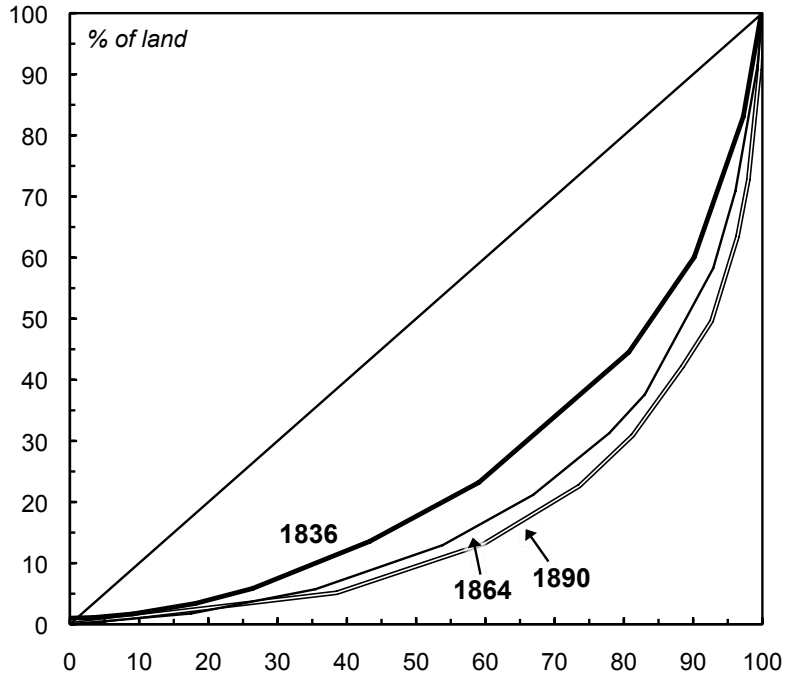
159. Ferns, *Britain and Argentina*, pp. 370-76, 423-24; cf. Sábato, *Clase dominante*, pp. 105-08; and Sabato, *Agrarian Captialism*, pp. 267-71; also Adelman, *Frontier Development*, pp. 86-88.
160. Adelman, *Frontier Development*, pp. 113-16, 131-32, 144-45, 158-59; also Scobie, *Revolution on the Pampas*, ch. 3. On the growing share of Southern European unskilled labourers among Argentina's immigrants, see G. Beyhaut, R. Cortés Conde, H. Gorostegui, and S. Torado, 'Los inmigrantes en el sistema ocupacional argentino', in T.S. di Tella, G. German, J. Graciarena, et al, *Argentina, sociedad de masas*, 2nd ed., Buenos Aires, 1965, pp. 94-99.
161. Cortés Conde, *Progreso argentino*, pp. 107-17; and Taylor, 'Latifundia as Malefactor', pp. 274-78.
162. Sabato, *Agrarian Capitalism*, p. 58.
163. The results were reported in ibid., ch. 2; with the data in H. Sabato, 'Wool Production and Agrarian Structure in the Province of Buenos Aires, North of the Salado, 1840's-1880's', PhD diss., University of London, 1980, pp. 335, 340-41, Tables 3, 8 and 9; they are also reproduced in Table DA.19 in the Data Appendix.
164. These are for family holdings. Sabato's data on individual holdings, also reproduced in Table DA.19, have a Gini coefficient of 0.49 in 1836, 0.55 in 1864, and 0.58 in 1890. To calculate the Gini coefficients, Julien R. Barlan's calculator was used. It is available online at http://www.julienbarlan.com/ (accessed 7 October 2013).

Figure 4.5

Land Distribution in 16 Counties of Buenos Aires Province, 1836-90



Note: The Lorenz curves are for family landholdings of 100 hectares and over in the 16 counties. The vertical axis shows the cumulative percentage of land held by the cumulative percentage of family holdings, ranked by size, shown on the horizontal axis. The diagonal line is the line of perfect equality. The further a year's line is from that line, the more unequal the distribution of land among the families in that year.

Source: Sabato, 'Wool Production', pp. 335, 340-41, Tables 3, 8 and 9. Sabato's data are reproduced in Tables DA.19 and DA.20.

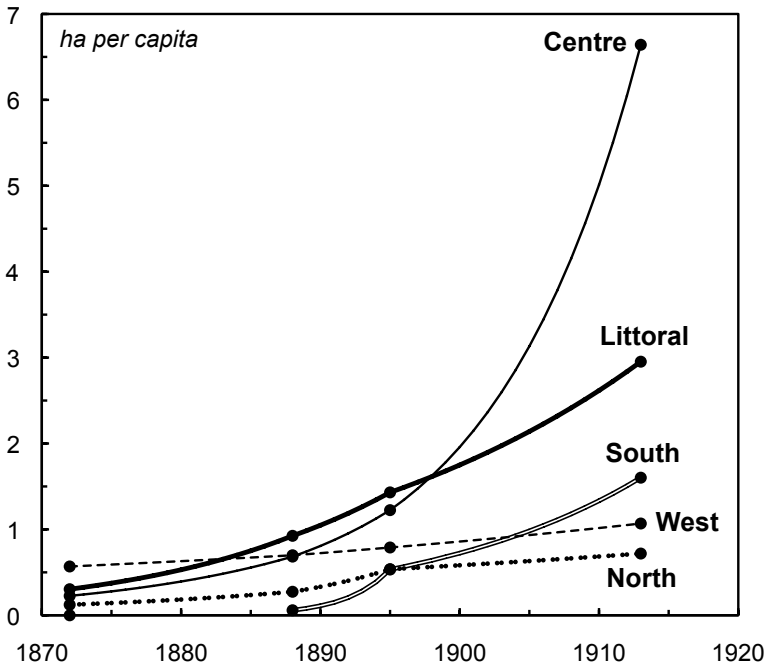
therefore, land ownership became *more* concentrated under the PAN, as should be expected from their land and credit policies.

In much of the interior the lack of access to the land was even more acute. In the North and West there was relatively little land to distribute in the first place. Figure 4.6 illustrates how cultivated land per capita did not increase substantially in either region from the 1870s to the First World War. By 1913 there was just one hectare of cultivated land per capita in the West, and even less in the North, whereas in the Centre there were seven hectares per capita, and in the Littoral, despite the rapid growth of Buenos Aires City, there were still three hectares per capita. Much of the interior lacked, then, the vast, scarcely populated expanses of the Pampean zone.[165] Magnifying that, access to the land was more inequitably distributed where it

165. The South, on the other hand, was largely scrubland, and very scarcely populated.

Figure 4.6

Cultivated Land Per Capita in Argentina, 1872-1913



Note: The dots are for 1872, 1888, 1895, and 1913; the lines are interpolations between those points. The populations of the regions were estimated by interpolating between national census data for 1869, 1895, and 1914. For the composition of the regions, see Table 4.2.

Source: Cultivated land: DGEE, *Estadística Agrícola: Año Agrícola 1913-14*, p. 15. Population: Comisión Directiva, *Segundo censo*, II, p. cxlix, Cuadro 1; and CNC, *Tercer censo*, I, p. 65.

was scarcest. The Lorenz curves in Figure 4.7 are calculated from data on agricultural establishments recorded in the 1914 census. They illustrate how access to the land was most concentrated in the North and West, as the curves for these regions are considerably further from the line of perfect equality, which indicates a more unequal access to land. Hence, the Gini coefficients derived from the curves are 0.88 for the North and 0.93 for the West, compared to 0.77 for the Littoral, 0.78 for the Centre, and 0.72 for the South.[166] This more unequal access to the land in the North and West was a reflection of how the interior's ruling classes had used their control of provincial legislatures to appropriate the best land.[167]

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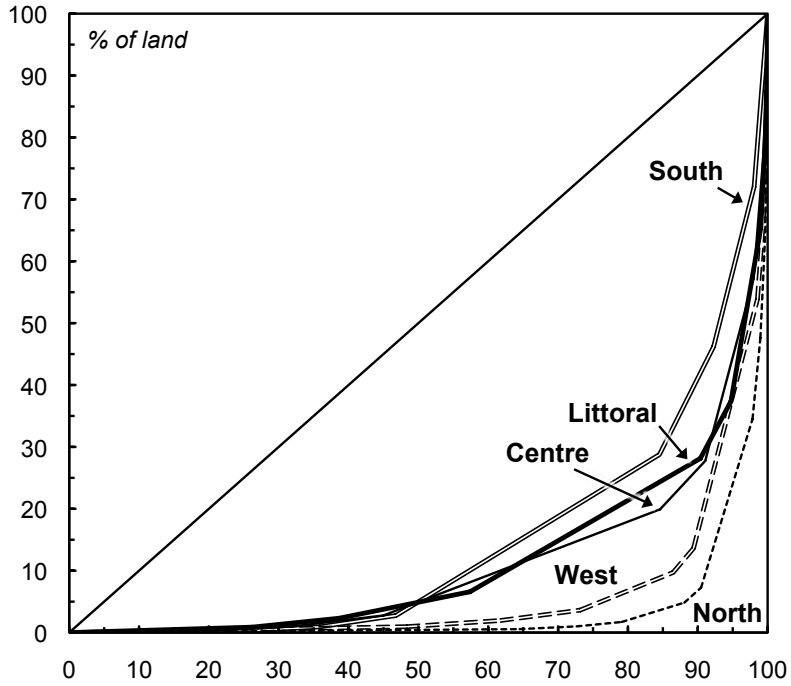
166. A similar pattern is seen for the size distribution of arable establishments: 0.77 for the North and 0.82 for the West, compared to 0.56 for the Littoral, 0.57 for the Centre, and 0.53 for the South. Calculated from CNC, *Tercer censo nacional*, V, *Explotaciones agropecuarias*, Buenos Aires, 1919, pp. 691-94. Again, Barlan's calculator was used.
167. For examples, see Rock, *State Building*, pp. 65-66, 108-09, 159.

Figure 4.7

Land Distribution in Argentina, 1914



Note: The vertical axis shows the cumulative percentage of land held by the cumulative percentage of establishments, ranked by size, shown on the horizontal axis. The diagonal line is the line of perfect equality. The further the regions' lines are from that line, the more unequal the distribution of land among the establishments. For the composition of the regions, see Table 4.2.

Source: Calculated from CNC, *Tercer censo nacional*, V, *Explotaciones Agropecuarias*, Buenos Aires, 1919, pp. 3-6.

Opportunities for internal migration to more land-abundant regions were also limited for the interior's predominantly native-born, mixed-race population due to ethnic discrimination in the Pampean zone. In Santa Fe, a Littoral province that famously succeeded in establishing smallholding family farms,[168] the early land laws stipulated that only European immigrants were allowed to become 'colonists', and that they were not to sell their holdings to the native born.[169] Similarly, in land-abundant Córdoba, in the centre of the country, the 1871 colonisation law allocated 540,000 hectares of public land for settlement by immigrants, but made nothing available for Argentines.[170] More importantly, large landowners also preferred to rent

168. Gallo, *Pampa gringa*, ch. 7.
169. Here the term 'native born' is not to be confused with the indigenous, as it also included creoles – that is, those born in Argentina of (at least some) European ancestry.
170. Solberg, 'Farm workers', p. 124.

to foreigners, so the possibility of becoming tenant farmers – the principal means that immigrants used to access the land from the 1890s to the First World War – was also restricted for the native born. Even in Córdoba, where just a third of the adult population was foreign,[171] the 1914 census found that foreigners made up 84 percent of tenant farmers,[172] as the native born had been denied access to the land, forcing them to become landless labourers.

Native-born Argentines, who made up the vast bulk of the population before the age of mass immigration began in the 1870s,[173] were thus victims of the racism of their ruling classes. Argentina's liberal state builders had held the country's peasantries in contempt because they had provided the social base for the Federalist strongmen who ruled the country after independence. Inspired in part by the travelogues of British visitors to the River Plate, the liberals argued that the barbarism of the 'American' countryside needed to be replaced by the civilisation of the 'European' city.[174] In the words of Domingo Sarmiento, the most prominent exponent of this idea, progress meant following the 'immutable laws' that saw 'the strong races exterminate the weak ones, civilised peoples displace the savages from the land', making it necessary for the new Argentine state to continue what the Spanish empire had begun: 'absorb, destroy, exterminate'.[175] Juan Bautista Alberdi, the main architect of the 1853 constitution, put it more subtly with the famous phrase 'to govern is to populate'. As he explained:

> If the population of six million Anglo-Americans that the United States of America had begun with, instead of growing with immigrants from free and civilised Europe, had been populated with Asiatic Chinese or Indians, or with Africans, or Turks, would it be the same country of free men as today? There is no land so favoured that it could, by its own virtue, turn weeds into wheat. Good wheat can be born from bad wheat, but not from barley.
>
> To govern is to populate, but without forgetting that to populate can mean to infest, brutalise, enslave, if the transplanted or migrated population, in place of

171. Calculated from CNC, *Tercer censo*, III, pp. 113-15.
172. Calculated from ibid., V, p. 838.
173. Argentines made up 82 percent of the population recorded by the 1869 census. Superintendente del Censo, *Primer censo*, pp. 636-37, Tabla 3.
174. These liberals had been exiled under Rosas, so much of their understanding of Argentina came from the travelogues written by the British and other foreign visitors. See A. Prieto, *Los viajeros ingleses y la emergencia de la literatura argentina, 1820-1850*, Buenos Aires, 1996. On their racism, see Shumway, *Invention of Argentina*, pp. 139-45.
175. D.F. Sarmiento, '*Investigaciones sobre el sistema colonial de los españoles*, por J.V. Lastarria', in idem, *Obras*, II, Buenos Aires, (1844) 1885, p. 214, author's translation. This theme would be taken up at greater length in idem, *Conflictos y armonías de las razas en América*, Buenos Aires, (1883) 1915.

> being civilised, is backwards, poor, corrupt. Why wonder that, in this case, there would be those who would think, with reason, that to govern is to depopulate?[176]

Following such logic, the liberals believed that promoting European immigration was a means to develop the country by improving its racial stock. Under the PAN, positivism – a belief in the social application of 'scientific' theories of race – would become the dominant ideology of the new national ruling class. Prior to the First World War, even though the mixed race probably continued to make up around half of the country's population, the positivists claimed that Alberdi's dream had been realised, as Argentina had become a European nation. In this way, much of the population was excluded from Argentina as an imagined community.[177]

For the ideologues of the oligarchic state, denying the existence of Argen-

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176. Alberdi, *Bases y puntos*, p. 15, author's translation.

177. José Ingenieros, for example, claimed that in 'the most civilised countries and regions of South America 'Europeanisation' is already a realised fact, superimposing modern culture and economy on the medieval inheritance that colonialism left us'. J. Ingenieros, 'Las ideas sociológicas de Sarmiento', in Sarmiento, *Conflicto y armonías*, pp. 38-39, author's translation. He would back this claim up with figures that showed the mixed race and Indians falling from 81 percent of the country's total population in 1852 to 22 percent in 1914, with the white population rising from three to 74 percent. Idem, *Sociología argentina*, 7th ed., Buenos Aires, 1918, pp. 451, 453. Most historical accounts of racism in Argentina at the beginning of the twentieth century have unfortunately accepted such claims as fact, agreeing that 'massive European immigration had reduced to a small number the proportion of blacks and other ethnic minorities in the population'. E.A. Zimmermann, 'Racial Ideas and Social Reform: Argentina, 1890-1916', *Hispanic American Historical Review*, 72:1, 1992, p. 45. In the words of another, Argentina 'had become a nation of predominantly European stock'. A. Helg, 'Race in Argentina and Cuba, 1880-1930: Theory, Policies, and Popular Reaction', R. Graham, ed., *The Idea of Race in Latin America: 1870-1940*, Austin, 2010, p. 38. That this assumption is wrong can be seen in demographic studies. Mortara, for example, estimated that from 1841 to 1940 immigrants and their descendants, who can be taken as equivalent to the 'white' population, accounted for 58 percent of total population growth, forming around 54 percent of the total population in 1940. G. Mortara, 'Los factores demográficos del crecimiento de las poblaciones americanas en los últimos cien años', *Revista de Economía y Estadística*, 4:1-2, 1942, pp. 19-20. This suggests that prior to the First World War around half of the population was still mixed race. Recent studies of Argentina's DNA have similarly demonstrated the extent of the country's Indian heritage. In the words of Daniel Corach, one of the country's leading geneticists, '[w]e have 60 percent of the population with Amerindian genetic components. That is, with indigenous antecedents'. Interviewed in L. Moledo, 'La historia también se escribe en los genes', *Página/12*, 10 August 2010, online at http://www.pagina12.com.ar/diario/ciencia/19-54853-2005-08-10.html (accessed 8 November 2013), author's translation. Also see D. Corach, M. Marino, and A. Sala, 'Relevant Genetic Contribution of Amerindian to the Extant Population of Argentina', *International Congress Series*, 1288, 2006; M.C. Bobillo et al, 'Amerindian mitochondrial DNA haplogroups predominate in the population of Argentina: Towards a first nationwide forensic mitochondrial DNA sequence database', *International Journal of Legal Medicine*, 124:4, 2010; D. Corach et al, 'Inferring Continental Ancestry of Argentineans from Autosomal, Y-Chromosomal and Mitochondrial DNA', *Annals of Human Genetics*, 74:1, 2010; and M.L. Catelli et al, 'The Impact of Modern Migrations on Present-Day Multi-Ethnic Argentina as Recorded on the Mitochondrial DNA Genome', *BMC Genetics*, 12:77, 2011, online at http://www.biomedcentral.com/1471-2156/12/77 (accessed 8 November 2013).

tina's mixed race population had the great advantage of making the losers from the long boom disappear. The interior's peasantries in particular had lost out because the PAN's promotion of railways had undermined their cottage industries. Until the 1880s peasants had still been able to use women's textile production to supplement incomes from agriculture.[178] Even though their cloths and blankets had been displaced from the Littoral's markets by imports following independence, peasant women had been able to supply most the interior's own urban markets thanks to the protection from imports given to them by the high costs of overland transportation, combined with tariffs on imported cloths. The census data compiled in Table 4.4 show that in 1869 the first national census found 94,882 textile workers in Argentina, with 95 percent of them located in the interior regions, where they made up 19 percent of the labour force. A better guide to who they were comes from a sample of 100,944 individual returns from that census:[179] the 4,871 textile workers aged 14 and over in the sample were overwhelmingly female (97 percent), based in the interior (96 percent), living in the province where they were born (93 percent), rural (88 percent), and illiterate (95 percent).[180] They were, then, much of the female half of the interior's rural poor.[181] In Argentina, as in other parts of the periphery prior to the long boom, poor rural women were heavily involved in textile production.[182]

The railways undermined the interior's textile producers by permitting cheaper factory-made goods to flood their markets. As can be seen in Table 4.4, the

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178. D.J. Guy, 'Women, Peonage, and Industrialization: Argentina, 1810-1914', *Latin American Research Review*, 16:3, 1981, pp. 67-72. For a case study, see E. Hermitte and H.S. Klein, 'Crecimiento y estructura de una comunidad provinciana de tejedores de ponchos: Belén, 1678-1869', Documento de Trabajo 78, Centro de Investigaciones Sociales, Instituto Torcuato Di Tella, 1972.
179. The computer-coded sample was originally described in J.L. Somoza and A.E. Lattes, 'Muestras de los dos primeros censos nacionales de población, 1869 y 1895', Documento de Trabajo 46, Centro de Investigaciones Sociales, Instituto Torcuato Di Tella, 1967. More recently Somoza and Lattes' raw data was made available as part of the IPUMS-International Census Microdata Harmonization Project. See R. McCaa, M.R. Haines, and E.M. Mulhare, 'Argentina: The First National Historical Census Microdata', in P.K. Hall, R. McCaa, and G. Thorvaldsen, eds., *Handbook of International Historical Microdata for Population Research*, Minneapolis, 2000. The data are online at http://www.hist.umn.edu/~rmccaa/data/argentine_censuses_19thc.zip (accessed 1 September 2013).
180. By way of comparison, the equivalent figures for all 59,473 people aged 14 and over in the full sample were: 50 percent female, 50 percent based in the interior, 67 percent living in the province where they were born, 62 percent rural, and 70 percent illiterate.
181. The sample suggests that a third of all rural women aged 14 and above in the interior were employed in textiles.
182. See, for example, N. Owen, 'Textile Displacement and the Status of Women in Southeast Asia', D. Ma, ed., *The Pacific World: Lands, Peoples and History of the Pacific, 1500-1900*, XII, *Textiles in the Pacific, 1500-1900*, Aldershot, 2005.

Table 4.4

Argentina's Textile Workers, 1869-1914

	Total	Federal Capital	Other Littoral	Centre	West	North	South
				(a) Number of workers			
1869	94,882	78	4,759	49,256	17,562	23,227	n.a.
1895	39,725	538	1,101	18,574	11,140	8,246	126
1914	30,980	2,528	1,018	14,860	5,836	6,610	128
				(b) % of total occupations			
1869	11.1	0.1	1.6	22.6	14.1	18.4	n.a.
1895	2.4	0.2	0.2	7.3	6.7	4.3	2.0
1914	1.0	0.2	0.1	3.1	2.6	2.2	0.4

Note: In 1869, the figures are for all those who declared occupations. In 1895 and 1914 they are for those aged 14 and above. Textile workers include the following census occupations:

1869: blanqueadores; cordeleros, hiladores é hiladoras; tejedores y tejedoras; pelloneros; tintoreros; torcedores de lana, seda, etc.

1895: cordeleros, cabulleros, etc; tejedores; tintoreros.

1914: cardadores de lana; cordeleros; fabricantes de tejidos; hiladores, tejedores, tellaristas; tintoreros.

For the composition of the regions, see Table 4.2.

Sources: See Table 4.3.

number of textile producers fell significantly after the arrival of the railways: from 94,882 in 1869 to 30,980 in 1914;[183] in the interior they fell from 19 to three percent – a clear indication of deindustrialisation. The authors of the 1895 census were in no doubt as to why this was happening. 'Until 1869', they wrote, referring to textiles, 'having no railways in the interior, and with high [internal] transportation costs, a great proportion of the population consumed these products, which could rival the prices of similar goods from abroad: today, the competition due to the relatively low freight rates has made the consumption of domestic products fall, and therefore retired from this profession many of those who used to engage in it'.[184] The railways thus took away one of the main sources of income that the interior's rural poor had traditionally depended upon, as handicraft textile production was displaced by cheaper imports from abroad, as well as, although to a far lesser extent, goods

183. This fall is slightly exaggerated because the 1869 census includes child workers, whereas the 1895 and 1914 only recorded the occupations of those aged 14 and over. However, only six percent of textile workers in the smaller sample were below 14 years old, so applying that percentage to the figure of 94,882 textile workers would still suggest a fall from 89,189 in 1869.

184. Comisión Directiva, *Segundo censo*, II, p. cxliv, author's translation.

made in the Littoral's factories.[185] This deindustrialisation is largely missing from the optimistic accounts of Argentina's industrial growth in the late nineteenth century.[186]

Nor was there sufficient growth in other industries to provide permanent employment for the interior's growing population. Even though much has been made in the optimistic historiography of the growth of sugar and wine in the interior,[187] these industries actually provided little in the way of permanent employment. Hence, by 1914, there were around 14,000 adults permanently employed in sugar mills and another 15,000 in wineries,[188] which together was equivalent to just three percent of the interior's workforce, whereas textiles had previously employed 19 percent. The benefits of growing the raw materials for these new industries were limited, moreover, because of the highly restricted access to land. What smallholding there was tended to be dominated by immigrants, so the native-born, especially men, mainly participated in the new industries as day labourers, temporarily employed on an oligarch's plantation at harvest time, often under conditions of debt bondage.[189] For this reason, the percentage of day labourers in the interior's workforce increased from 15 percent in 1869 to 26 percent in 1914.[190] Unable to supplement their families' income with textile production, native-born women, meanwhile, were forced to seek more precarious, and less autonomous, employment, particularly in the service sector.[191] Many of the coercive labour laws that the provincial oligarchies had previously depended upon to secure a supply of domestic servants could, as a result, be

185. Rocchi implies that the interior's cottage industries were undermined by the Littoral's industrialisation, with imports having a secondary role. Rocchi, 'Péndulo de la riqueza', p. 49. However, the authors of the 1914 census report estimated that just 23 percent of the country's demand for textiles was met by domestic production. CNC, *Tercer censo nacional*, VII, p. 69. Given that this was the most important of the interior's pre-railway-era cottage industries, it seems that Rocchi has exaggerated his case.

186. In his detailed study of Argentina's industrialisation, Rocchi has denied that the country had any significant handicraft tradition, as 'Argentine industry [...] started almost from scratch, and its factories rose like chimneys in a desert'. Rocchi, *Chimneys in the Desert*, p. 26. According to Rocchi, 'Córdoba', for example, 'did not have a large handicraft tradition'. Ibid., p. 138. To put this claim in perspective, the census found that textile producers alone made up 13 percent of Córdoba's workforce in 1869, which then fell to one percent in 1914. Calculated from the same sources as Table 4.3. Such deindustrialisation was, by contrast, noted in the older, more pessimistic literature, but the census data do not appear to have been analysed systematically. See, for example, S. Bagú, *Evolución histórica de la estratificación social en la Argentina*, Buenos Aires, 1969, pp. 29-30.

187. For example, Llach, 'Wealth of the Provinces'; and Hora, *Historia económica*, pp. 236-44.

188. Calculated from CNC, *Tercer censo nacional*, VII, pp. 395-96.

189. Balán, 'Migraciones, mano de obra'; Guy, 'Rural Working Class'; and Salvatore, 'Labor Control'.

190. See Table 4.3.

191. Guy, 'Women, Peonage', pp. 72-76.

abolished from the 1890s onwards.[192]

Argentina thus began the twentieth century in a paradoxical position: it was a land-abundant country with widespread landlessness. As has been argued here, this was for three reasons. First, public policy ensured that landownership became increasingly concentrated, which restricted access to the land, so the country attracted those immigrants who would be willing to farm it as tenants, while those who sought landownership went elsewhere. Accordingly, hundreds of thousands of unskilled Southern European labourers arrived, but then found it more difficult to become tenants as their numbers swelled, forcing them to join the floating population. Second, further limitations were placed on the capacity of the native born to access the land as tenants due to landowners' preference for immigrants. Third, cheaper imports undermined women's textile production, which had previously allowed the interior's peasantries to supplement their incomes through agriculture, and the new industries that did emerge provided relatively little permanent employment. The combination of concentrated landownership, ethnic discrimination, and deindustrialisation were therefore the three main factors that limited progress for much of the population.

Widespread landlessness then constrained Argentina's intensive growth, preventing it from attaining the same level of development as the European offshoots. A restricted access to the land meant that the expanding frontier's safety-valve effect was muted, so surplus labour accumulated. Hence, in Argentina unskilled manual labourers came to make up 30 percent of the labour force by the end of the long nineteenth century,[193] whereas in Canada they were around 17 percent,[194] and in the United States 20 percent.[195] This suggests that as Southern Europeans continued to arrive in Argentina, the lack of access to the land prevented

192. See J.R. Scobie, *Secondary Cities of Argentina: The Social History of Corrientes, Salta, and Mendoza, 1850-1910*, Stanford, 1988, pp. 200-03.
193. From the 1914 census, including the following: jornaleros; peones de campo; peones. As in Table 4.3.
194. From the 1911 census. CSO, *Fifth Census of Canada*, VI, *Occupations of the People*, Ottawa, 1915, xxvi, xxx, Tables 19 and 24.
195. From the 1910 census, including the following: laborers, except farm and mine; farm laborers, wageworking. From Bureau of the Census, *Historical Statistics*, I, pp. 139, 144, Series D182, D192, D603. If mineworkers are also included (ibid., I, p. 143, D479), it increases to 22 percent, although presumably many skilled workers would have been included in that category. Similarly, Australia's 1911 occupational census did not distinguish sufficiently between skilled and unskilled workers, so a similar calculation cannot be made. See MSHA, *Census of the Commonwealth of Australia*, III, Melbourne, 1914, pp. 1298-325.

the expanding frontier from absorbing the increased labour supply to the same degree as in those countries where public policy provided land for settlers. Without the frontier to act as a safety valve, the floating population then grew, which put downward pressure on wages due to the greater labour supply. Wages were, as a result, considerably below the levels of the other European offshoots – wages of unskilled building labourers in Buenos Aires, for instance, were less than half the level of their equivalents in New York,[196] so capitalists had less incentive to invest in labour-saving machinery, since it was cheaper to hire more unskilled labour when necessary.[197] Labour productivity accordingly remained below the more developed countries, so incomes were lower, which restricted consumption levels, thereby limiting the size of the domestic market for manufactured goods. Industrialisation, for this reason, was modest: in 1913 Argentina's industrial output per capita was approximately half the Australian level, a fifth the Canadian level, and less than a tenth of the US level.[198] There would consequently be little scope for Fordism in Argentina.[199]

Paradise Gained?

Even at the beginning of the twentieth century, when a previous generation of optimists was celebrating Argentina's progress, there were still those who advanced a more pessimistic vision.[200] For instance, Juan B. Justo, the Socialist Deputy for the Federal Capital, argued that the oligarchic state had depressed incomes by promoting mass immigration from Europe at the same time as it encouraged the concentration of landownership.[201] In doing so, Justo observed, the oligarchic state had unwittingly implemented a programme originally proposed by Edward Gibbon Wakefield, a Brit-

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196. See Chapter 5, page 212, Table 5.7.
197. For the case of farmers, see Adelman, *Frontier Development*, ch. 7.
198. As in Chapter 3, page 112, these are rough estimates from Bairoch, 'International Industrialization Levels', pp. 302, 330, Tables 12 and 15; and Frankema and Visker, 'Reversal of Fortune', pp. 76, 86, Tables 1 and 5. For further evidence on the relatively low level of industrialisation in Argentina, based on census data, see H. Willebald and L. Bértola, 'Uneven Development Paths Among Settler Societies, 1870-2000', in C. Lloyd, J. Metzer, and R. Sutch, eds., *Settler Economies in World History*, Leiden, 2013, pp. 117-20.
199. See Chapter 3, pages 107-08, for a discussion of the nineteenth-century origins of Fordism in the United States.
200. See T. Halperín Donghi, 'The Argentine Export Economy: Intimations of Mortality, 1894-1930', in G. di Tella and D.C.M. Platt, eds., *Political Economy of Argentina 1880-1946*, New York, 1986.
201. Justo, *Obra parliamentaria*, p. 18. On Justo, see Halperín Donghi, 'Argentine Export Economy', pp. 50-52.

ish diplomat, who in the first half of the nineteenth century had been concerned that social hierarchy would be undermined in Britain's land-abundant colonies, leading him to propose that land be made artificially expensive.[202] As Justo explained in a speech to the National Congress in 1913:

> The theorist of capitalist colonisation, an English author called Wakefield, came up with the idea that the lordly owners of the Australian soil needed to do something to populate their country. He said to them: If you do not change your line of conduct, you will never have manpower available here; men, as soon as they arrive, will find so much free land within reach, to be worked immediately by their hands, that it will allow them to make an independent life, without the need to subject themselves to the yoke of the wage. So I advise you: you must oblige every immigrant to accumulate his own funds through wage labour by only making public lands available at an artificial price.[203]

Even though these policies had been discarded in the Australian colonies soon after they achieved dominion status in the 1860s,[204] Justo believed that they had, in effect, been applied in Argentina. He continued:

> Here things have been done in this way, not only because [selling public lands] was a source of fiscal resources, but also because it was an easy way to satisfy all the government's favourite little clients, so the public land has been squandered. There is not, Mr President, one little piece of land that could be given freely and easily to the immigrant who wanted to work as an autonomous producer.[205]

The problem, then, for Justo, was that immigration had depressed wages (and, therefore, living standards) because of the concentration of landownership – an argument that Aldo Ferrer and other pessimistic historians also made,[206] and that has been reiterated here.

Where this chapter has added most to the pessimistic vision of Argentina at the beginning of the twentieth century is in explaining how it got there. The chapter has contended that Argentina was shaped by the boom in its terms of trade, which was far greater than has previously been supposed. Argentina's terms of trade probably improved by at least 2,000 percent from the 1780s to the first decade of the

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202. Justo was probably familiar with Wakefield's ideas through K. Marx, *Capital: A Critique of Political Economy*, 4th ed., New York, 1906, ch. 38. Also see R. Grant, 'Edward Gibbon Wakefield, England and 'Ignorant, Dirty, Unsocial, ... Restless, More than Half-Savage' America', *Comparative American Studies*, 1:4, 2000, pp. 471-87.
203. Justo, *Obra parliamentaria*, p. 18, author's translation.
204. See Weaver, *Great Land Rush*, pp. 23-24.
205. Justo, *Obra parliamentaria*, p. 18, author's translation.
206. Ferrer, *Argentine Economy*, esp. p. 116. Also see the discussion in Chapter 1, pages 35-36.

twentieth century. As Burgin originally maintained,[207] this massive terms-of-trade boom drove the civil wars that racked the River Plate for decades after independence, as it allowed the land-abundant Littoral to prosper, while making the land-scarce and/or landlocked interior stagnate. Only during the second half of the nineteenth century would British investment facilitate the formation of a unified state by financing a railway network that augmented the federal government's capacity to intervene in the provinces, thereby enabling it to buttress its supporters among the provincial ruling classes. The oligarchic state that then formed would prevent Argentina from realising its potential because it excluded much of the population from the country's progress, especially by encouraging the increasing concentration of landownership – a point that optimistic historians have often missed by confusing the division of the largest estates with a more egalitarian land distribution.

The implication of this analysis is that the presence of the relatively land-scarce interior prevented Argentina from fulfilling its potential as a land-abundant country. A North American-style white-egalitarian democracy was impossible in Argentina because the interior's peasantries had to be excluded from politics, since, as in other parts of the poor periphery, they were losing out from the long boom. For this reason, Argentina lacked the kind of social consensus that made democratisation possible in North America. Rather, the oligarchic state restricted access to the land, which muted the safety-valve effect of the expanding frontier, thus inhibiting the kind of intensive growth that the European offshoots experienced. Chapter 5 will verify this through a comparative assessment of the country's living standards at the beginning of the twentieth century.

Appendix 4.1: Argentina's Terms of Trade, 1780-1938

This appendix describes how the new part-proxy estimate of Argentina's terms of trade was calculated. It begins by discussing exchange rates, then the hide price series used, the export price index as a whole, the proxy import price index, and finally the end results. In describing the calculations in some detail, the goal of this appendix is to *facilitate reproduction*, as reproducibility should be a basic element of good research. An attempt is made to fully disclose, then, what has been done to the

207. Burgin, *Economic Aspects*, esp. ch. 1.

data to arrive at the results reported in this chapter. This goal is further advanced by Tables DA.6 and DA.11-17 in the Data Appendix, which reproduce the data discussed herein.

Exchange Rates

Both Argentina's export price index and the export price indices of its trade partners had to be converted to a common currency. The British pound sterling was used because it was the main international currency of the nineteenth century. For the trade partners included in the import price index, this was relatively straightforward: Brazil's export prices were already given in sterling; the US dollar exchange rate comes from Lawrence Oliver's series in the *Historical Statistics of the United States*;[208] France, Germany, and Italy's exchange rates were taken from Markus Denzel's *Handbook of World Exchange Rates* up to 1914;[209] thereafter they were calculated from Oliver's dollar exchange rates.[210] They are reproduced in Table DA.6 in the Data Appendix.

For Argentina it is more challenging to arrive at a consistent exchange rate series due to the changes in its currency over the course of the long nineteenth century.[211] Prior to the 1820s it is especially difficult because there are few available series. It is therefore necessary to approximate exchange rates by looking at the silver content of the pesos used in Buenos Aires and the market price of silver in London. This has become the standard practice in the existing literature,[212] and it is replicated here. Reassuringly, this procedure leads to exchange rates that are similar to the first reports of the rates actually paid, which come from the correspondence of British merchants for 1816-21.[213] From then until 1913 the exchange rates come from the Buenos Aires business press, which provides the exchange rates used to convert Argentina's export prices to sterling from the 1820s until 1913;[214] then the exchange

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208. Officer, 'Dollar–Sterling' and 'Bilateral Exchange Rates', Series Ee618 and Ee636.
209. Denzel, *Handbook of World Exchange Rates*, pp. 15-28, 42-43.
210. Officer, 'Bilateral Exchange Rates', Series Ee625, Ee626, Ee629, and Ee636.
211. See Álvarez, *Temas de historia*, pp. 80-124; and Denzel, *Handbook of World Exchange Rates,* pp. 463-67.
212. For example, Allen, Murphy, and Schneider, 'Colonial Origins'.
213. As compiled in V.B. Reber, 'British Mercantile Houses in Buenos Aires, 1810-1880', PhD diss., University of Wisconsin, 1972, p. 313, Table 21.
214. As compiled in J. Schneider, O. Schwarzer, and M.A. Denzel, *Währungen der Welt*, VII, *Latein-amerikanische Devisenkurse im 19. und 20. Jahrhundert*, Stuttgart, 1997, pp. 212-18.

rates come from official compilations of market rates during 1914-33, and then from official exporter and importer exchange rates during 1934-38.[215] All these exchange rates are reproduced in Table DA.11 in the Data Appendix.

Wholesale Prices of Hides

Of all the price series included in Argentina's export price index, the two for hides were the most important because they were included from the beginning. Indeed, during 1780-1829, hides are the only good in the index since they are the only one for which, so far, a price series is available. Fortunately, they accounted for 70 to 80 percent of merchandise exports during this period,[216] so the lack of price series for other goods is not of major concern, given that such a coverage is generally considered sufficient to construct an index.

Historians have typically depended on price series from the North Atlantic core countries to measure the prices of Argentine hides. Following their lead, it proved possible to identify five sources for hide prices in three core countries:

1) London: Monthly prices for Buenos Aires hides (presumably dry) for 1790-1840, as compiled by Arthur Gayer, Walt Rostow, and Anna Schwartz.[217] The prices are CIF (or 'in bond' prices), so they do not include the import taxes charged on arrival in Britain.
2) Hamburg: Annual prices of Buenos Aires dry hides for 1814-45 and for Buenos Aires and Montevideo salted hides for 1843-70, as compiled by Alfred Jacobs and Hans Richter.[218]
3) London: Quarterly prices for River Plate dry hides for 1818-1852, as com-

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215. From M. Balboa, 'La evolución del balance de pagos de la República Argentina, 1913-1950', *Desarrollo Económico*, 12:45, 1972, p. 160.
216. W. Parish, *Buenos Ayres and the Provinces of the Rio de la Plata*, 2nd ed., London, 1852, , pp. 353, Table 1.
217. A.D. Gayer, W.W. Rostow, and A.J. Schwartz, microfilmed supplement to *The Growth and Fluctuation of the British Economy 1790-1850*, I and II, Oxford, 1953; as compiled by D.S. Jacks, K.H. O'Rourke, and J.G. Williamson, 'Commodity Price Volatility and World Market Integration since 1700', *Review of Economics and Statistics*, 93:3, 2011, pp. 800-813; with the database available online at http://www.sfu.ca/~djacks/data/publications/Britain,%20Commodity%20Prices,%201790-1850, %20monthly.xlsx (accessed 3 May 2013).
218. A. Jacobs and H. Richter, *Die Großhandelpreise in Deutschland von 1792 bis 1934*, Berlin, 1935, pp. 68-69. The series for dry hides was also reproduced in J.C. Chiaramonte, *Mercaderes del Litoral: Economía y sociedad en la provincia de Corrientes en la primera mitad del siglo XIX*, Mexico, DF and Buenos Aires, 1991, p. 216, Cuadro 8.

piled by Tulio Halperín Donghi from the *London Mercantile Price Current*.[219]

4) Boston: Annual prices of Buenos Aires dry hides for 1840-91, as compiled by Thomas Proctor for the 'Aldrich Report' on US wholesale prices.[220]

5) London: Annual prices of River Plate dry hides for 1846-1938 and for River Plate salted hides for 1855-1938, as compiled by Augustus Sauerbeck and the editor of the *Statist*.[221] Again, the prices are CIF (or 'in bond').

These hide price series are reproduced in Table DA.12 in the Data Appendix.

While such prices have generally been used in the existing literature, they can be highly misleading due to the great price convergence that occurred during the long nineteenth century, as was discussed in Chapter 2. Domestic price series were therefore compiled instead. Unfortunately, such series are less common, and are somewhat fragmentary. In total, seven sources were found, although they need to be treated carefully because there are complications regarding weights and measures. Specifically, the unit used to measure hides was traditionally the pesada, which consisted of 35 libras (Spanish pounds) of dry hides and 60 libras of salted hides, until the metric system was adopted in the 1880s. Each libra (lb) weighed 0.4594 kilos (kgs).

The first three sources found were:

1) Zacharías Moutoukias' compilation of the units and value in pesos of hides exported, resulting in unit values for 1779-96.[222]

2) A report presented by British merchants to Woodbine Parish, the new British consul, in 1824, giving periodic wholesale prices in reals for a 35 lb pesada of dry hides during 1810-24, as well as monthly prices for a 35 lb pesada of dry hides and a 60 lb pesada of salted hides for 1821-23.[223]

3) Julio Broide's compilation of monthly paper peso wholesale prices, collated from the periodical *British Packet and Argentine News*. Broide gives various

219. Halperín Donghi, 'Expansión ganadera', p. 65.
220. US Senate, *Wholesale Prices, Wages, and Transportation*, II, Washington, DC, 1893, p. 141.
221. Beginning with A. Sauerbeck, 'Prices of Commodities and the Precious Metals', *Journal of the Statistical Society of London*, 49:3, 1886, p. 640.
222. Z. Moutoukias, 'Crecimiento en una economía', p. 804, Cuadro 3.
223. Anon., 'Report on the Trade'; and idem, 'Precios corrientes', p. 60.

series: a 35 lb pesada of best quality ox hides for 1829-40; a 35 lb pesada of best quality ox hides for export to North America for 1840-51; a 35 lb pesada of best quality ox hides for export to Spain for 1840-51; and a 60 lb pesada of salted cow hides for 1829-51.[224]

These series are reproduced in Table DA.13 in the Data Appendix.

For Moutoukias' series, it was assumed that the units of hides exported referred to pesadas, with dry and salted hides amalgamated. Fortunately, the British merchants' report suggests that there was little difference in price between a 35 lb pesada of dry hides and a 60 lb pesada of salted hides at the beginning of the 1820s, so it can be assumed that the unit values derived from Moutoukias' series can be taken as representative of the evolution of the prices of pesadas of dry hides up to then. To test this assumption, the various dry-hide price series were compared to Juan Carlos Garavaglia's series for the prices of bulls in Buenos Aires. As shown in Figure A4.1, both increased greatly, although the price of bulls did not rise quite as fast as hides, which should be expected because the bull's meat would not have risen so dramatically during this period given that both export and domestic markets for beef remained limited. Linking Moutoukias' series with the British merchants' series probably presents, therefore, an accurate picture of the evolution of dry-hide prices.

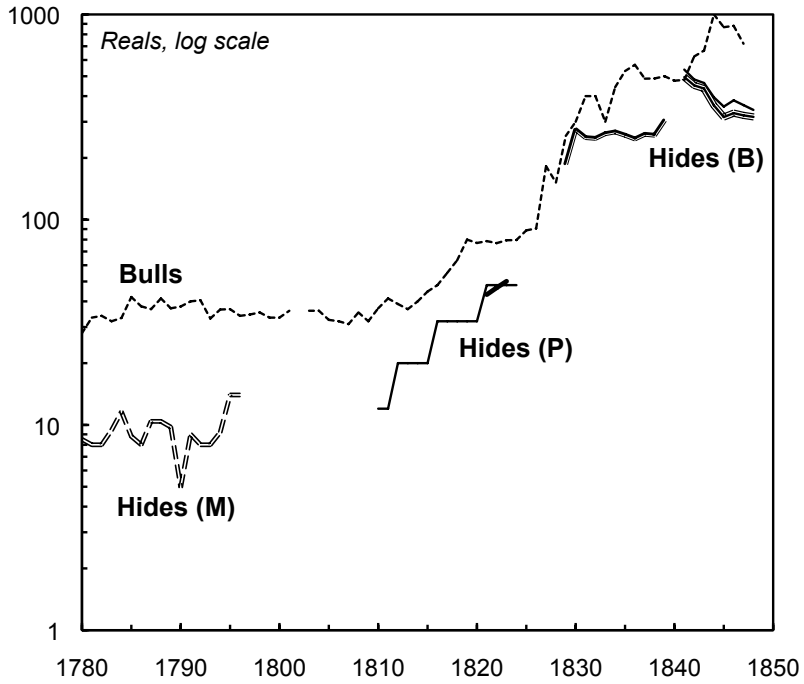
Four other sources covering the second half of the long nineteenth century and the interwar period were then identified:

4) Juan Álvarez' monthly wholesale prices in gold pesos of 100 kg of salted hides for 1863-1913, collated from the Buenos Aires Stock Exchange bulletin.[225] Álvarez converted the prices to a 100 kg basis on the assumption that they referred to a pesada of 60 lb, equivalent to 27.564 kg, except for July to December 1880, when, according to the bulletins of those months, the pesada weighed 66 lb (30.32 kg), and from January 1881 to November 1885, when it weighed 64 lb (29.4 kg).[226]
5) Roberto Cortés Conde, Tulio Halperín Donghi, and Haydée Gorostegui de

224. J. Broide, 'Evolución de los precios', pp. 41-43, 50, Cuadros 16-18, and 22.
225. Álvarez, *Temas de historia*, pp. 212-14.
226. Ibid., p. 215.

Figure A4.1

Prices of Bulls and Dry Hides in Buenos Aires, 1780-1848



Note: Prices of bulls are reals per head; hides are in reals per 35 lb pesada. There were eight reals per peso.

Sources:

Bulls: Garavaglia, 'Economía rural'; the underlying data were kindly provided by Professor Garavaglia.

B: Broide, 'Evolución de los precios', pp. 41-43, Cuadros 16-18.

M: Moutoukias, 'Crecimiento en una economía', p. 804, Cuadro 3.

P: Anon., 'Report on the Trade', p. 42; and idem, 'Precios corrientes', p. 60.

For the hide prices, see Table DA.13 in the Data Appendix.

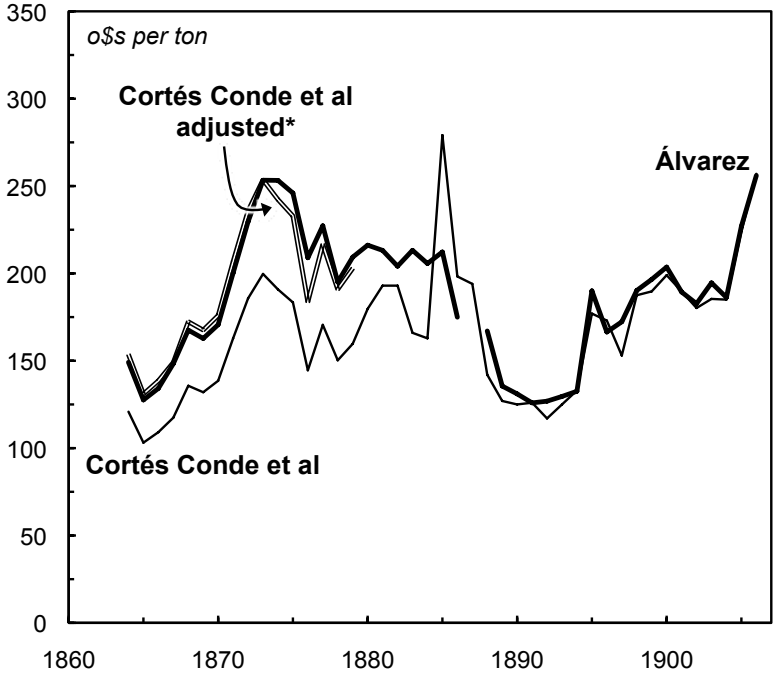
Torres' wholesale prices in gold pesos per ton of dry and salted hides for 1864-1906, collated from the Buenos Aires Stock Exchange bulletin, the yearbook of the Argentine Rural Society, and the national press.[227] Cortés Conde et al appear to have assumed that a pesada of dry hides was equivalent to 22 lb while a pesada of salted hides was equal to 76 lb.[228] Exactly why they assumed this is unclear, and it seems more likely that the prices they drew

227. Cortés Conde, Halperín Donghi, and Gorostegui de Torres, 'Evolución del comercio', p. 78.

228. They write that one metric ton of dried hides equals '100 hides', while one ton of salted hides equals '28.57 hides' (ibid., p. 78). Presumably, by 'hide' they are referring to a pesada, so according to this logic, a pesada of dry hides weighed 10 kg (or 22 libras) and a pesada of salted hides 35 kg (or 76 libras).

Figure A4.2

Two Series of Salted Hide Prices, 1864-1906



* Cortés Conde et al's series multiplied by 1.27 (that is, 76 divided by 60).

Sources: Álvarez, *Temas de historia*, pp. 212-14; and Cortés Conde, Halperín Donghi, and Gorostegui de Torres, 'Evolución del comercio', p. 78. For the series, see Table DA.14 in the Data Appendix.

upon were based on the traditional weight of 35 lb for a pesada of dry hides and 60 lb for a pesada of salted hides. Indeed, by assuming 22 lb and 76 lb, Cortés Conde et al have arrived at some strange results, as dry hides appear far too expensive – more expensive than in their destination markets in the core – and salted hides appear too cheap. Only if their series is adjusted to reflect the old standard of 60 lb per pesada does it resemble Álvarez' series, at least until the weight of the pesada began to be adjusted prior to the adoption of the metric system in the 1880s. Hence, Figure A4.2 illustrates how Cortés Conde et al's prices of salted hides are considerably below the prices given by Álvarez until hide prices began to be quoted in kilos rather than pesadas in the late 1880s. The adjusted series, by contrast, is similar.

6) The Dirección General de Estadística de la Nación's (DGEN) series of wholesale prices in gold pesos per 10 kg for dry hides and per 100 kg for salted

hides.[229]

7) Unit values from the official trade statistics, which used wholesale prices to value exports from 1907 onwards.[230]

These price series are reproduced in Table DA.14 in the Data Appendix.

Most of the hide price series, both from the core and Argentina, are shown in Figures A4.3 and A4.4.[231] As can be seen, the series are fragmentary, so it was necessary to join them to make single series for dry and salted hides. In the final export price index for dry hides, the following series were used: Moutoukias (series a in Figure A4.3) for 1790-96; the British merchants (b) for 1810-20; their monthly series (c) for 1821-23; Broide's best quality (d) for 1829-39; Broide's best quality for export to North America (e) for 1841-51; Cortés Conde et al's adjusted series (g) for 1864-79; their unadjusted series (f) for 1890-1906;[232] and the official unit values (i) for 1907-38. The gap in the series, 1880-89, was interpolated exponentially. For salted hides, meanwhile, the British merchants' monthly series was used for 1821-23 (series a in Figure A4.4); Broide for 1829-51 (b); Álvarez for 1864-1906 (e); and the official unit values for 1907-38 (f).

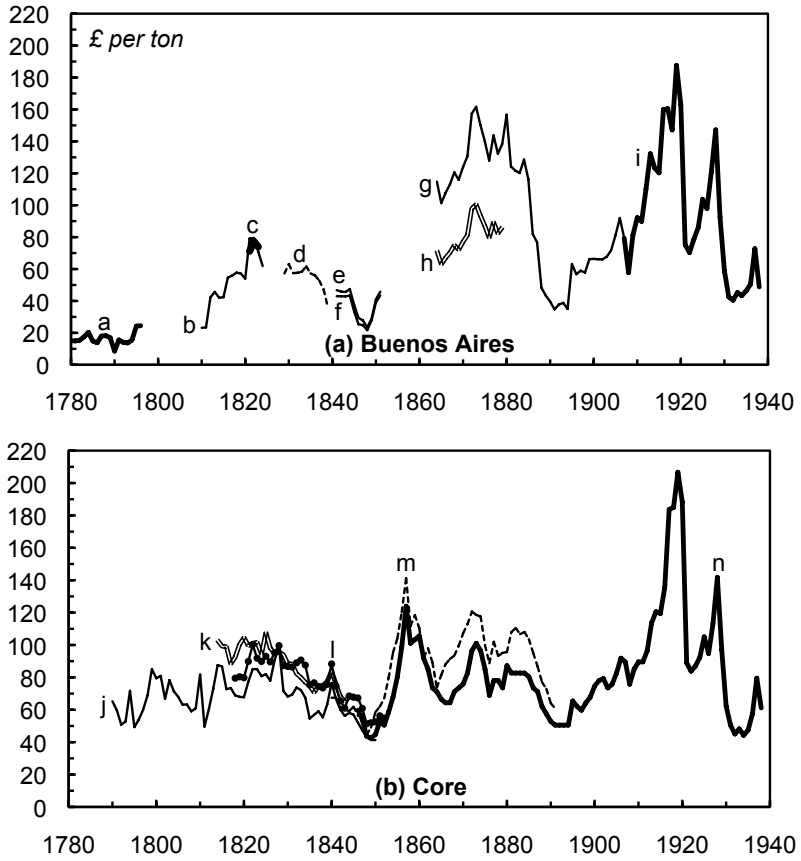
The Export Price Index

The export price index was calculated as a chained geometric Laspeyres index, which is a shorthand means to approximate a chained Fisher index when annual quantity data are lacking, as in this case.[233] Ten separate subperiods were calculated, then they were spliced together using the geometric mean of their overlapping periods.[234] The weights assigned to the 31 different goods in each subperiod can be seen in Table A4.1.[235] They were assigned based on the values of goods exported in the indicated years, according to Argentina's trade statistics. Up to 1913, only 13 goods

229. DGEN, *Extracto estadístico*, pp. 204-05.
230. For useful compilations, see Bunge, *Intercambio económico*, ch. 11; Tornquist, *Economic Development*, pp. 167-72; and Vázquez-Presedo, *Estadísticas históricas*, II, pp. 194-221.
231. Only the DGEN series were excluded because they are almost the same as the series of Alvarez and the official trade statistics.
232. By this point, hides were already being quoted in kilos, so there is no error in Cortés Conde et al's series.
233. IMF, *Producer Price Index*, pp. 566, 593.
234. As in the case of India's terms of trade calculated in Appendix 2.2, the geometric mean has been preferred due to its mathematical properties. See Hill and Fox, 'Splicing Index Numbers'.
235. When a series was not available for part of a subperiod, these weights were adjusted accordingly.

Figure A4.3

Argentine Dry Hide Prices, 1780-1938



Sources: The series included are:

a) Moutoukias's unit values (Table DA.13, Series M).

b) The British merchants' periodic series (Table DA.13, Series P.1).

c) Their monthly series (Table DA.13, Series P.2).

d) Broide's best quality series (Table DA.13, Series B.1).

e) Broide's best quality to Spain series (Table DA.13, Series B.2).

f) Broide's best quality to North America series (Table DA.13, Series B.3).

g) Cortés Conde et al's unadjusted series (Table DA.14, Series CHG.1).

h) Their adjusted series (Table DA.14, Series CHG.1a). To correct it, their series was multiplied by 0.63 (that is, 22 divided by 35).

i) The offical unit value series (Table DA.14, Series UV.1).

j) The Gayer et al series for London (Table DA.12, Series GRS).

k) The Jacobs and Richter series for Hamburg (Table DA.12, JR.1).

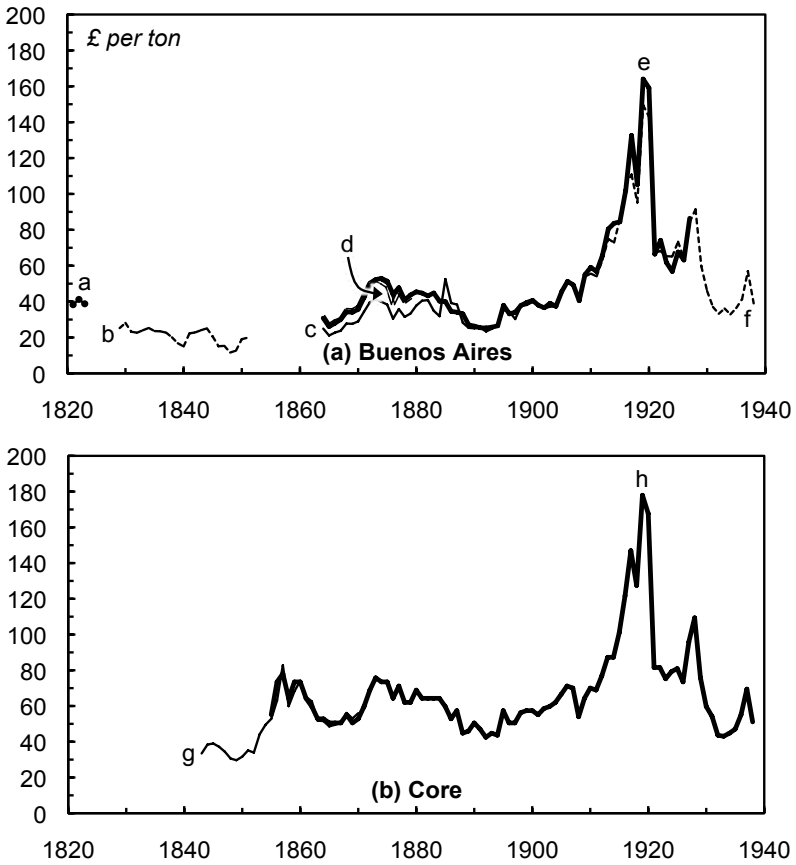
l) The Halperín Donghi series for London (Table DA.12, HD).

m) The Aldrich Report series for Boston (Table DA.12, P).

n) The Sauerbeck series for London (Table DA.12, S.1).

Figure A4.4

Argentine Salted Hide Prices, 1821-1938



Notes: The series included are:

a) The British Merchants' monthly series (Table DA.13, Series P.3).

b) Broide's series (Table DA.13, Series B.4).

c) Cortés Conde et al's unadjusted series (Table DA.14, Series CHG.2).

d) Their adjusted series (Table DA.14, Series CHG.2b). To correct it, their series was multiplied by 1.27 (that is, 76 divided by 60)

e) Álvarez' series (Table DA.14, Series A).

f) The official unit values (Table DA.14, Series UV.2).

g) Jacobs and Richter's series for Hamburg (Table DA.12, JR.2).

h) Sauerbeck's series for London (Table DA.12, S.2).

Table A4.1

Weights in Argentina's Export Price Index, 1780-1938

Base year:	...	1822	1837	1851	1866	1881	1896	1910	1925	1938
Subperiod:	1780 to 1822	1780 to 1837	1822 to 1851	1837 to 1866	1851 to 1881	1866 to 1896	1881 to 1910	1896 to 1925	1910 to 1938	1925 to 1938
Hides, dried (1780+)	1.0000	0.7347	0.6971	0.6501	0.3438	0.2658	0.0579	0.0382	0.0182	0.0093
Hides, salted (1822+)		0.0880	0.0835	0.0779	0.0412	0.0409	0.0471	0.0471	0.0668	0.0587
Beef, jerked (1829+)		0.1222	0.1057	0.0967	0.0296	0.0577	0.0274	0.0029		
Tallow and fat (1833+)		0.0435	0.0356	0.1348	0.0763	0.0275	0.0248	0.0293	0.0229	0.0103
Wool, dirty (1833+)		0.0116	0.0781	0.0164	0.4039	0.4899	0.3507	0.1633	0.0840	0.0998
Cattle (1864+)*					0.0193	0.0210	0.0899	0.0130		
Sheep skins, dirty (1864+)				0.0242	0.0858	0.0871	0.0453	0.0246	0.0063	0.0075
Wheat (1878+)						0.0002	0.1193	0.2004	0.2345	0.1491
Maize (1879+)						0.0078	0.1487	0.1672	0.1418	0.1467
Flour (1880+)						0.0022	0.0181	0.0137	0.0154	0.0083
Linseed (1887+)							0.0638	0.1238	0.1064	0.1473
Goat skins (1893+)							0.0070	0.0036		
Barley (1910+)								0.0004	0.0036	0.0149
Beef, chilled (1910+)*								0.0033	0.0853	0.1352
Beef, conserved (1910+)								0.0059	0.0202	0.0364
Beef, frozen (1910+)								0.0953	0.0581	0.0271
Bran (1910+)								0.0125	0.0073	0.0129
Butter (1910+)								0.0050	0.0251	0.0072
Oats (1910+)								0.0226	0.0204	0.0184
Quebracho extract (1910+)								0.0123	0.0220	0.0280
Quebracho logs (1910+)								0.0156	0.0033	0.0034
Rye (1910+)								0.0000	0.0004	0.0003

Table A4.1 (cont.)

Base year:	...	1822	1837	1851	1866	1881	1896	1910	1925	1938
Subperiod:	1780 to 1822	1780 to 1837	1822 to 1851	1837 to 1866	1851 to 1881	1866 to 1896	1881 to 1910	1896 to 1925	1910 to 1938	1925 to 1938
Sugar (1910+)								0.0000	0.0000	0.0009
Cotton (1914+)									0.0045	0.0099
Sheep skins, treated (1914+)									0.0039	0.0015
Casein (1916+)									0.0037	0.0029
Guts, salted (1916+)									0.0038	0.0021
Mutton (1916+)									0.0261	0.0275
Offal, frozen (1916+)									0.0055	0.0093
Wool, clean (1916+)									0.0069	0.0068
Wool, washed (1920+)									0.0035	0.0184
Total:	*1.0000*	*1.0000*	*1.0000*	*1.0000*	*1.0000*	*1.0000*	*1.0000*	*1.0000*	*1.0000*	*1.0000*

* Prior to 1910, the price of cattle is used as a proxy for the prices of chilled and frozen beef, which is reflected in the weight given to cattle until that year.

Note: The year after each good indicates the year in which is price series begins. When a weight of 0.0000 is given, it indicates that the product was included, but the weight given was less than 0.01 percent. The sum of the weights may not equal one due to rounding.

Sources: The base year weights were calculated from the following sources:

1822, 1837, 1851: Parish, *Buenos Ayres*, pp. 353-54, Tables 1 and 2.

1866, 1881, 1896: Cortés Conde, Halperín Donghi, and Gorostegui de Torres, 'Evolución del comercio', pp. 66-68 Cuadro 3.

1910: Bunge, *Intercambio económico,* pp. 314-18.

1925, 1938: Vázquez-Presedo, *Estadísticas históricas*, II, pp. 194-221.

were included, largely due to the lack of price series, although that also reflected the limitation of Argentina's exports to a small number of goods. Prior to the First World War, for example, the 13 pre-1910 goods accounted for almost 90 percent of exports.[236]

Fortunately, compiling the other price series was considerably easier than for hides because the weights and measures were more straightforward.[237] The sources were the same: Broide's compilation for the 1820s to the 1840s; Cortés Conde et al's series for the 1860s to the 1900s; the official unit values from the 1900s to the 1930s. All prices were then converted to sterling and metric tons prior to the calculation of the export price index. Beef prices were the only major problem since it proved necessary to use cattle prices as a substitute for the price of beef itself. All of the underlying price series and the export price index are reproduced in Tables DA.15 and DA.16.

As a check for errors, the new export price index was compared with a previous index calculated by Héctor Diéguez for 1864-1938.[238] The similarity between the two, as seen in Figure A4.5, is reassuring, especially as they were calculated using different methods. Whereas the new series is a chained geometric Laspeyres index, the Diéguez series is a chained implicit arithmetic Paasche index, calculated in two steps:

1) Several arithmetic Laspeyres export quantity indices were calculated, then joined using ratio splicing at a single overlapping year.
2) The current value of exports, as estimated by Cortés Conde et al,[239] was divided by the export quantity index.

Given this quite different methodology, the similarities between the two series is striking, even if they do diverge somewhat toward the end.

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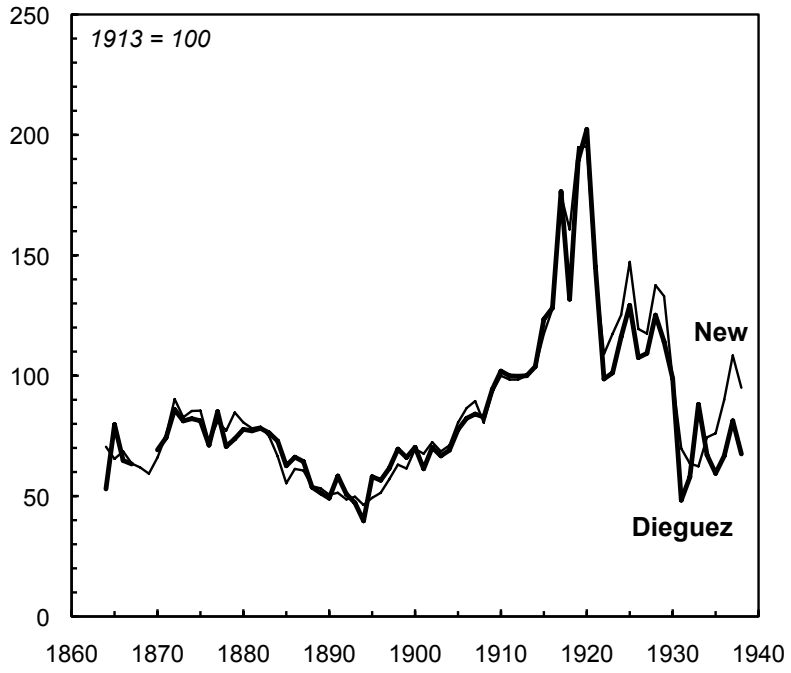
236. The 13 goods accounted for an average of 87 percent of exports during 1909-13. Calculated from Cortés Conde, Halperín Donghi, and Gorostegui de Torres, 'Evolución del comercio', p. 69, Cuadro 3.
237. See Álvarez, *Temas de historia*, ch. 2.
238. Diéguez, 'Crecimiento e inestablidad'.
239. Cortés Conde, Halperín Donghi, and Gorostegui de Torres, 'Evolución del comercio'.

Figure A4.5

Two Export Price Indices for Argentina, 1864-1938



Note: Both indices are denominated in British pound sterling.

Sources:

Dieguez: Export price index in gold dollars calculated from Diéguez, 'Crecimiento e inestablidad', pp. 340, 347, 349, Cuadros 10 and 18. Converted to British pounds using the US dollar-sterling in Officer, 'Dollar–Sterling'; and idem, 'Bilateral Exchange Rates', in Carter et al, *Historical Statistics*, Series Ee618 and Ee636; adjusted for the US dollar gold premium during 1864-79 from Simon, 'United States', p. 633, Table 1.

New: See text and Table DA.16.

A Proxy Import Price Index

To date, there are few domestic price series for Argentina's main imports during the nineteenth century, so to get a rough idea of the country's terms of trade, it is necessary to use proxy prices for imports. Traditionally, the standard practice, as seen in Appendix 2.1, has been to use a British export price index as a proxy for peripheral countries' import prices. Here, by contrast, export price indices for six of Argentina's major trade partners – Brazil, Britain, France, Germany, Italy, and the United States – were gathered, then combined into a chained geometric Laspeyres index, calculated in the same way as Argentina's export price index. With the exception of Brazil, the export price indices were calculated by other scholars,[240] then converted to sterling

Table A4.2

Weights in Argentina's Proxy Import Price Index, 1780-1938

Base year:	1825	1850	1870	1890	1910	1930
Subperiod:	1780 to 1850	1825 to 1870	1850 to 1890	1870 to 1910	1890 to 1930	1910 to 1938
Britain (1780+)	0.6250	0.4639	0.3674	0.5194	0.3727	0.2710
United States (1790+)	0.1406	0.1031	0.0814	0.0836	0.1650	0.3016
France (1809+)	0.0859	0.2577	0.3630	0.1786	0.1147	0.0823
Brazil (1821+)	0.1484	0.1134	0.0955	0.0301	0.0310	0.0565
Italy (1862+)		0.0619	0.0479	0.0778	0.1083	0.1277
Germany (1880+)			0.0448	0.1105	0.2083	0.1608
Total:	*1.0000*	*1.0000*	*1.0000*	*1.0000*	*1.0000*	*1.0000*

Note: The year after each good indicates the first year of its export price index. The sum of the weights may not equal one due to rounding.

Sources:

1825 and 1850: Parish, *Buenos Ayres*, p. 361.

1870: R. Napp, *La República Argentina*, Buenos Aires, 1876, p. ii.

1890: Latzina, *Estadística retrospectiva*, pp. 220-23.

1910 and 1930: DGEN, *Anuario del comercio exterior de la República Argentina correspondiente a 1937 y noticia sumaria del período 1910-1937*, Buenos Aires, 1938, pp. lxxxviii-cv.

using the exchange rates described above. Brazil's index was calculated as a chained geometric Laspeyres index, using unit values from the country's historical trade statistics.[241] In calculating Argentina's proxy import price index, the weights assigned to each country in each subperiod were based on Argentina's trade statistics. The weights can be seen in Table A4.2. In Table DA.17 in the Data Appendix the proxy import price index is reproduced, together with the export price indices that underlie it. It should be stressed that the result is a crude proxy for Argentina's import prices, above all because it does not take into account the effects of changing trade costs, especially the price convergence that took place during the long nineteenth century.

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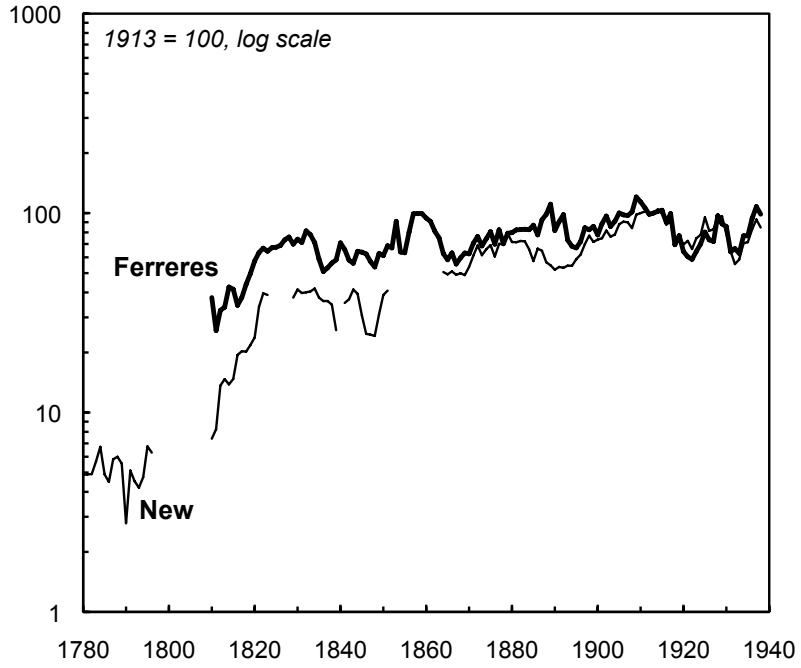
240. Britain: Cuenca Esteban, 'Rising Share', p. 901, App. Table 1; Imlah, *Economic Elements*, pp. 94-98, Table 8; and Feinstein, *National Income*, pp. T132-32, Table 61. France: M. Lévy-Leboyer, 'L'héritage de Simiand: Prix, profit et termes d'échange au XIX e siècle', *Revue Historique*, 243, 1970, pp. 108-111, Table 5. Germany: W.G. Hoffmann, *Das Wachstum der deutschen Wirtschaft seit der Mitte des 19. Jahrhunderts*, Berlin, 1965, pp. 606-09, Table 151. Italy: Federico et al, *Commercio estero*, pp. 228-29, Tabella 7b. United States: various series compiled in Irwin, 'Exports and Imports'.

241. Nine goods were included. They were reweighted every 10 years according to the value of their exports. Calculated from IBGE, *Estatísticas Históricas do Brasil: Séries Econômicas Demográficas e Sociais de 1550 a 1988*, 2nd ed., Rio de Janeiro, 1990, pp. 345-56.

Figure A4.6

New and Old Terms-of-Trade Estimates for Argentina, 1810-1938



Sources:

Ferreres: Ferreres, *Dos siglos*, Series 8.1.7.

New: Calculated from the price indices in Tables DA.15 and DA.17.

Results

In Figure A4.6 the new part-proxy terms-of-trade estimate that results from these export and import price indices is compared to what can be considered the standard series, as reproduced in Orlando Ferreres' statistical compendium.[242] A logarithmic scale has been used to facilitate comparisons between their rates of change. As can be seen, up to around 1880, the new series increases substantially faster than the Ferreres series, particularly immediately after independence in 1810. As discussed in Chapter 2 and this chapter, this can be explained by the considerable price convergence that occurred due to falling trade costs. After that process had finished, the two series become similar, especially once Ferreres begins to use the official series, which was calculated from Argentina's own domestic prices from 1910 onwards.[243]

242. The series underlying it are the same as those used by Williamson, as described in Appendix 2.1, page 87. The only exception is for 1870-84, when it consists of Diéguez' export price index divided by Britain's export price index. See Ferreres, *Dos siglos*, p. 658.

243. On the calculation of the official series, see Bunge, *Intercambio económico*.

Table A4.3

Three Estimates of Argentina's Terms of Trade, 1780s-1900s

	Ferreres	New	
		Part-proxy	Adj. part-proxy*
1780s		6.4	3.9
1810s	39.7	18.5	11.5
1830s	68.3	44.8	31.0
1870s	76.8	79.0	68.6
1900s	100.0	100.0	100.0
Growth, %:			
1780s to 1900s		1,451	2,485
1810s to 1900s	152	441	771

* Based on the assumption that Argentina's import prices were 100 percent higher than the core's export prices until 1810, but then fell exponentially to 20 percent in the 1900s.

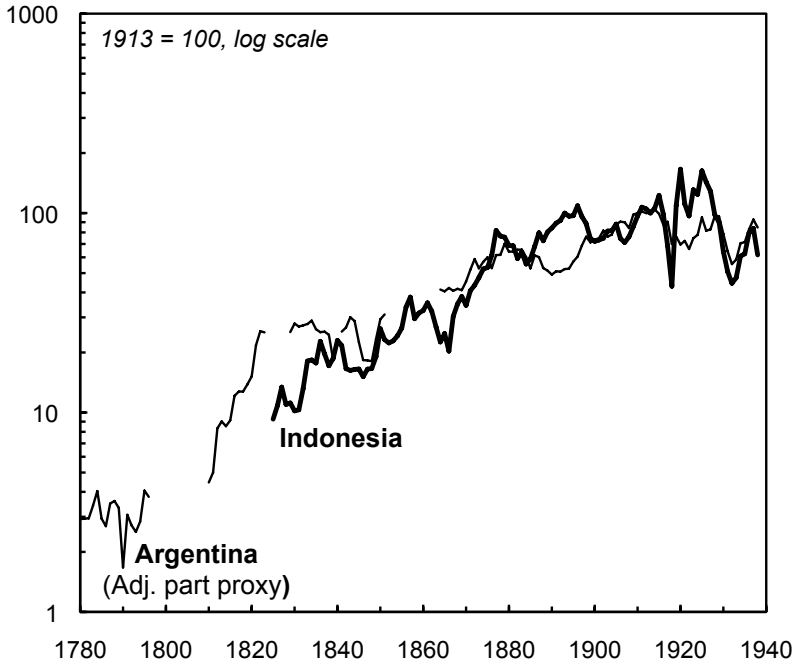
Note: All three estimates were referenced so that 1900-09 equals 100.

Sources: As in Figure A4.6.

Even this new part-proxy estimate is likely, however, to understate the magnitude of Argentina's terms-of-trade boom because, as seen in Chapter 2, *the periphery's import prices also converged with the core's export prices during the long nineteenth century*. Using a proxy import price index therefore introduces a downward bias into the trend of Argentina's terms of trade. For this reason, Table 4A.3 gives a rough indication of what the terms of trade might look like if it were possible to calculate an import price index using Argentina's own prices. The Ferreres and the new series are both shown as decadal averages, referenced so that 1900-09 equals 100; then, in the final column, the new part-proxy estimate is adjusted to reflect the convergence in import prices, based on the assumption that high trade costs meant that Argentina's import prices were 100 percent higher than the core's export prices until independence in 1810, but then fell at a constant rate until they reached 20 percent of the core's export prices in the first decade of the twentieth century. Such a fall in trade costs is highly likely to have occurred, and in reality it was probably even greater. The difference it makes can be clearly seen. Hence, whereas Ferreres' series increases by 152 percent from the 1810s to the 1900s, the new part-proxy estimate increases by 441 percent, and the adjusted part-proxy estimate increases by 771 percent. Looking further back, the adjusted part-proxy estimate suggests an even greater boom, as it shows a 2,485 percent improvement from the 1780s to the

Figure A4.7

Terms of Trade for Argentina and Indonesia, 1780-1938



Sources:

Argentina: See Table A4.2.

Indonesia: Korthals Altes, *Changing Economy*, XV, pp. 158-60. See Table DA.4.

1900s, compared to 1,451 percent in the unadjusted series. Argentina's terms-of-trade boom was, then, far greater than has previously been supposed.

Finally, lest these estimates seem improbable, in Figure A4.7 the adjusted part-proxy series is compared to Indonesia's terms of trade, which, as detailed in Chapter 2, is the *only own-price estimate for a peripheral country that reaches into the first half of the nineteenth century*. Figure A4.7 implies that the magnitude of the terms-of-trade boom indicated by the adjusted part-proxy estimate is highly plausible, at least from the mid-1820s, when the Indonesian series begins. Were Indonesia's terms of trade extended further back into the eighteenth century, moreover, it is probable that its own boom would appear even greater, as the country's commodities were selling in Europe for around 400 percent of their export prices before the nineteenth century.[244] This strongly reinforces, therefore, the argument made in Chapter 2: that prices from the core must not be used as proxies for prices in the periphery.

244. O'Rourke and Williamson, 'When Did Globalisation Begin?', p. 33, Figure 4.

Instead, further research is required into the price records of the peripheral countries themselves. This appendix has contributed to this task by compiling and processing the available evidence for Argentina's export prices.

Chapter 5

The 'Golden Age' Myth

> I see the imitation of Europe, and nothing that reveals America to me.
>
> Domingo Sarmiento, *Facundo: Civilisation and Barbarism*[1]

It is commonly believed that by the end of the long nineteenth century Argentina was a rich country. One historian, for instance, exuberantly declares that '[t]hese were the glory days for Argentina: the country seemed at last to have shed its history and seated itself at the table of the richest nations in the world'.[2] The question then becomes why it subsequently declined. As a prominent New Economic Historian puts it: '[o]nce one of the richest countries in the world, Argentina has been in relative economic decline for most of the twentieth century'[3] – the 'Argentine paradox' then becomes the question of why a rich country became a poor country.[4] Yet, as this chapter demonstrates, the starting point for this research agenda is wrong. Through a comparative assessment of Argentina's living standards prior to the First World War, the chapter concludes that, in short, there was no 'golden age' in which Argentina rivalled the world's most developed countries.

In comparing Argentina to various other countries at the beginning of the twentieth century, this chapter adopts a broad concept of living standards as 'human development'. Reflecting this, the chapter examines comparable indicators for political institutions, public welfare, and national incomes.[5] It finds that in no case were Argentina's levels of human development comparable to the most advanced countries: its political institutions lagged far behind those of the Anglo-Saxon countries;

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1. Sarmiento, *Facundo: Civilisation*, p. 38.
2. Rocchi, *Chimneys in the Desert*, p. 87.
3. Taylor, 'External Dependence', p. 907.
4. See the discussion in Chapter 1, pages 18-19.
5. See UNDP, *Human Development Report*, p. 10; also see Chapter 1, pages 37-38.

its levels of public welfare were inferior to those of Northern Europe, at around the same levels as Southern Europe; the chapter shows that measuring incomes presents considerable methodological challenges, but most likely they were higher in Argentina than Italy and Spain, especially for skilled workers, but they trailed those of Northern Europe, let alone its offshoots. Argentina should not, therefore, be considered one of the world's most developed countries. As will be discussed further in Chapter 6, this chapter thus verifies this dissertation's pessimistic revision of Argentina's long nineteenth century.

Living Standards

To the greatest possible extent, living standards in Argentina prior to the First World War will here be compared to major countries of Northern Europe, the prosperous European offshoots, more or less backward Southern European countries, and Argentina's largest South American neighbours. In interpreting these comparisons, particular attention will be given to the European offshoots because they, like Argentina, were land-abundant countries, and there has been a substantial comparative literature that has sought to explain why Argentina failed to reach their heights.[6] This chapter contributes to that literature by placing Argentina's failure within the context of the new metanarrative of global divergence that was outlined in Chapter 3, as well as its initial application to Argentina in Chapter 4. The result is a far simpler explanation of Argentina's failure than is sometimes offered. In short, it is argued here that Argentina's failure was primarily due to a lack of democracy, which both resulted from and reinforced the greater unevenness of its development. For this reason, the assessment will begin with a comparative analysis of Argentina's political development.

Political Institutions

In terms of its political institutions, Argentina was less advanced than the most developed countries. Table 5.1 illustrates this using two databases that attempt to provide comparable measures of political development. The first is the Polity IV

6. Most notably, D. Denoon, *Settler Capitalism: The Dynamics of Dependent Development in the Southern Hemisphere*, Oxford, 1983; D.C.M. Platt and G. di Tella, eds., *Argentina, Australia and Canada: Studies in Comparative Development 1870-1965*, Oxford, 1985; C.E. Solberg, *The Prairies and the Pampas: Agrarian Policy in Canada and Argentina, 1880-1930*, Stanford, 1987; Schwartz, *In the Dominions*; Schedvin, 'Staples and Regions'; Adelman, *Frontier Development*; and Willebald and Bértola, 'Uneven Development Paths'.

Table 5.1

International Political Indicators, c. 1900-13

Author:	Polity IV			Vanhanen	
Period:	1909-13			1900-09	
Indicator:	Autocracy*	Democracy*	Polity**	Competition***	Participation†
South America					
Argentina	2	3	1	17	2
Brazil	4	1	-3	9	2
Chile	2	5	3	29	4
Northern Europe					
Britain	0	8	8	50	10
France	0	8	8	68	22
Germany	3	5	2	35	8
Southern Europe					
Italy	4	3	-1	32	4
Spain	0	6	6	21	8
European offshoots					
Australia	0	10	10	62	19
Canada	0	9	9	48	18
United States	0	10	10	46	17

* An 11-point scale, from zero to 10.

** A 21-point scale, from -10 to 10, calculated as the democracy indicator minus the autocracy indicator.

*** Smaller parties' share of the vote in national elections, calculated as 100 minus the percentage share of the largest party.

† Percentage of the population that voted in national elections.

Sources:

Polity IV Project, 'Political Regime Characteristics and Transitions, 1800-2010', dataset online at http://www.systemicpeace.org/inscr/p4v2011.xls (accessed 20 January 2013).

Vanhanen: T. Vanhanen, *Prospects of Democracy: A Study of 172 Countries*, London, 1997, pp. 34, 251, 257-58, 260-61, 262, 266.

Project database, which measures the degrees of both autocracy and democracy on 11-point scales by taking into account the ways in which political leaders are recruited, the constraints on their power, restrictions on the population's participation in politics, and the competitiveness of that participation. The 11-point scale for autocracy is then subtracted from the 11-point scale for democracy, in order to arrive at a 21-point scale for the overall quality of the country's polity. These indicators have been compiled for virtually every independent state in the world, based on accounts of their political evolution since the nineteenth century.[7] As can be seen in Table 5.1,

7. This project started with T.R. Gurr, 'Persistence and Change in Political Systems, 1800-1971',

compared to the other countries considered here, Argentina had a moderate level of autocracy. This was because it had a strong president whose term was nevertheless fixed at six years, and whose successor was appointed by a directly elected Electoral College. However, Argentina also had a fairly low level of democracy due to participation in elections being limited by the lack of a secret ballot and the restriction of the vote to male Argentines. Tatu Vanhanen's measures of political competition and participation confirm this negative assessment. Hence, according to his estimates, parties other than the PAN took just 17 percent of votes in Argentina during the 1900s, while only two percent of the population voted. On all measures, then, Argentina lagged far behind the most politically advanced countries, which were found in Northern Europe and the European offshoots.

This political backwardness reflected the slow pace of reform in Argentina. Until the Sáenz Peña Law of 1912, voting, for example, was carried out verbally in public, so victory in elections largely depended upon the use of patronage, intimidation, and fraud. In much of the interior, the PAN's heartland, this meant that elections could be controlled by their provincial governors, who used patronage to persuade local military commanders and magistrates to support their candidates, particularly by promising them employment for family members in the government bureaucracies.[8] In Buenos Aires elections were more competitive, but for much of the second half of the nineteenth century that competition normally entailed the use of gangs to march selected voters to the polls to publicly declare for one candidate, while blocking voters who had been herded to the polls by a rival politicians' gang.[9] In the 1890s new political parties, most notably the UCR,[10] but also the Socialists,[11] did provide considerable opposition in provincial and national legislatures, yet even then participation in politics was limited by the restriction of the vote to native-born and naturalised adult males, which excluded women and much of the immigrant-dominated

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American Political Science Review, 68:4, 1974, pp. 1482-504. Since then, it has become widely used by social scientists. See the Centre for Systemic Peace, online at http://www.systemicpeace.org (accessed 20 January 2013).

8. Rock, *State Building*, pp. 69-72. For an analysis of the provincial elite communities that formed in Buenos Aires as a result, see S. Bower, 'Political and Socio-Economic Elites: The Encounter of Provincials with Portenos in Fin-De-Siêcle Buenos Aires', *Americas*, 59:3, 2003, pp. 379-403.
9. Cullen Crisol, 'Electoral Practices', pp. 24-30, 34-43; and Sabato, *Many and the Few*, pp. 56-58.
10. Alonso, *Between Revolution*, ch. 5.
11. J. Adelman, 'Socialism and Democracy in Argentina in the Age of the Second International', *Hispanic American Historical Review*, 72:2, 1992, pp. 211-38.

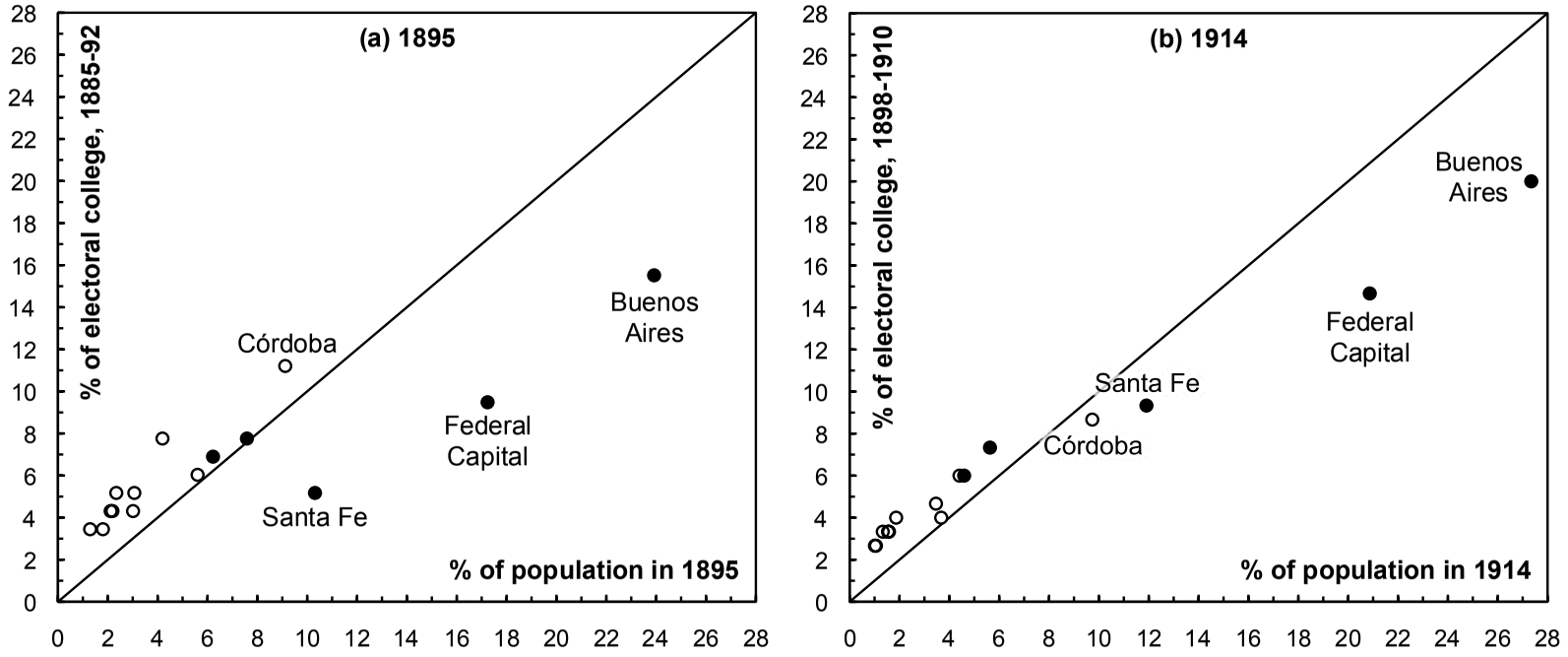
middle classes. In the Federal Capital just 17 percent of the adult population were qualified to vote,[12] in large part as a result of only two percent of foreign-born males having taken up citizenship;[13] the rest remained unnaturalised because the bureaucratic process was long, they would have risked being conscripted, foreigners were already treated well, and there was, in any case, little to gain in being able to vote, given the lack of a secret ballot. Only after the Sáenz Peña Law made elections fairer in 1912 by establishing the secret ballot did the rate of naturalisation increase significantly.[14]

Earlier reform of this electoral system was inhibited due to the overrepresentation of the interior provinces in the National Congress. One of the compromises in the 1853 constitution was that the federal government would have a bicameral legislature with each of the 14 provinces plus the capital receiving two seats in the Senate, and 50 seats to be assigned proportionally to their populations in the Chamber of Deputies, with the number of seats expanded and their distribution recalculated according to each new national census; the President of the Republic was nominated for a six-year term by a directly elected Electoral College, in which each province and the Federal Capital received twice the number of its total senators and deputies.[15] This system favoured the interior not only due to its provinces receiving the same number of seats in the Senate as the larger Littoral provinces, but more importantly because the censuses were only taken sporadically. Thus, until the results of the 1895 census were implemented in 1898, the Electoral College reflected the distribution of the population according to the 1869 census, without any allowance for the shift in population that had occurred since then.[16] The consequent overrepresentation of the interior provinces can be seen in Panel (a) of Figure 5.1, in which the provinces' share of the total population in 1895 is shown on the horizontal axis, and their share in the Electoral College around that time is shown on the vertical axis. It can be seen that the interior provinces, represented by the hollow dots, were overrepresented since they are above the diagonal line of perfectly proportional representation,

12. Calculated from CNC, *Tercer censo*, III, pp. 18-21.
13. Calculated from ibid., I, p. 202; and ibid., II, *Población*, Buenos Aires, 1916, p. 417.
14. C. Solberg, *Immigration and Nationalism: Argentina and Chile, 1890-1914*, Austin, 1970, pp. 42-43, 124-25; and Moya, *Cousins and Strangers*, p. 489, fn. 18.
15. Representantes del Pueblo de la Nación Argentina, 'Constitución de 1853', pp. 272-73, 280-81, Articles 34, 42, and 78.
16. Llach, 'Wealth of the Provinces', pp. 119-20.

Figure 5.1

Disproportional Representation in Argentina, 1895 and 1914



Note: The hollow dots indicate interior provinces; the black dots are the Littoral provinces and the Federal Capital. The total population only includes the 14 provinces and the Federal Capital because the national territories were not represented in Congress. The diagonal line is the line of perfect proportional representation between population and members of the electoral college.

Source:

Electoral college: Botana, *Orden conservador*, p. 88, Cuadro 1.

Population: as in Table 4.2.

whereas Buenos Aires, Santa Fe, and the Federal Capital were underrepresented, as they were considerably below it. This meant that Argentina's political institutions overrepresented the interior provinces where peasantries had been excluded from politics during the state-formation process, as was seen in Chapter 4. It was, by contrast, the underrepresented Littoral region, especially its middle classes, which provided most of the financial and electoral support for the new political parties that were pressuring the PAN for electoral reform.[17]

Only when the number of deputies was adjusted according to the findings of the 1895 census did the balance of power swing towards the Littoral. Previously Buenos Aires, the Federal Capital, and Santa Fe had just 30 percent of the votes in the Electoral College, but after the census results were implemented in 1898 they possessed 44 percent, so their representatives were almost able to choose the President on their own.[18] This was what a Deputy from Córdoba had described in 1897 as the threat of 'two provinces and a city' electing the President – a threat that had inspired the interior provinces to block the holding of a new census for so long.[19] With their numbers increased, the Littoral's Deputies were able ensure that there was no such delay in holding the next census. As shown in Panel (b) of Figure 5.1, when the 1914 census was taken the distribution of votes had not become as disproportional as in the 1890s. In the meantime, the Littoral's influence in the Electoral College had, moreover, ensured the victory of Luis Sáenz Peña as President in 1910. Sáenz Peña then pushed through an electoral reform two years later that would finally introduce the secret ballot, bringing some long-delayed democratisation.[20] The length of the delay nevertheless meant that Argentina's political development still lagged that of the most advanced countries. In Australia, for example, the secret ballot had been introduced in the 1850s, and Canada had followed in 1874.[21] This

17. Gallo and Sigal, 'Formación de los partidos', pp. 212-22; O. Cornblit, 'La opción conservadora en la República Argentina', *Desarrollo Económico*, 14:56, 1975, pp. 619-21; and Alonso, *Between Revolution*, pp. 11, 159-60.
18. Calculated from Botana, *Orden conservador*, p. 88, Cuadro 1.
19. Quoted in H. González Bollo, 'Sobre la amenazante mayoría de dos provincias y una ciudad: Los tres primeros censos demográficos y su impacto político en Argentina (1853-1920)', *Estadística Española*, 52:174, 2010, p. 320, also pp. 318-19; and Llach, 'Wealth of the Provinces', pp. 138-39.
20. The importance of the census in facilitating electoral reform has often been missed. For example, Botana, *Orden conservador*, ch. 7; and Rock, *State Building*, ch. 5. It has, however, featured prominently in recent analyses of the PAN's economic policies. See Llach, 'Wealth of the Provinces', ch. 4; and Gerchunoff, Rocchi, and Rossi, *Desorden y progreso*, ch. 8.
21. P. Brent, 'The Australian Ballot: Not the Secret Ballot', *Australian Journal of Political Science*,

head start had allowed such countries to institutionalise democracy to a far greater degree than in Argentina.

Public Welfare

Moving on to public welfare, health is arguably its most important aspect. In the literature on human development, life expectancy at birth has been the most commonly used indicator.[22] Yet historians have often lacked data on life expectancy, so instead they have increasingly used heights as an indicator of 'biological well being'.[23] In deference to that trend, Table 5.2 begins by reproducing the data compiled by Joerg Baten and Matthias Blum for 10 of the 11 countries under review here. They show that Argentine men born in the first decade of the twentieth century grew to be taller than Frenchmen, but shorter than other Northern Europeans and men in the European offshoots. Interpreting these results is problematic, however, because it is less than clear that heights should be considered as a proxy for welfare, biological or otherwise.[24] For Argentina the use of heights is particularly problematic given that human growth is heavily influenced by meat consumption, as, in the words of a survey of the biological literature, '[a]mong single nutrients affecting growth, protein is probably the most important'.[25] It may just be, then, that Argentines were reasonably tall as a result of having to survive on a fairly monotonous diet of beef.[26]

41:1, 2006, p. 42.

22. UNDP, *Human Development Report*, p. 12.
23. For an overview, see R.H. Steckel, 'Heights and Human Welfare: Recent Developments and New Directions', *Explorations in Economic History*, 46:1, 2009.
24. Among developing countries in the second half of the twentieth century, for instance, there was little correlation between adult heights and infant mortality rates in the year of birth, and no correlation with GDP per capita. A. Deaton, 'Height, Health, and Development', *Proceedings of the National Academy of Sciences*, 104:33, 2007.
25. K. Silventoinen, 'Determinants of Variation in Adult Body Height', *Journal of Biosocial Science*, 35:2, 2003, p. 273
26. For this reason, studies of heights have not been used to support the pessimistic revision of Argentina's long nineteenth century given in this dissertation. They have found that there was a decline in average heights from the 1780s through to the 1800s, notable increases from the 1810s to the 1830s, then decline during the 1840s and '50s, followed by stagnation up to the First World War. R.D. Salvatore, 'Heights and Welfare in Late-Colonial and Post-Independence Argentina', in J. Komlos and J. Baten, eds., *The Biological Standard of Living in Comparative Perspective*, Stuttgart, 1998, pp. 106-10; idem, 'Stature Decline and Recovery in a Food-Rich Export Economy: Argentina 1900–1934', *Explorations in Economic History*, 41:3, 2004, pp. 238-42; idem, 'Heights, Nutrition, and Well-Being in Argentina, ca. 1850-1950: Preliminary Results', *Revista de Historia Económica*, 25:1, 2007, pp. 60-66; J. Baten, I. Pelger, and L. Twrdek, 'The Anthropometric History of Argentina, Brazil and Peru During the 19th and Early 20th Century', *Economics and Human Biology*, 7:3, 2009, pp. 320-24; and J. Baten and M. Blum, 'An Anthropometric History of the World, 1810-1980: Did Migration and Globalization Influence

Table 5.2

International Health Indicators, c. 1900-13

Indicator:	Heights (cm)*	Life expectancy at birth, years**	
Source:	Baten & Blum	Clio Infra	Crafts
Period:	1900-09	1910	1913
South America			
Argentina	168.2	44	46
Brazil	166.5	...	31
Chile	...	32	30
Northern Europe			
Britain	169.4	54	53
France	166.8	51	50
Germany	169.2	45	49
Southern Europe			
Italy	165.6	47	47
Spain	164.6	41	42
European offshoots			
Australia	172.3	...	59
Canada	169.9	53	53
United States	170.0	52	52

* The figures are for both sexes.

** Average adult height of people born in this decade.

Sources:

Life expectancy: 'Crafts, 'Human Development Index: Some Historical Comparisons', p. 307, Table 2; and Clio Infra, available online at http://www.clio-infra.eu/datasets/indicators (accessed 15 October 2013).

Heights: J. Baten and M. Blum, 'Growing Tall but Unequal: New Findings and New Background Evidence on Anthropometric Welfare in 156 Countries, 1810–1989', *Economic History of Developing Regions*, 27:Sup1, 2012, p. 566-85; underlying data available at http://www.clio-infra.eu/datasets/indicators (accessed 15 October 2013).

Estimates of life expectancy, a more traditional measure, therefore provide a less ambiguous measure of health.

Two sets of life-expectancy estimates for men and women at birth before the First World War are reproduced in Table 5.2. Both suggest that life expectancy was

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Country Trends?', *Journal of Anthropological Sciences*, 90, 2012, pp. 3-4. These findings have been interpreted as indicating that a far more pessimistic interpretation of Argentina's nineteenth century is warranted, with the notion 'that the period 1880-1914 was a 'golden age'' seeming particularly dubious. Salvatore, 'Heights, Nutrition', p. 82. However, it is notable that similar trends can be seen in the US data, where the explanation mainly appears to be due to people shifting their diets away from meat and dairy products towards grains, rather than poorer nutrition per se. See J. Komlos, 'Anomalies in Economic History: Reflections on the Antebellum Puzzle', *Journal of Economic History*, 56:1, 1996; also J. Baten and M. Blum, 'An Anthropometric History of the World, 1810-1980: Did Migration and Globalization Influence Country Trends?', *Journal of Anthropological Sciences*, 90, 2012, pp. 3-4.

Table 5.3

Life Expectancy at Birth in Argentina, 1913-15

	Argentines	Foreigners
	(a) Female	
Buenos Aires	50	56
Centre-Littoral	47	54
West (Cuyo)	40	47
Northeast	37	44
	(b) Male	
Buenos Aires	47	51
Centre-Littoral	45	51
West (Cuyo)	39	44
Northeast	37	41

Note: The entities included in the regional groupings are:

Buenos Aires: Buenos Aires and the Federal Capital.

Centre-Littoral: Entre Rios, Santa Fe, and Córdoba

West (Cuyo): San Juan and Mendoza.

Northeast: Tucumán, Salta, and Jujuy.

Source: Compiled from J.L. Somoza, *La mortalidad en la Argentina entre 1869 y 1960*, Buenos Aires, 1971, pp. 110-13, 117-20, 123-26, 130-33, 136-39.

not as high in Argentina as in the world's most developed countries. At 46 years, according to Nicholas Crafts' estimates, Argentines' life expectancy was above the two South American countries (and far above the world's poorest: in India, for instance, life expectancy at birth was around 20 years during this period),[27] but it was only around Southern European levels, which were considerably below the 50 plus years achieved in Northern Europe and the European offshoots.

Uneven development across regions and ethnicities again explains why life expectancy in Argentina did not reach the same level as the most developed countries. Table 5.3 reproduces a demographer's estimate of life expectancy at birth for men and women across four regions of Argentina during 1913-15.[28] As should be expected, they indicate that people lived far longer in the Littoral, and everywhere foreigners lived longer than the native born. This disparity meant that a girl born abroad who subsequently moved to Buenos Aires could expect to live 56 years, whereas a native-born girl in the Northeast had a life expectancy of 37 years. The

27. Habib, 'Studying a Colonial Economy', p. 373, Table 2.
28. These are probably the same estimates that underlie the Clio Infra and Crafts figures in Table 5.2.

former could thus expect to live as long as a woman in the most developed countries, but the latter had a life expectancy that was a long way below Southern European levels.

Such regional and ethnic disparities were not only due to the lower incomes of the interior and the native born, but also to the inferior provision of public goods outside Argentina's capital city. For example, a survey included in the 1914 census found that the National Waterworks had assets of £26.2 million in the Federal Capital, compared to just £3.6 million in the rest of the country.[29] As an illustration, this meant that in the Federal Capital it had assets of £16 for every inhabitant, but in Córdoba, the country's third city, it had just £5 per person.[30] This difference reflected the longstanding lack of interest of Córdoba's provincial government in a sanitation system,[31] whereas in Buenos Aires varying combinations of provincial, municipal, and federal governments had been investing in one since the 1870s.[32] Such uneven provision of public goods relating to health prevented Argentina as a whole from having a high average life expectancy at birth. In Figure 5.2 this is illustrated by comparing estimates of life expectancy in the two cities with those of the world's most developed countries. It shows that while Buenos Aires approached the levels of Britain and the United States by the First World War, in Córdoba life expectancy had increased little since the late 1890s. Indeed, at just 35 years in 1909-13, average life expectancy in Córdoba was far below Southern European levels, whereas in Buenos Aires it had reached 48 years.[33]

Education similarly suffered from the uneven provision of public goods. Hence, in 1914 the census found that 82 percent of the Federal Capital's children

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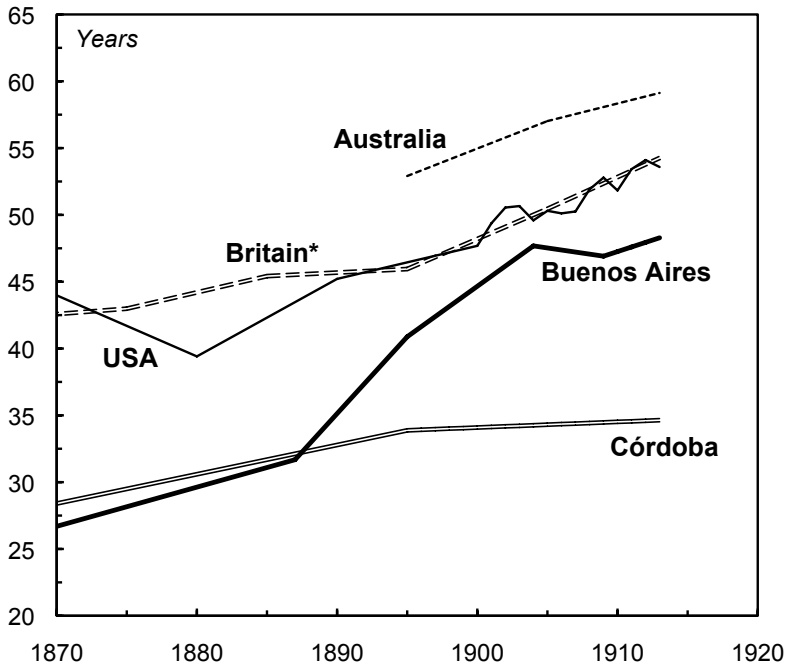
29. CNC, *Tercer censo*, X, p. 461. The National Waterworks was a public agency that had taken control of the country's sanitation system in 1912. See A. Regalsky, 'De Buenos Aires a las provincias: La construcción de una empresa pública de saneamiento en la Argentina, 1892-1930', *Desarrollo Económico*, 50:199, 2010.
30. City populations from Tornquist, *Economic Development*, p. 20.
31. A. Carbonetti, 'La conformación del sistema sanitario de la Argentina: El caso de la Provincia de Córdoba, 1880-1926', *Dynamis*, 25, 2005; also M.C. Boixadós, *Las tramas de una ciudad, Córdoba entre 1870 y 1895: elite urbanizadora, infraestructura, poblamiento*, Córdoba, 2000, pp. 194-202.
32. Regalsky, 'De Buenos Aires', pp. 456-58.
33. It is worth noting that these estimates are probably more reliable than the national life expectancies used in Tables 5.2 and 5.3 because they are based on more concrete mortality data from municipal records. B. Ribotta, 'Los niveles de mortalidad de la ciudad de Córdoba a principios del siglo XX: ¿Particularidad demográfica o deficiencia administrativa?', in D. Celton, M. Ghirardi, and A. Carbonetti, eds., *Poblaciones históricas: Fuentes, métodos y líneas de investigación*, Córdoba, 2010, p. 213.

Figure 5.2

International Life Expectancy at Birth, 1870-1913



* England and Wales only.

Note: The series show estimated life expectancy at birth for males and females. Missing years were interpolated linearly.

Sources:

Australia: South Australia, *Statistical Register of South Australia 1963-64*, II, Adelaide, 1966, p. 47. Located through the Human Life-Table Database, online at http://www.lifetable.de (accessed 14 January 2013).

Britain: V. Kannisto, Life Table Collection, mimeo, n.d. Also located through the Human Life-Table Database.

Buenos Aires (Federal Capital): M.S. Muller, *La mortalidad en Buenos Aires entre 1855 y 1960*, Buenos Aires, 1974, pp. 88-91.

Córdoba (capital): D.S. Celton, 'La mortalidad en la ciudad de Córdoba (Argentina) entre 1869 y 1990', *Boletín de la Asociación de Demografía Histórica*, 10:1, 1992, pp. 53-54.

United States: M.R. Haines, 'Estimated Life Tables for the United States, 1850-1900', NBER Historical Paper 59, 1994, Appendix A; and F.C. Bell and M.L. Miller, 'Life Tables for the United States Social Security Area 1900-2100', Actuarial Study 116, Social Security Administration, 2005, p. 162, Table 10.

aged 6 to 14 attended school, whereas just 55 percent did in the rest of the country; in the Littoral outside the Federal Capital the attendance rate was 51 percent; in the Centre, 58 percent; in both the North and the West, 62 percent; and in the South, 35 percent.[34] Such regional disparities depressed Argentina as a whole below the levels

34. Calculated from CNC, *Tercer censo*, I, p. 178. Also see J.C. Tedesco, *Educación y sociedad en la*

Table 5.4

International Education Indicators, c. 1909-1913

Indicator:	Primary school enrolment, % of 5-14 year olds		Literacy rate, %
Source:	Benavot & Riddle	Lindert	Crafts
Period:	1910	1910	1913
South America			
Argentina	37	41	64
Brazil	11	12	35
Chile	39	43	63
Northern Europe			
Britain	79*	73	96
France	86	86	92
Germany	73	76	97
Southern Europe			
Italy	45	45	62
Spain	35	47	52
European offshoots			
Australia	89	89	96
Canada	88	92	94
United States	97	98	92

* England and Wales only.

Sources:

Literacy rates: Crafts, 'Crafts, 'Human Development Index: Some Historical Comparisons', p. 307, Table 2.

Primary enrolment: A. Benavot and P. Riddle, 'The Expansion of Primary Education, 1870-1940: Trends and Issues', *Sociology of Education*, 61:3, 1988, pp. 205-07; and P. Lindert, *Growing Public: Social Spending and Economic Growth Since the Eighteenth Century*, II, *Further Evidence*, Cambridge, 2004, pp. 122-27, Appendix Table A1, also available online at http://lindert.econ.ucdavis.edu/Docs/17/App._T._A1__primary_enrol.xls (accessed 5 February 2013).

of the world's most developed countries. Two estimates of primary school enrolment rates in 1910, reproduced in Table 5.4, both indicate that Argentina was far behind Northern Europe and the European offshoots, at around the same level as Southern Europe,[35] while Crafts' estimates of literacy rates tell a similar story.

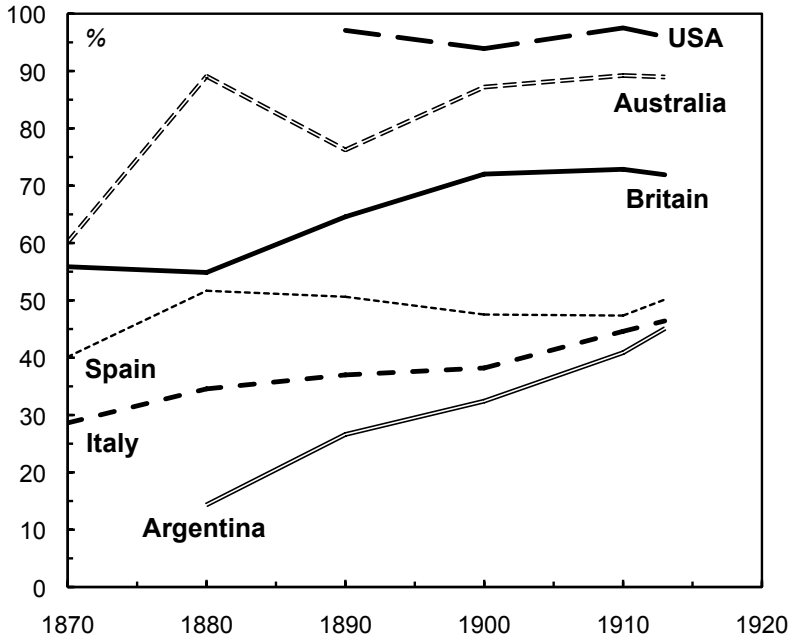
Argentines' relatively low level of schooling reflected the long delay in constructing an adequate public education system. In the 1860s the liberal state builders had sought to construct a nationwide education system, so in 1871 the

Argentina (1880-1900), Buenos Aires, 1970, pp. 177-79.

35. These figures measure primary enrolment as the enrolment of 5-14 year olds, which explains why they are lower than the enrolment levels of 6-14 year olds given above for Argentina's regions.

Figure 5.3

International Primary School Enrolment, 1870-1913



Note: The series show the percentage of children aged 5-14 enrolled in school in 1870, 1880, 1890, 1900, 1910, and (estimated) 1913. The figures for 1913 were estimated by interpolating linearly between 1910 and 1920.

Source: Lindert, *Growing Public*, II, pp. 122-27, Appendix Table A1.

federal government had begun to subsidise the construction, equipping, and running of primary schools across the country.[36] However, the money made available became a considerable source of patronage, beginning when Nicolás Avellaneda, as Minister of Education during 1868-1874, used the subsidies to build a personal following among the governors of the interior provinces, who provided the necessary support for him to succeed Sarmiento as president.[37] Subsequently, providing scholarships and comfortable teaching posts for family members of supporters continued to be a major form of patronage. A reflection of this was the disproportionate amount of the budget spent on secondary schooling, teacher training, and higher education, leading to an underfunding of primary education.[38] In a speech to Congress in 1913 Juan B.

36. J.E. Hodge, 'The Formation of the Argentine Public Primary and Secondary School System', *Americas*, 44:1, 1987, pp. 56-57.
37. Rock, *State Building*, p. 70.
38. In 1910, for example, primary schooling only took about 30 percent of federal spending on education. DGEN, *Anuario: Correspondiente al año 1910*, III, Buenos Aires, 1912, p. 180. Also see Tedesco, *Educación y sociedad*, pp. 189-91.

Justo, the socialist Deputy for the Federal Capital, explained that this imbalance was because 'nepotism reigns in the public administration'.[39] Denouncing this practice, he continued:

> It suits them very well being an instructor in a national college or a normal school [teacher-training college], while the school teacher is in a very poor situation. And no man of importance would dare offer his protégé a school teacher's post; so that the easiest positions are given to the most unskilled, the most uncultured: those of the upper reaches of the hierarchy. And so we see these establishments multiply, in a country where we are lacking primary schools for 600,000 children.[40]

Thus, Argentina's education system continued to suffer from a misallocation of resources.

The oligarchic state did not, then, provide Argentina with the same levels of public welfare as in the world's most developed countries, with regional disparities once more being crucial. In Buenos Aires City the municipal and federal governments became better at supplying public goods because the city's prosperity generated an informed civil society that used the press to demand a better provision of public services, thereby persuading the politicians from these regions to implement reforms.[41] It would be a mistake, nevertheless, to view this as representative of Argentina as a whole. Outside the capital city, particularly in the interior, civil society was far less developed, not least due to people being less literate. Patronage accordingly remained the key to electoral success,[42] which gave the provincial oligarchies few incentives to increase the supply of public goods, other than to provide positions for their supporters. The unevenness of Argentina's development in this way prevented it from being one of the world's most developed countries in terms of public welfare.

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39. J.B. Justo, *La obra parlamentaria del diputado socialista por la capital*, Buenos Aires, 1913, p. 146, author's translation.
40. Ibid., p. 147, author's translation. Also see Tedesco, *Educación y sociedad*, pp. 199-202.
41. E.A. Zimmerman, *Los liberales reformistas: La cuestión social en la Argentina (1890-1916)*, Buenos Aires, 1995, esp. ch. 2. On the formation of the public sphere, see H. Sabato, 'Citizenship, Political Participation and the Formation of the Public Sphere in Buenos Aires 1850s-1880s', *Past & Present*, 136, 1992; also idem, *Many and the Few*, ch. 2. On the central role of the press in the more competitive elections of Buenos Aires, see Cullen Crisol, 'Electoral Practices', pp. 30-34; Sabato, 'Citizenship, Political Participation', pp. 151-53; and Yablon, 'Patronage, Corruption', ch. 7.
42. For a detailed study of the case of Córdoba, see Chaves, *Sufragio y representación*, pp. 39-99.

National Income

Argentina's relative national income is more difficult to assess. Even for much of the twentieth century, reliable estimates of the country's GDP, the standard measure of national income, are in short supply, as was detailed in Appendix 1.1. Crucially, this means that the standard methodology used to produce historical GDP estimates – extrapolating back from recent purchasing-power-parity (PPP) benchmarks using volume indices of GDP – is subject to large margins of error. This methodology was pioneered by economists at the University of Pennsylvania, then popularised by Angus Maddison.[43] Those recent PPP benchmarks are calculated using statistics of prices across countries, in order to adjust nominal GDP figures for differences in price levels, resulting in an estimate in 'international prices'. By extrapolating backwards from these benchmarks with a volume index, the Penn methodology should produce, in theory, past GDP statistics in 'constant international prices' of the benchmark year. However, the accuracy of those historical estimates is entirely dependent on the quality of the benchmark estimates and the volume indices, which are of poor quality for the case of Argentina.

Some of the historical GDP statistics produced by the Penn methodology are reproduced in Table 5.5. For the 11 countries under consideration here, Maddison's various estimates of their GDP per capita in 1913 have been referenced so that Britain's GDP per capita equals 100. All seem to indicate that Argentina's past GDP per capita was high, although this should be expected because, as was discussed in Appendix 1.1,[44] there is a downward bias in the trend of Argentina's volume indices due to the disproportional growth of the informal sector. What is more surprising, by contrast, is the sheer variation in the estimates. Hence, by extrapolating backwards from a 1980 benchmark, Maddison originally estimated that Argentina's GDP per

43. B. Kravis, A. Heston, and R. Summers, *World Product and Income: International Comparisons of Real Product and Purchasing Power*, Baltimore, 1978; A. Maddison, *Monitoring the World Economy 1820-1992*, Paris, 1995; and idem, *The World Economy*, I and II, Paris, 2006. For the history of the methodology, see A. Maddison, 'Quantifying and Interpreting World Development: Macromeasurement Before and After Colin Clark', *Australian Economic History Review*, 44:1, 2004. The state of the art is described in A. Deaton and A. Heston, 'Understanding PPPs and PPP-based National Accounts', *American Economic Journal: Macroeconomics*, 2:4, 2010; and R.C. Feenstra, R. Inklaar and M. Timmer, 'The Next Generation of the Penn World Table', Groningen Growth and Development Centre, 2013, online at http://www.rug.nl/research/ggdc/data/pwt/v80/the_next_generation_of_the_penn_world_table.pdf.
44. Pages 43-45.

Table 5.5

International GDP Per Capita, 1913

	Britain = 100			
Source:	Maddison (1988)	Maddison (1994)	Maddison (1995)	Maddison (2006)
Benchmark:	1980	1985	1990	1990
South America				
Argentina	58	57	75	77
Brazil	17	17	17	16
Chile	41	42	53	54
Northern Europe				
Britain	100	100	100	100
France	63	66	69	71
Germany	62	60	76	74
Southern Europe				
Italy	58	50	50	52
Spain	...	53	45	42
European offshoots				
Australia	111	110	109	105
Canada	90	85	84	90
United States	123	117	105	108

Note: The figures show the country's GDP per capita in 1913, referenced so that Britain equals 100. The benchmark refers to the PPP estimate from which the series are extrapolated backwards.

Sources: A. Maddison, *The World Economy in the 20th Century*, Paris, 1988, p. 19, Table 1.3; idem, 'Explaining the Economic Performance of Nations, 1820–1989', in W.J. Baumol, R.R. Nelson, and E.N. Wolff, eds., *Convergence of Productivity: Cross-National Studies and Historical Evidence,* Oxford, 1994, p. 22, Table 2.1; and Maddison, *Monitoring the World*, pp. 23-24, Table 1-3; and idem, *World Economy*, II, pp. 438-39, 445, 466, 520, Tables 1b, 1c, 2c, and 4c.

capita in 1913 was equivalent to 58 percent of British GDP per capita, which then fell to 57 percent in a revision that extrapolated back from a 1985 benchmark, but when Maddison switched to a 1990 benchmark his estimate shot up to 75 percent, then rose further to 77 percent in the final and most widely used version of his database. The same methodology thus produced a wide range of results: according to the first pair of estimates, Argentina was around the level of Italy and Spain, but according to the second pair, it was far above them, as well as being above France and Germany. This gives an indication of the kinds of margin of error that afflict Maddison's numbers, irrespective of the overestimates of past GDP levels that will result for countries, such as Argentina, where the informal sector has grown faster

than the formal sector.[45] It seems with good reason, then, that two of the leading experts on the Penn methodology have concluded that 'many of these numbers have substantial uncertainty, and that extrapolations over long periods can easily lead to results that make no sense'.[46] Unfortunately, that did not stop Maddison, nor has it prevented legions of historians from regularly using his numbers without questioning their origins.[47]

Compared to GDP, wages are a less problematic means to assess past income levels because wage data are relatively abundant, as are the data on consumer prices that are needed to make them comparable across countries. By contrast, correctly calculating GDP requires a mass of data on the output of (or expenditure on) a multitude of different goods and services. Consequently, historians have increasingly preferred to look at wages to evaluate past income levels.[48] They have relied on two main methodologies. The first is to deflate a country's wages into a common PPP currency, which becomes a benchmark from which they can extrapolate backwards using a series for 'real' wages – in other words, the same Penn methodology that is used to produce historical GDP estimates.[49] The second methodology, pioneered by Robert Allen, is to calculate 'welfare ratios' (WRs) by dividing wages by the cost of a basket of goods that would have provided a subsistence-level standard of living for a worker and his family.[50] Table 5.6 summarises the results of both methodologies in the existing literature, with the various estimates for the nine countries under consideration again referenced so that the level in Britain equals 100. Jeffrey Williamson, as can be seen, has produced the only estimate for Argentina, and it supports the impression that it was one of the most developed countries in the world, with PPP wages greater than in France and Germany. Yet those countries with more than one estimate indicate why Williamson's numbers should be treated with caution: the range can be large. In the case of the United States, for example, workers' incomes

45. This, most likely, would also apply to the other South American countries, as well as Italy and Spain. Their GDP per capita estimates shown in Table 5.5 would also be overestimated as a result.
46. Deaton and Heston, 'Understanding PPPs', p. 33.
47. On this problem, also see Jerven, 'Unlevel Playing Field'.
48. For example, Williamson, 'Evolution of Global Labor'; Allen, 'Great Divergence'; Allen et al, 'Wages, Prices'; and Allen, Murphy, and Schneider, 'Colonial Origins'.
49. Most notably, see Williamson, 'Evolution of Global Labor'.
50. For the state of the art, see Allen, Murphy, and Schneider, 'Colonial Origins'. Also see Chapter 3, pages 100-02 and 115-17, for some of his results.

Table 5.6

International Real Wages, pre-First World War

	Britain = 100				
Author:	Allen		Allen et al	Williamson	Zamagni
Period:	1909-13	1909-11	1909-13	1909-13	1905
Type:	PPP*	WR**	WR***	PPP†	PPP††
South America					
Argentina	...	...	...	89	...
Brazil	...	...	...	...	...
Chile	...	...	...	...	...
Northern Europe					
Britain	100	100	100	100	100
France	...	62	...	65	67-69
Germany	...	...	73	84	64-70
Southern Europe					
Italy	...	29-33	24	49	38-41
Spain	...	43	...	49	...
European offshoots					
Australia	140	...	...	124	...
Canada	188-222	...	...	196	...
United States	249-257	...	...	160	117-125

* Wages for bricklayers in a major city in each country adjusted by price levels calculated using a British consumption basket. The cities are Manchester, Sydney, Toronto and Vancouver, and Chicago and San Francisco. Ranges indicate the values for two cities.

** Welfare ratios for building labourers in major cities. The cities are London, Paris, Florence and Milan, and Madrid.

*** Welfare ratios for building labourers in major cities. The cities are London, Milan, and Leipzig.

† Wages for unskilled labourers adjusted by price levels calculated using a multilateral consumption basket.

†† Average national wages for industrial workers adjusted by price levels calculated using a multilateral consumption basket.

Sources: V. Zamagni, 'An International Comparison of Real Industrial Wages, 1890-1913', in Scholliers, ed., *Real Wages*, p. 119, Table 5.4; R.C. Allen, 'Real Incomes in the English-Speaking World, 1879-1913', in G. Grantham and M. MacKinnon, eds., *Labour Market Evolution*, London, 1994, p. 130, Table 6A.5; idem, 'Great Divergence', p. 416, Tables 1 and 2; Williamson, 'Evolution of Global Labor', p. 184, Table A3.1; and Allen et al, 'Wages, Prices'.

appear to have been somewhere between 117 and 254 percent of British workers' incomes, which is quite a wide range! Even producing internationally comparable wage levels thus entails major margins of error, so it would be inappropriate to rely just on Williamson's estimate to evaluate Argentina's living standards.[51] Rather, the accuracy of Williamson's estimate must be checked against the raw material.

Table 5.7

International Weekly Wages in Construction, c.1905-09

	Labourer, s	Skilled,* s
Buenos Aires (1907)**	27-29	48-58
Northern Europe		
Berlin (1905)	26	33-40
London (1905)	30	45
Paris (1905)	25	39-44
European offshoots		
Montreal (1905)	42	62-102
New York (1909)	70	94-117
Sydney (1907)**	43	57-67

* Includes bricklayers, carpenters, and masons. In Buenos Aires, such trades were classified as oficiales.

** Monthly wages were calculated from daily wages, assuming a working week of six days.

Note: The wages are in British sterling. There were 20 shillings (s) per pound (£), and 12 pennies (d) per shilling.

Sources:

Buenos Aires: Departamento Nacional de Trabajo (DNT), *Boletín*, 3, Buenos Aires, 1907, p. 347.

Berlin: Board of Trade, *Cost of Living in German Towns*, London, 1908, p. 12.

London: idem, *Cost of Living of the Working Classes*, London, 1908, p. 27.

Paris: idem, *Cost of Living in French Towns*, London, 1909, p. 12.

Montreal: Board of Inquiry, *Cost of Living*, I, Ottawa, 1915, pp. 582, 584, 588.

New York: Board of Trade, *Cost of Living in American Towns*, London, 1911, p. 22.

Sydney: New South Wales, *Official Year Book: 1907-08*, Sydney, 1909, p. 485.

Wages themselves are the most basic building block of such a reassessment, so Table 5.7 provides the nominal wages in shillings of construction workers in Buenos Aires and six cities in Northern Europe and its offshoots around the years 1905-09.[52] For Berlin, London, and New York, the data were collected by the British

51. Bunge also produced an early attempt to estimate the purchasing power of worker's incomes in Argentina relative to other countries. He found that they were 91 percent the level of Britain, 88 percent the level of France, 97 percent the level of Germany, and 65 the level of the United States. Bunge, *Renta y riqueza*, p. 275. The main problems with Bunge's estimates are that (1) they are for family incomes, so they include child labour; (2) Argentina's family income is from a sample from Buenos Aires, where the social structure was unrepresentative of the rest of the country, as there were far more skilled workers in the capital; and (3) in estimating the price levels Bunge compared the rent of a single room in Buenos Aires with the rent of two rooms everywhere else.

52. The focus here will be on comparing incomes in Argentina with those in the more developed countries because there is a shortage of good-quality data on South American and Southern European wages, prices, and rents. See, for example, V. Zamagni, 'The Daily Wages of Italian

Board of Trade; for the other four cities, they were taken from various government publications. The construction sector has been chosen because the work was fairly homogenous across countries, so the wages give a reasonably accurate indication of the incomes of workers in the same occupations in each city. The range of wages for skilled workers illustrates one of the problems with this exercise: wages varied considerably, and it is now impossible to know what the average wage was. Nevertheless, in general it can be seen that unskilled labourers in Buenos Aires received similar nominal wages to those in Northern Europe, while skilled workers received somewhat more, although both received less than their counterparts in the European offshoots. What data there are also reveal that wages were far greater in Buenos Aires than in Southern Europe. In Italy in 1905, for instance, a skilled construction worker earned about 14 shillings per week, and a labour earned nine shillings – respectively just a quarter and a third of the Buenos Aires levels.[53]

Nominal wages in themselves are not enough to assess incomes, however, due to variations in price levels in different places. Where prices are high, the purchasing power of wages will be reduced; where prices are low, it will be raised. Here this is particularly important because Buenos Aires was renowned for being an expensive city, which suggests that 'real' wages were lower than the nominal figures imply. For example, an English-language guide to Argentina published in 1911 provided a description of the high cost of living.[54] It stated:

> [T]he retail price of meat in Buenos Aires and other cities has increased enormously of recent years from rather obscure causes, but the rise of population is one. A kilogramme of meat, for which seven or eight years ago twenty or twenty-five centavos (4d. or 5d.) would have been paid, cannot now be purchased for less than forty or forty-five centavos (9d. or 10d.), or a hundred per cent. more, and this, it may be remarked, is not a prime cut, but the poorest part of the animal, which the working classes buy. Furthermore, the quality is far inferior today to what it was formerly, and in every sense therefore meat has become extremely dear in Argentina. Indeed, one Argentine newspaper once rather caustically remarked that, taking all things into account, meat in the Smithfield Market [in London] is often cheaper than in Buenos Aires, notwithstanding the fact that Smithfield depends largely on Argentina for a great part of its supplies. Bread prices in the capital have been affected to some extent by what is to all intents and purposes a milling monopoly, though municipal ordinances (regulating the bakehouses and the sale of bread) and threats of labour

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Industrial Workers in the Giolittian Period (1898-1913): With an International Comparison for 1905', *Rivista di Storia Economics*: *International Issue*, 1, 1984.

53. Calculated from Zamagni, 'An International Comparison', p. 116, Table 5.1; and Table 5.7.
54. H.A.W., 'Capital and Labour', in R. Lloyd, ed., *Twentieth Century Impressions of Argentina*, London, p. 158-65. This guide was intended for businessmen, so its description of the cost of living was not intended to elicit sympathy for Argentina's working classes.

> trouble have likewise had a share in raising the price of this commodity. [...] Sugar is dear and not over good, while tea, coffee, and cocoa being imported are naturally high-priced by reason of the heavy Customs duties they have to bear, a remark that applies to all articles of food coming from abroad. Clothes are extremely expensive, a suit for which three and a half to four guineas [that is, around £4] would be paid in London costing $100 paper (or just on £9) in Buenos Aires. Lower prices than this can be paid, and it may be said a suit of clothes can be got from $45 paper (about £4 upwards), but of the quality of the cheaper kinds, the less said the better, and here also the worker suffers because he pays high and gets very poor value for money. And so with all articles of clothing for men and women alike. If made of imported materials the cost is exorbitant; if of stuffs manufactured in Argentina, then quality is poor, and the life is short, and the initial cost is big.[55]

Even more than the prices of consumer goods, rents were believed to be exorbitant in Buenos Aires. Indeed, there was a widespread tenant strike against the high rents in 1907.[56] A report of the National Labour Department published five years later nonetheless found that rents were far higher in Buenos Aires than in Northern Europe:

> Rent in the Federal Capital is far higher than in other parts of the world and weighs far more heavily on the tenant than in the European countries and more than in the North American cities. [...]
>
> In Buenos Aires the monthly rent of the cheapest room [...] is, as a minimum, 15.00 pesos, reaching prices of 30, 35, 45 and 50 pesos (for a room), with the monthly average being 28.00 pesos. The monthly rent of a single room in Paris costs 3.70 pesos, and rooms of this type [...] are always abundant. Two-room housing can be got for 5.50 pesos monthly, with an average of 6.50 pesos; those of three rooms, from 8 pesos per month, with an average of 10 pesos; and finally, those of four rooms cost from 11.00 pesos and above.
>
> In England, where housing of just one room has almost disappeared, [...] the monthly rent of this type of accommodation oscillates between 3 and 4 pesos per month. Two-room accommodation costs 7 to 8 pesos monthly; three room, 9 to 11.50 pesos; and four-room or more from 12 to 13.50 and above, but not going beyond 15 to 16 pesos. [...]
>
> The current prices of renting two rooms [in Buenos Aires] are 40 pesos and above; for three rooms, 60 and above; for four, 80 pesos and above; and these are not in central neighbourhoods, but in the peripheries; the houses without services of running water and drains, not having, moreover, in these neighbourhoods [...] any type of convenient travel to and from the places of work. This is why we see so many staying in the central neighbourhoods, living in the uncomfortable and insanitary conventillos [workers' boarding houses]. *It is four or five times more expensive to live in Buenos Aires than in London or Paris*. And there are almost no conveniences in the houses, whereas there are many and dangerous inconveniences, both moral and hygienic.[57]

A lack of skilled labour and high tariff barriers for many goods were cited as

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55. Ibid., p. 162.
56. See J.A. Baer, 'Tenant Mobilization and the 1907 Rent Strike in Buenos Aires', *Americas*, 49:3, 1993.
57. DNT, *Boletín*, 21, Buenos Aires, 1912, p. 427-28, author's translation, emphasis added.

the principle causes of the high cost of living. In the case of housing, Alejandro Bunge, the prominent government statistician, argued that the exorbitant cost of construction was due to the low productivity of Argentine construction workers, which resulted from their 'deficient schooling and professional education'.[58] In an account of a visit to Buenos Aires by a North American colleague, Bunge provided a useful illustration of the consequences of this lack of training:

> [S]howing Buenos Aires City to Mr William W. Davies, we stopped by a building in construction. Davies started to examine the labourers' work, asking me what was going on at the site. I responded that I could not see anything abnormal, but then I started to understand his question. It seemed to him that all the workers were ill, as if possessed by a species of flu that stopped them from walking, making use of their sight, of their own will and their hands. Apart from the useless movements, the indecision and the listlessness that he noted, for him, the overall impression was of a cinemagraphic film that the operator had slowed down to half the normal speed.[59]

On top of this low level of labour productivity, most construction materials also had to be imported, then pay considerable taxes upon their arrival in Buenos Aires, which drove up construction costs. In the terms of Juan B. Justo, the Socialist deputy for Buenos Aires, 'the enormous price increases that the Argentine tariff law imposes on imported construction materials [...] is the principal cause of the high rents in this city and all the country'.[60] As Justo and other socialists often observed,[61] high duties moreover allowed politically connected industrialists to produce basic goods for sale at high prices, thereby helping to drive up the cost of living in Buenos Aires.[62]

To quantify these contemporary impressions of Buenos Aires, it is necessary to investigate the historical price record. In doing so, care must be taken because small errors can have major effects. Williamson, for example, appears to have unwit-

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58. A. Bunge, speech given to the Instituto Popular de Conferencias on 2 July 1920, reproduced in idem, *Una nueva argentina*, p. 386, fn. 7.
59. Ibid., p. 385.
60. Justo, *Obra parliamentaria*, p. 51, author's translation.
61. For example, ibid., pp. 51-53.
62. For consumer goods industries, rates of effective protection could be very high. Beer manufacturers, for instance, were paying a tariff rate of approximately five percent on imports of hops and 12 percent on malt, then sold their produce at prices that reflected an approximately 70 percent tariff rate on bottled beer and 80 percent on beer in casks; petroleum refiners could import crude petroleum duty free, then turn it into paraffin, selling it locally at prices inflated by a 95 percent tariff rate; paper paste could be imported at five percent, then turned into wrapping paper or playing cards, both of which were protected by roughly 100 percent tariffs. These tariff rates were estimated as tariffs collected divided by the tariff value of the imports in 1913. From DGEN, *El comercio exterior argentino*, n.d., pp. 163-64, 166, 175, 182, 184-85, Lines 122, 140, 228, 229, 498, 502, 664, 711, and 739. Also see Pineda, *Industrial Development*, ch. 5.

tingly used *wholesale* prices for Argentina, but *retail* prices for everywhere else, in this way introducing a major downward bias into his estimates of the cost of living in Argentina.[63] As such, he has significantly overestimated the country's PPP wages. If, for instance, the wholesale prices used by Williamson are raised by 20 percent to better reflect retail prices, it means that his estimate of PPP wages falls from 88 percent to 75 percent of the British level in 1909-11. Care must therefore be taken when assessing price levels. For this reason, Appendix 5.1 will detail exactly where the prices used here come from and how they have been processed to make them comparable. The results can be seen in Table 5.8. They confirm that the cost of living was high in Buenos Aires compared to the other cities, with the important exception of the price of beef. Hence, beef in Buenos Aires cost perhaps just a third of the price in London, but potatoes, paraffin, and rent were all three to four times as much.[64] The question then becomes to aggregate the prices of these goods to arrive at a single price level for each place.

There are two main methodologies that have been used to assess aggregate price levels. One uses a multilateral basket to weight the various prices, which can then be used to calculate PPP wages, as in Williamson.[65] The alternative consists of calculating the cost of a basic basket that contains enough goods to secure the subsistence of a worker and his family, which can then be used to calculate welfare ratios, as in Allen.[66] Both methodologies, as was seen in Table 5.6, have been used to make wages internationally comparable. Generally, historians have elected to use either one or the other, which is problematic because, as Table 5.9 reveals, the different methodologies can produce quite different outcomes. The price levels shown in Table

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63. Williamson took his data indirectly from Bunge's cost of living estimates, as reproduced by Ernesto Tornquist, who did not mention that Bunge had used wholesale prices as proxies for retail prices. See Bunge, *Intercambio económico*, pp. 158-67; Tornquist, *Economic Development*, pp. 267-69; and Williamson, 'Evolution of Global Labor', p. 187. A similar problem afflicts Cortés Conde's widely used cost-of-living index. Cortés Conde inexplicably decided it was valid to use retail beef prices for 1880-1901, then wholesale prices for 1902-12. Cortés Conde, *Progreso argentino*, p. 286, Cuadro 10. The result is to introduce a downward bias in the trend of his cost-of-living index, which then gives an upward bias to the trend of his 'real' wage series.
64. Efforts were made to underestimate the cost of living in Buenos Aires, particularly with regard to the price of beef and rents. Most likely, both are too low for Buenos Aires in Table 5.8 because they refer to cuts of meat and types of housing that were inferior to those in the other cities. Also see Appendix 5.1, page 226.
65. Williamson, 'Evolution of Global Labor', pp. 177-94.
66. Allen, 'Great Divergence'; Allen et al, 'Wages, Prices'; and Allen, Murphy, and Schneider, 'Colonial Origins'.

Table 5.8

International Prices, c. 1905-09

	Buenos Aires (1907)	Berlin (1905)	London (1905)	Paris (1905)	Montreal (1905)	New York (1909)	Sydney (1907)
Beef (d per kg)	5	18	15	19	13	13	8
Bread (d per kg)	4.6	3.0	2.6	3.3	5.8	5.9	3.4
Milk (d per lt)	2.5	2.3	3.5	2.4	3.5	3.1	3.8
Potatoes (d per kg)	3.1	0.7	1.0	1.2	0.9	2.6	1.1
Sugar (d per kg)	7.3	5.9	4.7	6.1	5.4	6.1	5.5
Wheat flour (d per kg)	3.1	5.0	3.0	3.9	3.5	3.9	2.8
Paraffin (d per lt)	5.2	2.4	1.6	2.3	2.7	1.6	2.4
Rent (3 rooms, s per week)	25	7	7	6	7	12	9

Note: The prices are in British currency. There were 12 pennies (d) per shilling (s), and 20 shillings per pound (£). For the raw data and details of how the prices were processed, see Appendix 5.1.

Sources:

Buenos Aires: DNT, *Boletín*, 3, p. 345; and Cortés Conde, *Progreso argentino*, p. 290, Cuadro 12.

Berlin: Board of Trade, *Cost of Living in German Towns*, pp. 28, 35, 37.

London: idem, *Cost of Living of the Working Classes*, pp. 12, 16-18.

Paris: idem, *Cost of Living in French Towns*, pp. 22, 30, 33.

Montreal: Board of Inquiry, Cost of Living, I, pp. 167, 475.

New York: Board of Trade, *Cost of Living in American Towns*, pp. 39, 46-47.

Sydney: New South Wales, *Statistical Register for 1919-20: Part VIII: Social Conditions*, Sydney, 1921, pp. 411, 413.

Gold standard exchange rates from Tornquist, *Economic Development*, p. 328.

5.9 come from applying the two methodologies to the prices in Table 5.8. Both methodologies find that Buenos Aires was the second most expensive city in the sample, after New York. However, whereas the multilateral basket indicates that the price level in Buenos Aires was 16 percent higher than in London, the subsistence basket suggests that it was 71 percent higher.

The price level used will affect the assessment of income levels. In Table 5.10 this can be seen in the results of applying these different price levels to the nominal weekly wages in Table 5.7. According to the PPP wages calculated using the multilateral-basket price level, the wages of unskilled construction labourers in Buenos Aires were at around the same level as in Berlin and Paris, which was 75 to 85 percent of the level in London. The welfare ratios calculated using the subsistence

Table 5.9

International Price Levels, c. 1905-09

	London = 100	
Basket type:	Multilateral*	Subsistence**
Buenos Aires (1907)	114	171
Northern Europe		
Berlin (1905)	107	91
London (1905)	100	100
Paris (1905)	112	103
European offshoots		
Montreal (1905)	119	127
New York (1909)	135	173
Sydney (1907)	96	112

* Calculated as the geometric mean of the prices in Table 5.8, weighted according to their average share in expenditure on the goods in the seven cities.

** Calculated as the cost of a basic basket of goods including enough food to provide sufficient calories for the subsistence of a man, woman, and two children for a week, 100 millilitres of paraffin, and one third of the weekly rent of a three-room flat. The composition of the food baskets is varied according to the prices of food in each city.

Sources: See Appendix 5.1.

baskets, by contrast, indicate that workers' incomes were inferior to those in all the other cities: they were around 54 percent of the level of London, whereas in Berlin incomes were 96 percent of the London level, and in Paris, 83 percent. For the skilled workers, similarly, their PPP wages in Buenos Aires appear higher than in Berlin or Paris, but their welfare ratios are lower. The two methodologies thus lead to different conclusions: according to the PPP wages, incomes in Buenos Aires were at least equivalent to incomes in Northern Europe, but the welfare ratios show them as being considerably lower. A problem with the existing literature, then, is that it has failed to recognise how the two methodologies can produce quite different results.

To understand why these differences occur, it is necessary to consider the two methodologies further. The PPP wages, as pioneered by Williamson and followed here, are calculated on the assumption that workers would have substituted cheaper goods for more expensive goods within the multilateral basket. They assume, for instance, that a worker in Buenos Aires would have chosen to spend less on housing and more on meat because the former was relatively expensive, while the latter was relatively cheap. The price level is therefore calculated as a weighted *geometric* mean of the various individual prices in the multilateral basket, which, in mathemat-

Table 5.10

International Wage Levels in Construction, c. 1905-09

	PPP wages*	Welfare ratios**	PPP wages*	Welfare ratios**
	s per week	1 = subsistence	London = 100	
	(a) Unskilled construction workers			
Buenos Aires (1907)	23-25	1.7-1.8	78-84	52-56
Northern Europe				
Berlin (1905)	24	3.9	81	96
London (1905)	30	4.6	100	100
Paris (1905)	22	3.7	74	83
European offshoots				
Montreal (1905)	35	4.8	118	113
New York (1909)	52	5.9	172	138
Sydney (1907)	45	5.2	149	129
	(b) Skilled construction workers			
Buenos Aires (1907)	41-50	3.0-3.6	92-111	62-75
Northern Europe				
Berlin (1905)	31-37	4.9-6.0	69-83	81-98
London (1905)	45	6.9	100	100
Paris (1905)	35-39	5.7-6.4	77-87	86-97
European offshoots				
Montreal (1905)	52-86	7.1-11.6	116-91	111-82
New York (1909)	69-86	7.9-9.8	154-92	124-54
Sydney (1907)	59-70	6.9-8.1	132-55	114-34

* Nominal wages from Table 5.7 deflated by the multilateral price level in Table 5.15.

** Nominal wages from Table 5.7 divided by the cost of the baskets underlying the subsistence price level in Table 5.9.

Source: Tables 5.7 and 5.9.

ical terms, replicates the effect of such substitutions. The subsistence baskets used to calculate the welfare ratios are, on the other hand, fixed: they assume that no substitution was possible since they are intended as a measure of how far people were from the 'line between respectability and destitution'.[67] For people on low incomes, it is unrealistic to assume that they can substitute one thing for another, given that they are attempting to attain the *bare minimum of everything*, which is reflected in the composition of the subsistence baskets. Hence, whereas the PPP wages are an essentially theoretical measure of what people's incomes *could have been*, had they switched their expenditure between different types of goods and services, the welfare

67. Allen, 'Great Divergence', p. 426.

ratios give a much more concrete indication of *what they actually were*.[68]

These methodological considerations help make sense of the international comparisons made so far. In theory, the purchasing power of wages in Buenos Aires was comparable to the leading cities of Northern Europe, as shown by the high PPP wages in Table 5.10. Moreover, substitution did take place in practice. Specifically, people in Buenos Aires appear to have consumed vast quantities of meat, while living in very humble housing. Probably well over 100 kilos of meat per inhabitant were consumed annually in the city,[69] which was higher than in Australia, where around 70 kilos were consumed per person,[70] or the 60 kilos per capita consumed in Britain.[71] Such heavy meat consumption was rational because meat was very cheap: incredibly, in Buenos Aires beef was a cheaper way to obtain calories than potatoes.[72] On the other hand, surveys conducted by the National Labour Department prior to the First World War found that 80 percent of working-class families lived in just one room,[73] whereas in the cities of the more developed countries they enjoyed far more spacious accommodation: in New York flats of three to five rooms were the norm;[74] in all the Northern European cities over half of working-class families lived in at least three rooms;[75] indeed, even in Milan the majority of families had at least two

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68. Unfortunately, these issues are rarely discussed in the existing literature, with historians too often neglecting to explain why they have chosen one methodology over another, instead preferring to present their numbers as faits accomplis. Williamson, for example, simply states that he uses 'Cobb-Douglas indices throughout' ('Evolution of Global Labor', p. 188), without explaining why or even what that means. (It translates as an index calculated as the 'weighted geometric average of price relatives'. B.M. Balk, *Price and Quantity Index Numbers Models for Measuring Aggregate Change and Difference*, Cambridge, 2008, p. 228.) To understand the significance of this, it is necessary to look closely at debates in the technical literature, particularly those surrounding the use of arithmetic and geometric means to calculate contemporary price indices. See, for example, K.V. Dalton, J.S. Greenlees, and K.J. Stewart, 'Incorporating a Geometric Mean Formula into the CPI', *Monthly Labor Review*, October 1998; M. Ward, D. Blades, and C. Carson, 'How Relevant are the United Kingdom's Official Measures of Price Change?', *Statistical Journal of the IAOS*, 27:1-2, 2011; and ABS, *A Guide to the Consumer Price Index: 16th Series*, Canberra, 2012, ch. 4.
69. A contemporary estimate put the city's meat consumption at 117 kilos per person in 1906. J.B. González, *El encarecimiento de la vida en la República Argentina*, Buenos Aires, 1908, p. 89.
70. Meat consumption from BCS, *Trade Unionism, Unemployment, Wages, Prices, and Cost of Living in Australia*, 1891-1912, Melbourne, 1912, p. 47. Population from Maddison, *World Economy*, II, p. 460, Table 2a.
71. Royal Society, 'The Food Supply of the United Kingdom', *Parliamentary Papers*, Cd. 8421, 1916, pp. 3, 10, Table 1.
72. Obtaining 1,000 calories from beef cost around two pennies; from potatoes, around four. See Appendix 5.1, page 230, Table A5.6.
73. Bunge, *Nueva Argentina*, p. 266. Families also tended to be large in Argentina, as indicated by the high dependency rate. Taylor, 'External Dependence', p. 916, Figure 2.
74. Board of Trade, *Cost of Living in American Towns*, p. 38.
75. Board of Trade, *Cost of Living in German Towns*, p. 18; and idem, *Cost of Living in French*

rooms.[76] The relative prices prevalent in Buenos Aires thus meant that people ate more meat than in the cities of the world's most developed countries, while living in housing that was most likely worse than the cities of the Southern European periphery. Such possibilities for substitution led to the high PPP wages seen in Table 5.10.

Yet substitution had its limits, resulting in the far less optimistic picture painted by the welfare ratios. For an unskilled male worker in Buenos Aires, according to the welfare ratios calculated here, his wages were less than twice the cost of securing subsistence for his family, whereas in the other cities they were four to six times the subsistence level. In theory, then, workers in Buenos Aires, thanks to the possibilities for substituting different types of goods and services, could enjoy wages that were the same as those received by workers in some of the major cities of Northern Europe, but in practice they were far closer to destitution than their Northern European counterparts. Crucially, some goods and services were not substitutable because workers had to secure *at least the minimum of everything*, which, as the welfare ratios in Table 5.10 indicate, was far more difficult in Buenos Aires than in the other cities. Welfare ratios therefore give a more accurate measure of actual incomes than the Williamson-style PPP wages, assuming that these welfare ratios can be generalised from the major cities to the countries as a whole.[77] They suggest that Argentines probably did not enjoy incomes at the same level as Northern Europeans, let alone the inhabitants of the European offshoots.[78]

Paradise Lost?

This chapter has assessed the frequently repeated claim that Argentina was once 'one of the richest countries in the world'. By comparing Argentina's living standards at the beginning of the twentieth century with those of the world's most developed countries, it has found that Argentina failed to reach their heights. Building on the

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Towns, p. 16.

76. Società umanitaria, *Le condizioni generali della classe operaia in Milano: Salari, giornate di lavoro, reddito, ecc.*, Milan, 1907, p. 54.
77. In the case of Argentina, contemporary observations suggest that workers' 'real' incomes were lower outside Buenos Aires City. Most famously, this was suggested in a major qualitative report on living standards in Argentina, published as J. Bialet Massé, *Informe sobre el estado de las clases obreras argentinas*, I and II, La Plata, (1904) 2010.
78. For other measures of the price level that reinforce this more pessimistic conclusion, see Appendix 5.1, especially page 233, Table A5.7.

pessimistic revision of Argentina's long nineteenth century made in Chapter 4, the chapter has argued that the root of Argentina's failure was an oligarchic state that could not be democratised because the losers from Argentina's terms-of-trade had to be excluded from politics. The provision of public goods was limited as a result, leading to the low levels of public welfare, especially outside the capital city. A lack of education resulted in a shortage of skilled workers, which, combined with the high tariffs obtained by some politically-connected industrialists, drove up the prices of many manufactured goods due to low levels of labour productivity. Evaluating exactly how high the price level was depends upon the methodology used and, inevitably, more debates could be had about which is most appropriate. Here it has at least been demonstrated that such debates are necessary. It has also been argued that the subsistence-basket price level gives the best indication of the cost of living, suggesting that wage levels in Buenos Aires also trailed those of Northern Europe and the European offshoots.

This chapter has, then, verified the pessimistic revision of Argentina's long nineteenth century. Despite the kind of claims that are often made about its 'golden age', Argentina was not one of the world's most developed countries prior to the First World War, as its levels of human development were below those attained in Northern Europe and the European offshoots. From this perspective, there has been no 'Argentine paradox', as there was no paradise to lose. As Chapter 6 will argue, the implication of this finding is that much of the historiography of the country's twentieth century must also be revised.

Appendix 5.1: International Price Levels, c. 1905-07

This appendix details the origins and processing of the price data used to assess national incomes in this chapter. The principal purpose, as in some previous appendices of this dissertation, is to *facilitate reproducibility* through *full disclosure* of where the data have come from and what has been done to them to arrive at the results described above. All of the data have already been presented in their processed form in Table 5.8, while in Table A5.1 they are presented in an almost raw form, with the only processing done being to convert the prices for Buenos Aires and Montreal to sterling using the gold standard exchange rates,[79] and to convert the

prices for food and paraffin in all the cities to the metric system.[80] The remainder of the appendix will discuss how these prices were further processed and turned into the price levels presented in Table 5.9. The appendix begins by discussing the processing of the food prices, then it discusses the figures for rents; finally, it outlines how the multilateral-basket and subsistence-basket price levels were calculated, as well as presenting some other price levels that are based on alternative baskets.

Food Prices

The processing of food prices was relatively simple, except for the case of beef. When a range of prices was given in the source the average of the two extremes was used. In London, for instance, the price of bread was reported as ranging from 2.2 to three d per kilo, so the price was taken to be 2.6 d. This produced single prices for most goods in every city.

Calculating beef prices was more complicated because, as shown in Table A5.1, the sources gave a range of prices for different cuts. A single meat price was arrived at for each place by amalgamating the prices of the middling cuts, as follows:

1) *Buenos Aires*: the price for the generic 'carne' was deduced to represent a cut resembling silverside (carnaza), which it appears to have been equivalent to, according to later price data in which both 'carne' and various other cuts are given.[81]
2) Berlin: the geometric mean of ribs, flank, silverside, and shin without bone.
3) London: the geometric mean of ribs, thick flank, silverside, and shin without bone.
4) Montreal: medium chuck.
5) New York: the geometric mean of flank, roasts (ribs second cut), roasts (chuck or short ribs), and shin without bone.
6) Paris: the geometric mean of ribs, thick flank, silverside, and shin without

79. Gold standard exchange rates were used because these appear to have been exchange rates used to convert prices to sterling in the other cities. All these countries were on the gold standard at the time.
80. The metric system was used simply because it is less complicated than imperial weights and measures.
81. See C. Llorons do Azar, 'Precios unitarios de artículos de consumo y servicios, Capital Federal y provincias: 1901-1963: Parte Primera', mimeo, n.d., p. 6.

Table A5.1

International Prices (Raw), c. 1905-09

	Buenos Aires (1907)	Berlin (1905)	London (1905)	Montreal (1905)	New York (1909)	Paris (1905)	Sydney (1907)
Beef (d per kg)							
Generic	5						
Chops (leg)							8
Chops (loin)							9
Chops (neck)							7
Corned beef							9
Flank (generic)		14-17			11		
Flank (thick)			10-22			27	
Flank (thin)			4-14				
Gravy beef							7
Medium chuck				11-14			
Plate brisket (fresh)					11	12	
Plate brisket (preserved)					8		
Ribs		17-19	10-23			23	9
Roasts (chuck ribs)					13		
Roasts (ribs, 1st)					18		
Roasts (ribs, 2nd)					15		
Roasts (round)					18		
Shin, without bone		17	9-18		12	15	
Shin, with bone		14	8-13			12	
Silverside		19-24	10-20			17	
Sirloin							11
Steak		24-27					
Steak (beef)			11-24				
Steak (round)					20		
Steak (rump)			18-31			30	16
Steak (shoulder)							8
Steak (sirloin)				8-24	21		
Bread (d per kg)							
Generic			2.2-3.0	5.8	5.9	3.3	3.4
2nd class	4.6						
Black		2.6					
Grey		3.0					
Flour (wheat) (d per kg)	3.1	5.0	2.5-3.5	3.5	3.9	3.9	2.8
Milk (d per lt)	2.5	2.2-2.4	3.5	3.5	3.1	2.4	3.8
Potatoes (d per kg)	3.1	0.6-0.7	0.9-1.1	0.9	2.6	1.2	1.1
Sugar (d per kg)							
Generic							5.5
Demerara			4.4-5.5				
Loaf		6.1	5.0-5.5			6.1	
Tucumán 2nd	7.3						
White granulated		5.5-6.1	4.4	5.4	6.1		

Table A5.1 (cont.)

	Buenos Aires (1907)	Berlin (1905)	London (1905)	Montreal (1905)	New York (1909)	Paris (1905)	Sydney (1907)
Sugar (d per kg, cont.)							
Yellow			4.4	5.4			
Paraffin (d per lt)	5.2	2.4	1.3-1.8	2.4-2.9	1.6	2.3	2.4
Rents (s. per week)							
1 room	9-11						
2 room		2-6				3-6	
3 room		5-9	5-9		9-14	4-7	9
4 room			6-10		12-17	5-8	12
5 room			7-12		14-25		15
6 room			9-13	12-15			17
7 room							19

Note: The prices are in British currency. There were 12 pennies (d) per shilling (s), and 20 shillings per pound (£). All prices from the original sources were converted to pounds sterling and metric measures.

Sources:

Buenos Aires: Cortés Conde, *Progreso argentino*, p. 290, Cuadro 12.

Berlin: Board of Trade, *Cost of Living in German Towns*, pp. 28, 35, 37.

London: idem, *Cost of Living of the Working Classes*, pp. 12, 16-18.

Paris: idem, *Cost of Living in French Towns*, pp. 22, 30, 33.

Montreal: Board of Inquiry, *Cost of Living*, I, pp. 167, 475.

New York: Board of Trade, *Cost of Living in American Towns*, pp. 39, 46-47.

Sydney: New South Wales, *Statistical Register for 1919-20: Part VIII: Social Conditions*, Sydney, 1921, pp. 411, 413.

Gold standard exchange rates: Tornquist, *The Economic Development*, p. 328.

bone.

7) Sydney: the geometric mean of ribs, gravy beef, steak (shoulder), and three chops (loin, leg, and neck).

Given this processing, it must be remembered that the beef price presented in Table 5.8 is approximate. Other than this, the only processing used was to take the geometric mean of sugar prices for each city (when multiple sugar prices were given). Finally, grey rather than black bread was used for Berlin.

Rents

More consideration must be given to rents because they weighed heavily in the cost

Table A5.2

Cortés Conde's Rent Series, 1903-12

	m$n per month	s per week
1903	14.90-17.50	5.9-6.9
1904	15.47-17.50	6.1
1905	19.50	7.7
1906	19.50	7.7
1907	21.69-27.50	8.6-10.8
1910	29.49	11.6
1912	29.56	11.7

Note: The figures show the rent of a single room in Buenos Aires. The rents were converted into sterling at the gold standard rate of 11.45 paper pesos (m$n) per £.

of living in Buenos Aires. For that city, the figure presented in Table A5.1 comes from Roberto Cortés Conde's compilation of rents, which he used to calculate a cost of living index. His rents for a single room for the years 1903-12 are reproduced in Table A5.2. For 1907, the year in question, his low figure comes from a survey by Argentina's National Labour Department (DNT) of 23 conventillos (poor workers' boarding houses) whose tenants went on strike in that year.[82] The findings of that survey are reproduced in Table A5.3. The higher figure, meanwhile, comes from a contemporary study by Juan González in which he stated that the 'price of housing was, on average, 25 to 30 pesos [per month]' in 1907.[83] In order not to bias the figure for Buenos Aires' cost of living upward, the lower DNT figure was used. As can be seen in Table A5.3, it was for the *average* rent paid for the 3,146 rooms in the 23 conventillos, so it *was* possible to pay lower rents in Buenos Aires. However, it would not be appropriate to compare the lowest possible rent in Buenos Aires with the figures for the other cities, as those appear to be average rents. On the other hand, nor were the rents in the other cities for the cheapest form of housing, whereas conventillos *were* around the cheapest type in Buenos Aires – as a result, these figures probably *underestimate* equivalent rents in that city.

To make rents in all the cities comparable, it was necessary to arrive at an approximate figure for housing with the same number of rooms. As the sources for five out of seven cities gave rents for three-room housing, this number was used. Buenos Aires and Montreal presented problems because the sources only gave

82. Again, see Baer, 'Tenant Mobilization'; on this survey, see p. 356.
83. González, *Encarecimiento de la vida*, p. 50, author's translation.

Table A5.3

Rents in 23 Conventillos in Buenos Aires, 1907

Conventillo	Number of rooms	Number of persons	Average rooms per person	Average rent per room	
				m$n per month	s per week
1	51	300	6	27.50	10.8
2	13	48	4	33.50	13.2
3	15	35	2	22.00	8.7
4	20	90	5	25.00	9.9
5	17	35	2	26.00	10.3
6	17	60	4	28.00	11.0
7	43	350	8	21.00	8.3
8	22	65	3	21.00	8.3
9	13	43	3	19.50	7.7
10	42	150	4	20.00	7.9
11	48	160	3	18.00	7.1
12	6	11	2	16.50	6.5
13	32	125	4	20.50	8.1
14	49	220	4	21.00	8.3
15	12	20	2	20.00	7.9
16	130	700	5	22.45	8.9
17	24	102	4	19.00	7.5
18	20	60	3	24.50	9.7
19	9	41	5	20.00	7.9
20	15	58	4	18.00	7.1
21	19	80	4	14.80	5.8
22	56	250	4	17.70	7.0
23	35	143	4	23.00	9.1
Average:	*708*	*3,146*	*4*	*21.69*	*8.6*

Note: The rents were converted into sterling at the gold standard rate of 11.45 paper pesos (m$n) per £.

Source: DNT, *Boletín*, 15, Buenos Aires, 1910, p. 853.

figures for one- and six-room housing respectively. For Buenos Aires, the one-room rent was converted to a three-room rent using the ratios from another DNT survey for 1914, as reproduced by Alejandro Bunge. Shown in Table A5.4, the DNT found that the average rent of three rooms in 1914 was 2.8 times the rent of a single room, so that ratio was applied to the rent of a single room in 1907 (8.6 s per week) to estimate the rent of three rooms (24 s per week) in that year. In the case of Montreal, by contrast, the rent of six rooms was simply halved. While somewhat crude, this procedure would have, for instance, arrived at an accurate three-room rent for Sydney.

Table A5.4

Rents in Buenos Aires, 1914

Number of rooms	m$n per month	s per week
1	19.6	8
2	36	14
3	54	21
4	72	28
5	90	35

Note: The rents were converted into sterling at the gold standard rate of 11.45 paper pesos (m$n) per £.

Source: Bunge, *Renta y riqueza*, p. 267.

The Price Levels

In the chapter the procedure used to calculate the multilateral-basket and subsistence-basket price levels has already been briefly described. To elaborate further, they were calculated in this way:

1) *The multilateral-basket price level*, following Williamson's lead, was calculated using the geometric mean of the price relatives of the five items of food, as well as those of paraffin and rent. To determine the weight assigned to each food item, contemporary reports of consumption patterns in the various countries were used to roughly estimate the quantity of each item consumed in the cities. Those quantities were then multiplied by the prices of the goods in each city, which then gave the expenditure shares shown in Table A5.5. The average of the share across the seven cities was then used to weight the five items in the food element of the multilateral basket. With the overall price level, food was then assigned a weight of 0.8, paraffin 0.05, and rent 0.15 – weights that were somewhat arbitrarily assigned based on the expenditure surveys reported by Williamson.[84]

2) *The subsistence-basket price level* was calculated as the weekly cost of a basket of food sufficient to provide around 5,825 calories per day, as well as 100 ml of paraffin, and a third of the weekly rent of three rooms,[85] which would

84. Williamson assigns food 0.82 and rent 0.18. Williamson, 'Evolution of Global Labor', p. 185, Table A3.2.

85. This is an artificial measure of minimum rents, but it was necessary because of the lack of data

Table A5.5

Expenditure Shares on Five Food Items

	Buenos Aires	Berlin	London	Paris	Montreal	New York	Sydney	*Average*
Meat	0.25	0.31	0.41	0.43	0.35	0.39	0.37	*0.36*
Bread	0.43	0.34	0.24	0.36	0.24	0.14	0.20	*0.28*
Milk	0.12	0.17	0.18	0.09	0.15	0.12	0.17	*0.14*
Potatoes	0.10	0.08	0.07	0.07	0.08	0.15	0.06	*0.09*
Sugar	0.10	0.05	0.10	0.04	0.09	0.09	0.16	*0.09*
Wheat flour	0.01	0.05	0.00	0.00	0.10	0.11	0.05	*0.04*
Total	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*

Sources:

Physical consumption levels:

Buenos Aires: Tornquist, *Economic Development*, p. 273.

Berlin: Board of Trade, *Cost of Living in German Towns*, pp. xxvii.

London: Board of Trade, *Cost of Living of the Working Classes*, pp. xxviii.

Montreal: Board of Inquiry, *Cost of Living*, I, p. 137.

New York: Board of Trade, *Cost of Living in American Towns*, pp. xxxiii.

Paris: Board of Trade, *Cost of Living in French Towns*, p. xxiv.

Sydney: Bureau of Census and Statistics, *Trade Unionism*, p. 47.

To arrive at expenditure, the physical consumption levels reported in these sources were multiplied by the prices in Table 5.8.

have provided a subsistence-level standard of living for a small family. The content of the food basket was different for each city, based on the costs of attaining calories for each item.[86] The first step was to identify how much it cost to obtain 1,000 calories from each food item, as shown in Panel (a) of Table A5.6. The food baskets were then constructed for each city based on a subjective evaluation of the costs of obtaining calories. In Panel (b) it can be seen that this meant, for example, that there was only a small quantity of potatoes and sugar in the Buenos Aires basket because these were an expensive way to obtain calories, whereas there was far more in London, given that these items were a relatively cheaper way to obtain calories there.

As shown in this chapter, these two methods of calculating the price levels

on the rent of just one room in all the cities except Buenos Aires.

86. No wheat flour was included in the subsistence basket because wheat flour tended to be bought by better-paid workers who had the means to turn it into bread at home. It would, consequently, be inappropriate to include it in a subsistence (that is, a poor person's) basket.

Table A5.6

Cost of Calories and Food Baskets

	Buenos Aires	Berlin	London	Paris	Montreal	New York	Sydney
	(a) d per 1,000 calories*						
Beef (1,800 cal per kg)	2.8	9.9	8.4	10.6	6.9	7.0	4.4
Bread (2,700 cal per kg)	1.7	1.1	1.0	1.2	2.1	2.2	1.3
Milk (600 cal per lt)	4.2	3.8	5.8	4.0	5.8	5.2	6.3
Potatoes (700 cal per kg)	4.4	0.9	1.4	1.7	1.3	3.7	1.6
Sugar (3,900 cal per kg)	1.9	1.5	1.2	1.6	1.4	1.6	1.4
	(b) Weekly subsistence baskets**						
Beef (kg)	4.6	1.4	2.4	2.2	3.6	5.3	4.6
Bread (kg)	9.5	9.3	8.0	10.5	5.5	3.9	5.6
Milk (lt)	4.2	6.0	4.5	3.6	5.4	6.4	4.5
Potatoes (kg)	2.8	9.7	6.2	5.7	10.9	10.1	5.4
Sugar (kg)	0.6	0.7	2.0	0.6	2.2	2.5	2.8
Total calories:	5,821	5,821	5,823	5,829	5,826	5,819	5,829

* Calculated by the dividing the price of the goods in Table 5.8 by the calorific content of each good, then multiplying by 1,000.

** Quantity of the good in each city's basket.

Sources:

Calorific content: based on US Department of Agriculture (USDA), 'National Nutrient Database', available online at http://ndb.nal.usda.gov (accessed 3 May 2012).

Prices: Table 5.8.

produce quite different results, with the subsistence basket indicating a considerably higher cost of living for Buenos Aires. To check the results, therefore, the price levels were also calculated using four other types of basket, as follows:

3) *The arithmetic multilateral-basket price level* uses the arithmetic mean rather than the geometric mean to weight the items in the multilateral basket. This assumes, then, that consumers do not or cannot substitute cheaper goods for more expensive goods.[87]

4) *The mixed multilateral-basket price level* assumes that substitution can only take place within elements of the multilateral basket, but not between them.

87. This is, for instance, the methodology used in the construction of the United States' consumer price index (CPI) today, as the Bureau of Labor Statistics only uses the geometric mean at the most basic level – a methodology replicated here when calculating beef and sugar prices. See Dalton, Greenlees, and Stewart, 'Incorporating a Geometric Mean'.

Hence, the geometric mean is used to calculate the food price level, while the arithmetic mean is applied to the food, rent, and paraffin elements to calculate the overall price level.

5) *The poverty basket price level* is the cost of 15.1 kg of bread or 58.3 kg of potatoes (depending upon which is the cheaper way to access calories in each city), plus a third of the three-room rent. The poverty basket thus leads to a price level that indicates how expensive it was to fulfil the most basic needs of food and shelter for a small family, as the quantity of bread or potatoes included would have been sufficient to provide around 5,825 calories per day for a week.

6) *The destitution basket price level* is the cost of 15.1 kg of bread or 58.3 kg of potatoes, without any rent. It accordingly replicates the cost of living for a homeless family.

Panel (a) in Table A5.7 shows the price levels that result from these different methodologies, while in Panel (b) they are applied to the wages of an unskilled construction labourer in each city to arrive at 'real' wages. As was already seen in this chapter, the Williamson-style (geometric) multilateral basket leads to price levels that minimise the differences between the cities, whereas the subsistence basket suggests they were far greater. When both are compared to the price levels calculated using the other four types of basket, it can be seen that the Williamson-style price level is the outlier – an impression that Table A5.8 confirms using correlation coefficients. Notably for the analysis presented in this chapter, none of the other price levels, with the possible exception of the mixed multilateral basket, give the impression that labourers in Buenos Aires enjoyed living standards comparable to the biggest cities of the world's most developed countries.

Table A5.7

Alternative Estimates of the Price Levels

	(1) Multilateral (geometric)	(2) Subsistence	(3) Multilateral (arithmetic)	(4) Multilateral (mixed)	(5) Poverty	(6) Destitution
			(a) Price level, London = 100			
Buenos Aires (1907)	113	160	161	137	246	177
Northern Europe						
Berlin (1905)	106	90	109	106	98	97
London (1905)	100	100	100	100	100	100
Paris (1905)	110	101	113	112	107	127
European offshoots						
Montreal (1905)	116	124	126	117	118	134
New York (1909)	133	169	146	134	201	227
Sydney (1907)	96	111	103	97	130	131
			(b) 'Real' wages of an unskilled labourer, London = 100			
Buenos Aires (1907)	79-85	56-60	56-60	66-71	37-39	51-55
Northern Europe						
Berlin (1905)	82	96	79	81	88	90
London (1905)	100	100	100	100	100	100
Paris (1905)	76	83	74	75	78	66
European offshoots						
Montreal (1905)	120	113	111	120	118	105
New York (1909)	175	138	160	174	116	103
Sydney (1907)	150	129	140	147	110	110

Source:

Nominal wages: see Table 5.7.

Price levels: see the text.

Table A5.8

Correlation Coefficients of Price-Level Estimates

		Multilateral (geometric)	Subsistence
(1)	Multilateral (geometric)		0.76
(2)	Subsistence	0.76	
(3)	Multilateral (arithmetic)	0.74	0.91
(4)	Multilateral (mixed)	0.84	0.89
(5)	Poverty	0.55	0.92
(6)	Destitution	0.83	0.95
	Average:	*0.74*	*0.89*

Note: In the correlation coefficients, 1 equals perfect positive correlation, -1 perfect negative correlation.

Source: Calculated from Table A5.7

Chapter 6

Conclusion

> Nothing is built upon rock: for all is built upon sand:
> but let each man build as if sand were rock.
>
> Jorge Luis Borges, 'From an Apocryphal Gospel'[1]

This dissertation has provided a pessimistic revision of Argentina's long nineteenth century by interpreting it within the context of a new metanarrative of global divergence. To recap, Chapter 1 introduced the dissertation by placing it within its historiographical context; Chapter 2 demonstrated that during the long nineteenth century the periphery experienced a terms-of-trade boom that was longer, greater, and more widespread than has previously been supposed; Chapter 3 discussed how this long boom drove global divergence by allowing land-abundant regions to prosper, while making land-scarce regions stagnate; Chapter 4 described how Argentina's own terms-of-trade boom had the same effects within the country, as the Littoral progressed at the same time as the interior declined, giving Argentina's development an unevenness that prevented it from fulfilling its potential as a land-abundant country; Chapter 5 then verified this pessimistic revision by showing that living standards in Argentina at the beginning of the twentieth century were below those of the world's most developed countries, despite frequent claims that it was 'one of the richest countries in the world'.

The more optimistic vision, this dissertation has maintained, tends to overlook the losers from Argentina's long terms-of-trade boom. The relatively land-scarce regions of the interior are largely absent from the optimistic historiography, with the focus instead on the land-abundant Pampean zone.[2] This leads to the false

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1. In J.L. Borge, *In Praise of Darkness*, New York, 1974, p. 111.
2. For example, Cortés Conde, *Progreso argentino*; idem, 'Export Economy'; idem, 'Growth of the Argentine Economy'; idem, *Economía argentina*; and idem, 'Vicissitudes of an Exporting

impression that Argentina was a new 'settler society', whereas in reality it was not. While the Pampas had been neglected under the Spanish empire, parts of the interior were relatively densely populated, and they tended to lose out from the long boom after independence. These regions saw their cottage industries undermined by cheaper imports, as well as the rising cost of raw materials, but they lacked the land resources that would have allowed them to take advantage of improved terms of trade. Furthermore, the new industries that did emerge – sugar in the North and wine in the West – created little permanent employment, and ethnic discrimination in the Pampean zone restricted possibilities for internal migration. The interior therefore declined, even as the Littoral progressed.

This dissertation has insisted on the importance of the losers to Argentina's development during the long nineteenth century. Crucially, it has argued, the interior's stagnation would have a profound impact on the country's institutions, as the state was substantially built by politicians from the interior. Whereas the optimistic interpretation of the National Autonomist Party (PAN) is that it used the federal government to promote the interior's development, particularly through the extension of the railway network,[3] this dissertation has contended that the PAN represented those elements of the interior's ruling classes that had been unable to obtain significant popular support within their provinces, so they required a strong federal government to buttress their position against the discontent of their rural poor. This support came when the railways augmented the national army's capacity to operate across Argentina, thereby allowing the federal government to intervene in favour of its supporters. Moreover, the railways also provided the provincial ruling classes the opportunity to profit from the long boom due to the falling costs of internal transportation, which led to a convergence of interests between the ruling classes of the interior and the Littoral.

For Argentina's development, the interior's decline mattered principally because it meant that the state formed by excluding much of the country's population – the interior's peasantries – from politics. The resulting lack of accountability ensured that public land was privatised in a manner that suited the great landowners,

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Economy'.

3. Llach, 'Wealth of the Provinces'; and Gerchunoff, Rocchi, and Rossi, *Desorden y progreso*; cf. Duncan, 'Política fiscal'.

while laws intended to encourage land redistribution were instead used by public officials to appropriate land for themselves. The native born, moreover, had difficulties accessing the land even as tenants due to the racism of Argentina's ruling class, which was reinforced by the positivist belief that progress would come by improving the country's racial stock. In this way, Argentina's oligarchic state, combined with its ruling ideology, restricted access to the land, thereby muting the safety-valve effect of the expanding frontier. The floating population of landless labourers grew as a result, which put downward pressure on wages, so there were fewer incentives for capitalists to invest in the technologies that would have raised labour productivity. For this reason, Argentina's intensive growth was limited compared to the European offshoots.

Argentina's good fortune during the long nineteenth century was thus to possess vast quantities of land, but its misfortune was to simultaneously have land-scarce regions that lost out from improved terms of trade. Argentina differed from the prosperous land-abundant European offshoots because it was already populated when the long boom began. It was not, in other words, a 'region of recent settlement', as it had inheritted a large peasant population from the Spanish empire. In Australasia and North America, by contrast, the losers from the long boom – the indigenous peoples – were few, so they could be more easily excluded (or exterminated) by settlers. White egalitarianism, which became the ruling ideology of these new societies, then led to public policies that facilitated access to the land, with the US Homestead Acts the archetypal case. Consequently, the safety-valve effect of the frontier was able to function, so wages were kept high, which encouraged capitalists to invest in labour-saving technologies. This path was not taken in Argentina because the interior's peasantries resisted the new society that was forming in the Littoral, so Argentina lacked the kind of collective project that facilitated democratisation in the European offshoots. For this reason, the political institutions that would have allowed the frontier's safety-valve effect to function did not evolve. Rather than white egalitarianism, Argentina emerged with positivism as its ruling ideology.

This dissertation has thus advocated a return to the more pessimistic conclusions that previously reigned in the historiography of Argentina's long nineteenth century.[4] It has reinforced that pessimism by placing the country's uneven develop-

ment within the context of a new metanarrative of global divergence. It has, moreover, identified some of the problems with the data that optimistic historians have used to make their case. It has shown, for example, that Argentina's historical GDP statistics are unreliable;[5] the evidence on the concentration of landownership has been misinterpreted;[6] and the purchasing power of wages has been overestimated.[7] Finding these errors is one of this dissertation's major empirical contributions to Argentina's historiography. Another has been to demonstrate the sheer magnitude and length of the country's nineteenth-century terms-of-trade boom, as the terms of trade probably improved by over 2,000 percent from the 1780s to the 1900s.[8] It was this long boom, the dissertation has contended, that drove Argentina's uneven development, generating the oligarchic state that prevented it from realising its potential by restricting access to the land. For this reason, Argentina's integration into global capitalism should not be seen as having led to a 'golden age' in which it became one of the 'richest countries in the world'. The implication of this dissertation is, therefore, that much of the historiography of Argentina's twentieth century must also be revised. In short, there has been no 'Argentine paradox' because the country's early twentieth-century 'golden age' is a myth.

The Bigger Picture

Looking beyond Argentina, this dissertation's main contribution has been its new framework for understanding global divergence in the long nineteenth century. To recap, the new metanarrative begins with Jeffrey Williamson's account of how the periphery experienced a terms-of-trade boom due to falling trade costs and the

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4. Most notably, in Ferrer, *Argentine Economy*, chs. 9-12.
5. This was discussed at length in Appendix 1.1. For the official estimates, the argument draws in part on Guissarri, *Argentina informal*, ch. 4. Among the unofficial estimates, Cortés Conde's ('Estimaciones del producto') stand out because they apparently confuse an increasing range of government taxation with output growth. See Appendix 1.1, pages 48-53.
6. Chapter 4, pages 162-63, showed how a subdivision of holdings has been confused with deconcentration. See Cortés Conde, *Progreso argentino*, pp. 107-17; especially as interpreted by Taylor, 'Latifundia as Malefactor', pp. 274-78. Chapter 4's demonstration that this was not the case is drawn from Sabato, *Agrarian Capitalism*, ch. 2. Why Taylor ignored this work is unclear.
7. As was shown in Chapter 5, pages 216-22, Williamson's estimates of Argentina's PPP wages ('Evolution of Global Labor') depend upon a highly questionable assumption about consumers being able to substitute between different types of goods, while Williamson also accidentally used wholesale prices for food in Argentina and retail prices for the other countries in his sample.
8. Appendix 4.1 demonstrated this by compiling the available export price data, then dividing them by a crude proxy import price index.

cheaper manufactured goods being produced by the industrial revolution, which in turn led to the land-scarce periphery's own deindustrialisation[9] – an account that this dissertation has reinforced by underlining the methodological errors that made Williamson underestimate the length, magnitude, and universality of the terms-of-trade boom;[10] in the land-scarce periphery deindustrialisation then led to the situation described by Arthur Lewis,[11] as increasing quantities of labour were applied to a more or less fixed supply of land, bringing diminishing returns, which tended to depress productivity levels (and per capita incomes); in the European offshoots, by contrast, the safety-valve effect of the expanding frontier inspired capitalists to invest heavily in labour-saving technologies, raising productivity levels (and per capita incomes), as John Habakkuk argued.[12] In this way, the world was divided into the industrialised North Atlantic core, the prosperous European offshoots, and the 'over-populated' poor periphery.

This focus on endowments of natural and human resources contrasts, in particular, with the neo-institutionalist literature that has become prominent in the debates about the origins of global inequality.[13] Most famously, Daron Acemoglu, Simon Johnson, and James Robinson showed a negative correlation between the population density of Europe's future colonies in 1500 and their GDPs per capita 500 years later.[14] This, they have claimed, was because Europeans established 'extractive' institutions to exploit the natives in densely-populated colonies, whereas in the poorer, more-sparsely populated colonies they established 'inclusive' institutions because there were fewer natives to exploit, so they instead had to encourage settlers to move there. The legacies of these colonial institutions, they conclude, continue to explain why the former colonies that were densely populated in 1500 are poor today, while those that were sparsely populated are rich.[15] This dissertation, on the other hand, offers a rather simpler explanation: during the long nineteenth-century terms-

9. Williamson, 'Globalization and the Great Divergence'; and idem, *Trade and Poverty*, esp. ch. 3.
10. The error, as discussed in Chapter 2, pages 64-80, was to use prices from the core countries as proxies for prices in the peripheral countries.
11. Lewis, 'Economic Development'.
12. Habakkuk, *American and British Technology*, esp. ch. 3.
13. For useful discussions, see Bértola, 'Institutions and the Historical Roots'; and Chang, 'Understanding the Relationship'.
14. Acemoglu, Johnson, and Robinson, 'Reversal of Fortune'.
15. This is the slightly modified version of their argument that is made in Acemoglu and Robinson, *Why Nations Fail*, esp. Ch. 1. It appears to draw on Engerman and Sokoloff, *Economic Development*.

of-trade boom it was advantageous to have an abundance of land relative to labour, so the sparsely-populated (that is, land-abundant) countries prospered, at the same time as the densely-populated (that is, land-scarce) countries stagnated. It simply became, in other words, highly beneficial to have an abundance of land.

That does not mean, however, that institutions were unimportant. Even though endowments of land and labour set the limits to the possible, how well a particular country did within those limits was greatly influenced by institutions. Argentina and the United States, for example, both had high ratios of land to labour, yet only the United States experienced rapid intensive growth. This was because resource abundance was, in part, 'socially constructed', as the right institutions were required for 'natural' resources to be most effectively exploited.[16] Crucially, institutions that gave (or restricted) access to land largely determined whether (or not) the safety-valve effect of the expanding frontier could function. Indeed, among land-abundant countries institutions were the principal determinant of whether they fully exploited the opportunity presented by the long boom, as the contrasting cases of Argentina and the United States demonstrate. This suggests, then, that a focus on institutions helps explain divergence *among similar types of countries* during the long nineteenth century, but is less appropriate for comparisons between countries with radically different endowments of natural and human resources.

This dissertation has also shown that institutions *evolve over time*, especially in response to changes in the global political economy. Here the emphasis has been on how global capitalism reordered societies through the terms of trade. Where land was abundant, the dissertation has contended, the long boom allowed white-egalitarian democracies to emerge; where it was scarce, by contrast, it was typically conducive to far less inclusive institutions, as popular unrest had to be put down. In much of the land-scarce periphery, this meant that the 'imperialism of free trade' became the 'new imperialism', as a series of crises led to direct European colonisation during the second half of the nineteenth century.[17] For the same reason, in Argentina the peasantries of the relatively land-scarce parts of the interior had to be excluded from politics by the oligarchic state due to the impact of the country's own terms-of-trade boom. The case of Argentina in this way demonstrates how the neo-

16. David and Wright, 'Increasing Returns'; also Wright and Czelusta, 'Why Economies Slow'.
17. Cf. Cain and Hopkins, *British Imperialism*, p. 28.

institutionalist's focus on colonial legacies is insufficient because the country's institutional backwardness was not a remnant of the colonial era. Rather, as this dissertation has shown, Argentina's oligarchic state formed as part of its reordering by global capitalism.

Looking at the bigger picture, then, this dissertation has provided a new metanarrative of global divergence, which has then been applied to the case of Argentina. The periphery's long terms-of-trade boom, it has argued, generated a new global order by allowing land-abundant regions to prosper, while making land-scarce regions stagnate. Argentina was lucky, in that it had abundant land resources, but also unlucky because the stagnant interior strongly influenced its political institutions. The Argentine case illustrates, therefore, how a country's limits to the possible within the new global order were largely set by its endowments of human and natural resources, while institutions played a major role in determining how successful a country was within those limits. Similarly, when the terms of trade deteriorated after the First World War it would also create opportunities for some, but misfortune for others, with some countries' institutions better able to adapt than others. Saying whether Argentina was a winner or a loser from this next global reordering would, however, require another dissertation.

Data Appendix

This data appendix provides much of the quantitative evidence used in this dissertation, in order to facilitate the reproduction of its results. Some researchers may also find the data useful for other purposes. It includes the following tables:

DA.1 Argentina's GDP Estimates, 1875-2012
DA.2 Williamson's Terms-of-Trade Series, 1750-1913
DA.3 Terms-of-Trade Series for Six Countries, 1861-1913
DA.4 Indonesia's Terms of Trade, 1820-1913
DA.5 India's Terms of Trade, 1861-1913
DA.6 International Exchange Rates, 1791-1938
DA.7 International Commodity Prices, 1813-1913
DA.8 International Freight Rates, 1757-1913
DA.9 Arable Potential, Cropland, and Population, 1780-1910
DA.10 Potential Arable Land and World Population, 1500-1900
DA.11 Estimated Exchange Rates for Argentina, 1780-1938
DA.12 Argentine Hide Prices in the Core (£ Per Ton), 1790-1938
DA.13 Hide Prices in Buenos Aires, 1780-1851
DA.14 Hide Prices in Buenos Aires, 1863-1938
DA.15 Argentina's Export Prices, 1780-1938
DA.16 Argentina's Export Prices, 1910-1938
DA.17 Argentina's Proxy Import Price Index, 1780-1938
DA.18 The 100 Largest Corporations Registered in Argentina, 1914
DA.19 Land Ownership in Buenos Aires Province, 1836-90

Table DA.1

Argentina's GDP Estimates, 1875-2012

	CC	CC(rev.)	E-P	G.1			G.2			O.1	O.2	O.3	O.4	O.5
				Formal	Informal	Total	Formal	Informal	Total					
	1900=100		1950 $	1970 $			1970 $			1950=100	1960=100	1970=100	1986=100	1993=100
1875	26.2	17.5												
1876	26.8	17.5												
1877	29.5	19.7												
1878	28.1	18.9												
1879	29.3	20.3												
1880	28.7	21.8												
1881	29.2	21.9												
1882	36.7	29.6												
1883	41.1	33.8												
1884	44.1	37.2	5,019.0											
1885	51.7	44.7	5,322.0											
1886	51.9	43.0	5,320.0											
1887	55.4	46.3	5,958.0											
1888	64.3	55.1	6,548.0											
1889	70.5	64.4	7,675.0											
1890	64.7	58.6	7,345.0											
1891	61.2	51.0	6,535.0											
1892	73.1	63.7	7,113.0											
1893	77.5	68.1	7,466.0											
1894	89.3	80.0	8,040.0											
1895	99.0	82.7	8,093.0											
1896	109.5	86.6	8,768.0											
1897	86.9	79.1	8,198.0											
1898	96.4	85.0	8,888.0											
1899	113.3	109.8	9,666.0											
1900	100.0	100.0	9,425.0											
1901	108.8	115.4	10,222.0											

Table DA.1 (cont.)

	CC	CC(rev.)	E-P	G.1			G.2			O.1	O.2	O.3	O.4	O.5
				Formal	Informal	Total	Formal	Informal	Total					
	1900=100		1950 $		1970 $			1970 $		1950=100	1960=100	1970=100	1986=100	1993=100
1902	112.2	112.9	10,016.0											
1903	133.9	134.1	11,449.0											
1904	156.3	150.4	12,670.0											
1905	182.9	164.3	14,352.0											
1906	181.0	166.4	15,074.0											
1907	176.9	163.5	15,392.0											
1908	208.0	185.0	16,900.0											
1909	223.9	192.5	17,734.0											
1910	232.9	197.4	19,024.0											
1911	240.6	193.5	19,366.0											
1912	278.8	230.1	20,948.0											
1913	281.6	231.0	21,166.0											
1914	227.2	201.0	18,974.0											
1915	240.3	216.3	19,074.0											
1916	230.8	204.5	18,525.0											
1917	203.6	176.6	17,024.0											
1918	267.2	223.5	20,145.0											
1919	251.0	226.6	20,886.0											
1920	255.4	231.7	22,406.0											
1921	262.0	239.8	22,979.0											
1922	293.3	265.7	24,817.0											
1923	334.9	292.5	27,551.0											
1924	376.5	318.3	29,700.0											
1925	354.7	304.9	29,576.0											
1926	364.2	324.7	31,002.0											
1927	398.4	350.4	33,201.0											
1928	397.8	352.4	35,257.0											
1929	405.3	355.8	36,882.0											
1930	370.7	326.9	35,356.0	2,576.0	10.0	2,586.0	2,576.0	4.1	2,580.0					

Table DA.1 (cont.)

	CC	CC(rev.)	E-P	G.1			G.2			O.1	O.2	O.3	O.4	O.5
				Formal	Informal	Total	Formal	Informal	Total					
	1900=100		1950 $	1970 $			1970 $			1950=100	1960=100	1970=100	1986=100	1993=100
1931	363.9	335.4	32,902.0	2,397.2	267.7	2,664.9	2,397.2	117.2	2,514.3					
1932	346.4	323.6	31,812.0	2,317.8	584.9	2,902.7	2,317.8	282.2	2,600.0					
1933	352.7	331.2	33,307.0	2,426.7	470.3	2,897.0	2,426.7	214.4	2,641.1					
1934	388.0	358.8	35,936.0	2,618.2	793.6	3,411.8	2,618.2	314.3	2,932.5					
1935	428.4	403.5	37,499.0	2,732.1	618.5	3,350.6	2,732.1	281.4	3,013.5	24.7				
1936				2,766.9	509.9	3,276.8	2,766.9	256.4	3,023.3	26.0				
1937				2,987.3	523.5	3,510.8	2,987.3	275.2	3,262.6	27.9				
1938				3,027.9	703.0	3,730.9	3,027.9	322.2	3,350.2	27.1				
1939				3,138.2	1,235.6	4,373.8	3,138.2	533.5	3,671.7	27.5				
1940				3,074.4	789.3	3,863.7	3,074.4	397.5	3,471.9	27.9				
1941				3,225.2	744.8	3,970.0	3,225.2	377.4	3,602.6	28.5				
1942				3,376.0	741.2	4,117.2	3,376.0	415.3	3,791.3	31.9				
1943				3,399.2	1,004.0	4,403.2	3,399.2	674.4	4,073.5	33.8				
1944				3,729.8	700.4	4,430.2	3,729.8	526.0	4,255.9	34.7				
1945				3,550.0	919.6	4,469.6	3,550.0	702.2	4,252.3	39.6				
1946				3,845.8	756.0	4,601.8	3,845.8	621.6	4,467.5	49.2				
1947				4,373.7	1,487.9	5,861.6	4,373.7	1,133.6	5,507.3	60.8				
1948				4,425.9	3,022.7	7,448.6	4,425.9	2,057.6	6,483.5	70.2				
1949				4,222.9	2,703.0	6,925.9	4,222.9	2,152.4	6,375.3	85.4				
1950				4,286.7	2,266.5	6,553.2	4,286.7	2,131.5	6,418.2	100.0	74.6			
1951				4,453.3	2,677.8	7,131.1	4,453.3	2,047.8	6,501.1	136.7	77.5			
1952				4,229.2	2,778.5	7,007.7	4,229.2	1,924.5	6,153.8	167.1	73.6			
1953				4,453.3	2,865.6	7,318.9	4,453.3	1,962.0	6,415.4	177.1	77.5			
1954				4,637.2	3,257.6	7,894.8	4,637.2	2,442.3	7,079.6	191.5	80.7			
1955				4,964.7	3,029.6	7,994.3	4,964.7	2,146.1	7,110.9	213.0	86.4			
1956				5,102.7	1,801.7	6,904.3	5,102.7	1,638.7	6,741.3	262.7	88.8			
1957				5,367.0	1,845.3	7,212.3	5,367.0	1,337.1	6,704.1	322.3	93.4			
1958				5,694.5	2,900.7	8,595.2	5,694.5	1,690.8	7,385.3	434.3	99.1			
1959				5,326.8	1,465.0	6,791.8	5,326.8	1,068.3	6,395.0	870.6	92.7			

Table DA.1 (cont.)

	CC	CC(rev.)	E-P	G.1 Formal	G.1 Informal	G.1 Total	G.2 Formal	G.2 Informal	G.2 Total	O.1	O.2	O.3	O.4	O.5
	1900=100		1950 $		1970 $			1970 $		1950=100	1960=100	1970=100	1986=100	1993=100
1960				5,746.2	2,422.8	8,169.1	5,746.2	1,304.9	7,051.1	1,082.2	100.0			
1961				6,154.2	2,988.4	9,142.6	6,154.2	1,704.3	7,858.5	1,207.6	107.1			
1962				6,056.5	3,002.8	9,059.3	6,056.5	1,741.6	7,798.1	1,517.2	105.4			
1963				5,912.9	3,045.7	8,958.5	5,912.9	1,927.6	7,840.5		102.9			
1964				6,522.0	3,053.3	9,575.3	6,522.0	2,049.0	8,571.0		113.5			
1965				7,119.6	3,289.6	10,409.2	7,119.6	2,235.8	9,355.4		123.9			
1966				7,165.6	3,477.4	10,642.9	7,165.6	2,490.3	9,655.8		124.7			
1967				7,355.2	3,631.4	10,986.5	7,355.2	2,827.6	10,182.8		128.0			
1968				7,671.2	3,585.2	11,256.5	7,671.2	2,845.1	10,516.3		133.5			
1969				8,326.3	3,556.6	11,882.8	8,326.3	3,165.7	11,491.9		144.9			
1970				8,774.5	3,546.5	12,321.0	8,774.5	3,467.9	12,242.4		152.7	100.0		
1971				9,104.6	4,125.2	13,229.8	9,104.6	3,670.5	12,775.1		160.0	103.8		
1972				9,293.7	4,316.4	13,610.1	9,293.7	3,609.8	12,903.5		165.0	105.9		
1973				9,641.8	5,640.4	15,282.2	9,641.8	3,797.4	13,439.2		175.1	109.9		
1974				10,163.0	7,814.3	17,977.3	10,163.0	5,166.0	15,329.0			115.8		
1975				10,102.7	9,434.6	19,537.3	10,102.7	5,716.8	15,819.5			115.1		
1976				10,101.5	7,349.3	17,450.8	10,101.5	4,585.3	14,686.8			115.1		
1977				10,746.6	6,303.4	17,050.0	10,746.6	4,592.8	15,339.4			122.5		
1978				10,400.3	5,900.9	16,301.2	10,400.3	5,016.3	15,416.6			118.5		
1979				11,121.7	5,390.7	16,512.4	11,121.7	5,419.5	16,541.2			126.8		
1980				11,299.5	6,299.3	17,598.8	11,299.5	6,474.1	17,773.6			128.7	103.1	85.0
1981				10,534.3	7,032.7	17,567.0	10,534.3	6,672.6	17,206.9			120.2	97.5	80.5
1982				10,054.9	5,763.9	15,818.8	10,054.9	5,357.5	15,412.4			114.3	94.5	80.0
1983				10,333.1	6,520.1	16,853.2	10,333.1	6,436.3	16,769.4			117.7	98.3	83.4
1984				10,605.6	6,206.7	16,812.3	10,605.6	6,712.0	17,317.6			120.8	100.3	84.7
1985				10,120.5	5,324.8	15,445.3	10,120.5	6,701.4	16,821.9			115.6	93.3	80.3
1986												122.2	100.0	85.3
1987												124.8	102.5	87.6
1988												121.6	100.5	86.6

Table DA.1 (cont.)

	CC	CC(rev.)	E-P	G.1			G.2			O.1	O.2	O.3	O.4	O.5
	1900=100		1950 $	Formal	Informal	Total	Formal	Informal	Total	1950=100	1960=100	1970=100	1986=100	1993=100
				1970 $			1970 $							
1989												116.1	93.5	80.4
1990												116.6	92.2	78.5
1991													101.9	85.6
1992													112.4	92.4
1993													119.4	100.0
1994													129.6	105.8
1995													123.7	102.8
1996													129.0	108.5
1997													139.8	117.3
1998														121.8
1999														117.7
2000														116.8
2001														111.6
2002														99.5
2003														108.3
2004														118.0
2005														128.9
2006														139.8
2007														151.9
2008														162.1
2009														163.5
2010														178.5
2011														194.3
2012														198.0

Sources:

CC: Cortés Conde, 'Estimaciones del producto bruto'.

CC(rev.): Cortés Conde, *Economía argentina*, pp. 230-31, Cuadro A1.

Table DA.1 (cont.)

E-P: ECLA, *Desarrollo económico*, p. 3, Cuadro 1; and della Paolera, 'How the Argentine Economy', p. 187, Table 37

G.1 (with informal sector estimated using the supply and demand of money) and G.2 (with informal sector estimated using electricity consumption): Guissarri, *Argentina informal*, ch. 4, Cuadros 13 and 17.

O.1-O.4 (official estimates): Martínez, 'Recopilación de series', pp. 19, 21, 24, 27, Cuadros 3, 5, 8, and 11.

O.5 (official estimate): INDEC, available online at http://www.indec.gov.ar (accessed 15 October 2013).

Table DA.2

Williamson's Terms-of-Trade Series, 1750-1913

	Latin America						Europe				Middle East			South Asia		Southeast Asia				East Asia			
	Argentina	Brazil	Chile	Cuba	Mexico	Venezuela	Italy	Portugal	Russia	Spain	Egypt	Levant	Ottoman	Ceylon	India	Indonesia	Malaya	Philippines	Siam	China	Japan	Poor periphery excl. East Asia	Britain
1750										32.9													
1751					70.9					38.1													
1752					66.0					34.9													
1753					61.4					30.6													
1754					57.8					31.7													
1755					59.1					35.2													
1756					61.3					34.0													
1757					57.4					29.7													
1758					57.3					27.4													
1759					59.3					27.9													
1760					61.1					28.4													
1761					63.5					26.6													
1762					68.4					22.7													
1763					64.2					29.0													
1764					60.8					34.9													
1765					60.5					36.4													
1766					61.3					35.7													
1767					63.8					33.5													
1768					61.3					30.4													
1769					60.4					33.0													
1770					59.3					29.1													
1771					59.1					32.0													
1772					61.2					31.1													
1773					60.6					29.4													
1774					63.2					31.8													

Table DA.2 (cont.)

	Latin America						Europe				Middle East			South Asia		Southeast Asia				East Asia			
	Argentina	Brazil	Chile	Cuba	Mexico	Venezuela	Italy	Portugal	Russia	Spain	Egypt	Levant	Ottoman	Ceylon	India	Indonesia	Malaya	Philippines	Siam	China	Japan	Poor periphery excl. East Asia	Britain
1775					63.8					29.4													
1776					62.2					29.4													
1777					60.9					36.5													
1778					59.1					35.8													
1779					58.5					34.9													
1780					60.8					36.4													
1781					58.8					33.0													
1782					60.1				30.4	33.7				101.1				80.5		340.8			
1783					57.1				29.7	19.1				95.3				58.4		324.5			
1784					55.2				27.8	48.4				93.9				51.8		346.0			
1785					53.3				26.5	47.2				99.7				49.6		283.0			
1786					51.9				27.1	46.4				112.7				55.6		333.6			
1787					53.9				29.9	46.2				131.5				56.2		284.6			
1788					55.1				30.7	42.7				132.9				57.5		313.5			
1789					53.5				29.5	40.5				137.2				60.1		259.9			
1790					58.7				29.5	37.8				112.7				59.7		248.9			
1791					58.0				27.6	41.8				112.7				79.2		265.9			
1792					53.0				27.0	47.6				130.0				83.5		277.8			
1793					52.9				28.0	39.5				119.9				80.4		258.4			
1794					50.5				29.0	42.7				115.6				72.1		230.3			
1795					48.1				35.7	40.7				137.2				86.4		258.4			
1796					44.9				41.2	39.6	33.5			158.9				100.5		254.7		58.1	149.0
1797					40.2				33.0	36.2	26.4			170.5				88.7		221.6		54.7	161.6
1798					43.9				29.2	40.0	30.7			200.8				95.8		220.6		60.0	167.7
1799					46.0				34.1	42.3	35.6			203.7				84.6		207.3		62.4	158.7
1800					48.4				40.4	38.1	28.9		32.2	169.0	88.3			74.1	88.3	214.9		56.8	142.8

Table DA.2 (cont.)

	Latin America						Europe				Middle East			South Asia		Southeast Asia				East Asia			
	Argentina	Brazil	Chile	Cuba	Mexico	Venezuela	Italy	Portugal	Russia	Spain	Egypt	Levant	Ottoman	Ceylon	India	Indonesia	Malaya	Philippines	Siam	China	Japan	Poor periphery excl. East Asia	Britain
1801					47.9				42.7	41.5	32.3		31.3	125.7	90.6			70.7	82.8	176.5		58.0	136.7
1802					42.8				29.8	57.6	20.6		27.0	105.5	101.1			48.3	60.1	151.9		55.3	184.7
1803					44.7				34.3	54.4	18.1		28.3	151.7	105.1			60.8	57.8	144.3		58.6	169.8
1804					45.9				35.6	57.1	21.0		34.2	186.4	113.6			73.5	71.0	131.7		63.7	162.6
1805					46.5				38.6	58.4	23.3		33.9	202.2	104.8			72.1	69.3	157.2		62.2	154.6
1806					47.6				38.1	56.8	25.2		35.5	161.8	96.1			65.4	61.8	167.2		58.8	160.8
1807					46.7				38.9	55.1	22.3		33.2	140.1	104.7			53.3	50.7	157.5		60.3	166.7
1808					46.1				49.4	87.1	23.8		30.7	95.3	99.0			67.9	61.6	172.2		64.8	153.2
1809					49.1				53.3	115.3	26.1		38.3	122.8	95.5			71.8	59.9	163.3		68.3	120.9
1810			70.3		49.2				43.3	87.2	24.8		40.6	117.0	105.0			66.2	62.9	111.9		66.0	128.2
1811	33.4		73.4		48.1				42.5	70.4	25.3		39.8	60.7	106.1			55.3	49.2	151.7		63.7	162.2
1812	42.2		64.2		49.1				49.7	72.4	32.1		44.0	52.0	94.8			59.9	53.9	137.3		63.8	135.3
1813	43.8		61.7		50.9				43.2	62.2	40.7		56.8	80.9	107.0			82.2	73.3	103.6		67.9	120.1
1814	55.1		67.0		52.7				38.1	66.2	43.4		57.2	101.1	114.3			118.5	97.1	102.9		70.9	104.8
1815	53.7		78.6		57.9				39.5	86.3	44.4		50.3	93.9	102.1			106.4	94.0	111.7		67.8	111.8
1816	44.8		85.8		61.2				40.8	75.1	42.8		52.7	89.6	107.7			99.9	89.8	126.7		69.2	124.0
1817	48.9		77.2		67.0		96.1		47.9	85.5	39.4		51.1	106.9	118.1			102.8	104.1	136.7		76.2	112.6
1818	57.0		73.2		63.9		105.4		46.9	87.1	33.0		49.7	161.8	103.9			99.1	98.1	135.8		71.9	114.8
1819	64.3		79.4		67.1		94.3		45.6	85.1	26.0		50.3	157.5	130.4			88.1	85.7	108.8		78.2	132.1
1820	74.4		88.3		74.0		83.5		48.5	83.0	19.1		49.6	157.5	151.0			87.3	81.7	83.6		84.2	126.6
1821	82.0		115.9		77.6		86.4		47.7	86.3	22.4		59.8	147.4	183.6			85.0	76.2	53.9		95.8	132.5
1822	86.5		147.9		84.4		104.5		49.8	95.9	25.6		60.9	135.8	158.1			94.0	81.5	87.1		91.0	125.7
1823	83.2		122.5		87.3		111.8		53.1	102.7	26.6		55.3	115.6	124.3			96.4	85.9	122.0		81.5	120.7
1824	86.8		107.7		89.6		100.3		58.2	85.6	21.8		49.6	92.5	118.8			99.8	86.4	153.2		78.6	125.3
1825	87.6		88.2		82.6		114.4		58.9	99.0	19.2		52.9	91.0	138.8	12.8		98.9	97.4	158.5		87.2	118.9
1826	89.4	75.0	89.5	100.0	93.8		115.0		60.0	103.2	25.4		54.5	75.1	110.5	15.0		115.2	96.2	146.4		80.0	127.3

Table DA.2 (cont.)

	Latin America						Europe				Middle East			South Asia		Southeast Asia				East Asia			
	Argentina	Brazil	Chile	Cuba	Mexico	Venezuela	Italy	Portugal	Russia	Spain	Egypt	Levant	Ottoman	Ceylon	India	Indonesia	Malaya	Philippines	Siam	China	Japan	Poor periphery excl. East Asia	Britain
1827	95.0	77.0	84.9	102.0	99.4		110.3		62.6	101.4	30.9		55.6	66.5	127.5	18.6		119.9	95.3	101.9		86.3	118.7
1828	98.2	79.1	84.6	97.0	101.9		126.3		62.1	102.9	32.2		61.0	59.2	106.0	15.2		118.5	99.0	139.2		81.1	121.0
1829	90.6	81.1	81.3	92.0	96.3		133.6		70.8	112.8	30.0		70.6	50.6	104.3	15.5		112.6	94.3	135.4		84.6	114.1
1830	96.3	83.3	84.0	80.0	92.1	97.0	122.5		68.9	110.9	25.6		68.6	49.1	107.6	14.1		98.8	82.1	109.1		83.0	121.2
1831	92.4	85.2	80.8	86.0	92.9	91.2	123.3		73.1	128.3	32.6		68.6	80.9	84.9	14.3		96.8	87.2	166.5		78.2	111.7
1832	105.6	87.3	79.9	87.0	99.1	99.4	135.1		76.9	126.9	48.7		75.9	109.8	86.6	18.2		108.6	102.3	177.0		83.2	103.5
1833	101.4	89.4	89.6	85.0	107.1	111.9	165.4		72.1	121.6	55.7		71.0	112.7	92.6	25.1		111.8	109.4	186.7		86.8	99.8
1834	92.5	88.2	88.7	86.0	108.3	134.1	162.9		71.5	116.9	47.1		64.3	98.2	94.3	25.4		120.2	115.2	195.9		86.1	100.9
1835	75.9	87.1	90.6	93.0	104.9	139.6	181.8		65.0	98.5	31.5		76.8	108.3	98.7	24.5		119.7	119.3	174.5		87.7	99.0
1836	65.9	86.0	84.6	86.0	87.0	105.0	205.0		74.0	114.8	26.7		75.2	117.0	96.0	31.5		137.7	131.9	159.7		92.7	100.7
1837	68.6	84.9	87.2	84.0	84.8	95.4	188.5		84.2	102.9	32.8		57.7	117.0	87.5	27.3		131.9	123.3	149.6		87.7	104.9
1838	72.6	83.8	83.6	87.0	93.9	110.7	230.3		101.5	115.1	43.1		70.4	112.7	93.7	23.8		147.4	128.8	184.8		99.5	96.8
1839	75.3	83.3	78.5	91.0	98.3	106.3	213.5		117.9	111.7	33.9	65.9	57.9	130.0	95.7	25.9		162.6	134.6	174.0		100.2	90.5
1840	91.7	82.9	68.2	89.0	102.0	116.3	251.7		127.7	113.7	37.5	60.0	51.4	124.2	92.2	31.9		189.3	162.7	301.1		106.1	85.0
1841	85.4	82.4	70.4	90.0	101.9	108.8	237.1		133.4	146.0	31.9	54.6	60.2	143.0	88.3	30.0		176.1	158.8	270.7		106.6	88.8
1842	75.4	81.9	73.1	105.0	103.0	116.1	248.3	160.5	136.1	136.1	29.8	49.7	64.3	134.4	82.7	23.0		164.8	149.6	276.8		104.6	85.3
1843	72.2	75.0	80.0	83.0	111.7	116.0	238.3	106.4	124.4	146.2	54.4	51.2	76.6	119.9	88.0	22.5		140.8	139.3	212.4		102.9	91.4
1844	83.1	77.0	80.6	84.0	112.9	109.7	258.9	108.0	121.8	140.3	25.5	52.7	82.2	117.0	94.6	22.8		145.1	137.2	204.6		105.9	93.9
1845	82.6	79.1	77.8	82.0	108.2	110.1	221.6	109.6	119.3	134.0	35.6	54.3	83.5	104.0	81.3	22.9		143.4	133.8	158.3		98.2	96.8
1846	80.6	81.1	81.9	77.0	106.0	108.9	215.4	111.2	127.9	128.5	36.0	43.4	82.8	101.1	88.8	21.0		150.6	141.8	136.2		101.7	93.1
1847	74.3	83.3	82.3	74.0	101.0	92.6	257.9	112.9	152.8	127.7	29.6	34.7	70.7	101.1	85.9	22.9		128.7	124.5	180.0		107.8	91.0
1848	69.8	85.2	83.9	70.0	115.3	118.6	256.0	114.6	131.3	140.3	39.4	27.7	77.3	106.9	80.8	23.0		124.1	112.8	140.6		101.9	98.5
1849	81.0	87.3	85.0	78.0	124.5	128.3	278.5	115.1	121.5	136.9	46.1	45.1	100.5	86.7	84.1	26.4		138.4	128.3	159.2		105.6	93.2
1850	79.9	89.4	82.5	78.0	110.4	98.9	260.4	115.5	114.6	133.5	38.3	56.6	127.2	93.9	99.2	36.5		157.0	142.4	141.4		111.4	89.9
1851	88.6	88.2	84.8	69.0	120.3	92.3	320.7	116.0	113.4	118.8	40.5	68.2	126.3	98.2	122.5	32.1		175.8	143.2	132.0		122.4	89.0
1852	86.7	87.1	87.2	67.0	121.3	86.3	284.3	125.0	121.0	126.4	43.2	105.2	124.0	83.8	129.0	30.9		147.3	131.3	119.7		123.4	84.9

Table DA.2 (cont.)

	Latin America						Europe				Middle East			South Asia		Southeast Asia				East Asia			
	Argentina	Brazil	Chile	Cuba	Mexico	Venezuela	Italy	Portugal	Russia	Spain	Egypt	Levant	Ottoman	Ceylon	India	Indonesia	Malaya	Philippines	Siam	China	Japan	Poor periphery excl. East Asia	Britain
1853	117.6	86.0	79.6	53.0	110.3	79.4	307.1	134.8	134.2	124.9	37.7	92.9	113.5	98.2	124.9	31.7		144.1	131.5	138.1		125.8	81.6
1854	82.7	84.9	78.1	59.0	101.1	70.3	337.5	145.3	178.5	122.1	39.0	82.1	112.9	92.5	98.4	33.6		143.8	136.0	134.4		130.2	76.5
1855	82.2	83.8	87.5	53.0	104.0	73.0	349.0	156.6	186.3	141.5	45.2	78.6	120.2	93.9	95.6	36.7		161.1	165.6	146.1		135.2	72.3
1856	104.3	83.3	89.8	58.0	109.2	76.6	348.7	147.4	167.4	149.2	62.2	146.8	129.7	93.9	108.7	46.8		176.8	170.2	152.1		139.4	74.1
1857	128.9	82.9	86.7	54.0	98.3	78.8	331.9	146.6	136.9	156.4	77.9	180.3	131.7	99.7	117.6	52.5		204.4	185.8	156.9	16.5	136.8	70.5
1858	129.4	82.4	83.8	54.0	109.2	92.0	296.2	145.7	117.6	133.0	98.9	95.9	112.7	86.7	150.7	40.9		170.8	152.7	114.4	21.6	132.7	79.3
1859	129.1	81.9	81.1	55.0	104.0	92.9	198.5	144.9	116.4	130.4	93.2	141.0	116.1	104.1	168.9	43.7		151.2	157.3	113.6	28.2	132.1	79.5
1860	122.3	98.1	81.2	51.0	111.3	87.0	311.3	144.1	135.0	138.3	90.0	119.8	115.2	120.1	190.5	45.0		156.9	171.0	108.0	37.0	152.3	76.8
1861	117.4	98.8	83.2	48.0	119.1	84.6	204.8	143.3	138.1	128.8	88.5	101.7	115.4	114.3	206.3	49.2		175.5	169.5	91.9	38.6	150.2	79.4
1862	104.8	99.6	84.6	47.0	107.4	78.0	253.4	136.2	135.0	123.5	90.1	116.7	108.3	136.1	161.0	44.6		167.8	163.4	115.0	40.3	137.4	85.6
1863	97.5	100.4	69.4	51.0	96.7	71.6	203.0	129.5	105.8	125.0	140.4	83.2	93.2	141.8	135.4	37.2		144.6	154.7	98.7	42.1	115.7	87.2
1864	81.1	95.2	78.8	45.0	85.9	90.0	211.8	123.1	89.7	118.2	200.7	111.1	89.2	134.6	106.0	31.3		140.7	122.0	104.2	43.9	102.1	84.7
1865	75.3	90.0	79.5	40.0	100.5	78.7	197.6	117.0	93.6	110.1	260.9	139.4	83.5	130.6	86.4	34.5		129.4	131.6	132.1	45.8	96.8	87.2
1866	82.0	84.8	76.1	44.0	97.6	67.6	151.4	124.1	104.0	105.6	122.8	126.7	89.4	114.9	90.7	28.1		113.6	134.8	123.6	48.5	94.3	89.0
1867	72.1	79.6	85.1	47.0	123.9	70.2	173.7	118.2	134.2	118.3	212.1	141.1	105.2	144.9	103.4	42.0		108.8	143.0	103.6	51.3	112.4	87.3
1868	77.6	74.3	80.3	54.0	132.7	73.1	182.1	119.4	141.9	126.2	146.4	152.1	108.1	129.3	125.7	48.5		121.1	146.7	100.5	54.4	123.0	81.2
1869	81.6	80.4	65.6	49.0	142.5	75.2	181.4	116.8	116.0	121.7	125.8	139.4	95.7	129.2	123.1	52.9		121.2	142.2	104.6	57.6	114.8	83.4
1870	80.7	86.5	81.2	52.0	146.4	91.9	150.5	121.2	115.7	112.2	150.6	137.1	98.1	126.2	102.4	47.7		121.0	139.7	108.3	61.0	105.5	82.8
1871	96.6	100.0	85.9		147.9	108.1	159.6	132.5	130.9	137.7	133.4	134.4	109.3	129.0	98.5	56.5		122.2	140.7	99.6	64.5	111.9	86.4
1872	110.6	116.9	86.8		138.4	119.3	147.2	128.5	120.5	118.7	99.7	112.0	97.1	144.7	101.1	60.3		115.8	126.2	98.2	68.3	106.8	90.8
1873	112.4	132.9	87.6		136.1	103.6	129.2	133.8	118.9	110.4	127.2	104.5	91.8	180.5	96.0	65.8		107.7	114.3	94.5	72.4	103.4	94.0
1874	116.3	139.2	74.1		143.5	116.7	137.7	122.8	123.2	125.6	122.0	79.7	92.2	206.2	101.4	72.7		109.3	113.6	91.6	76.6	108.0	89.9
1875	120.5	146.3	84.2		137.9	128.7	148.3	135.9	108.8	139.6	130.0	86.6	89.4	193.3	104.0	73.9		111.2	96.4	90.0	81.1	106.7	87.3
1876	108.3	140.2	93.8		150.3	101.9	154.6	126.4	120.8	143.0	113.9	80.8	86.7	191.9	101.4	85.3		120.2	108.6	98.3	96.2	110.5	82.0
1877	112.8	148.8	86.0		157.7	149.4	155.1	142.9	145.9	161.6	101.9	101.6	88.0	197.5	108.5	113.4		154.3	121.2	101.9	69.9	125.0	78.6
1878	118.3	133.3	87.5		162.5	134.8	159.6	148.9	127.4	157.1	104.4	108.9	90.1	190.3	115.4	106.3		126.4	121.8	95.3	69.5	121.7	80.2

Table DA.2 (cont.)

	Latin America						Europe				Middle East			South Asia		Southeast Asia				East Asia			
	Argentina	Brazil	Chile	Cuba	Mexico	Venezuela	Italy	Portugal	Russia	Spain	Egypt	Levant	Ottoman	Ceylon	India	Indonesia	Malaya	Philippines	Siam	China	Japan	Poor periphery excl. East Asia	Britain
1879	114.9	130.0	85.8		160.3	118.1	157.3	140.8	128.0	167.1	138.7	117.2	91.7	180.2	117.8	104.9		125.3	123.2	95.3	78.8	123.3	79.6
1880	118.2	122.7	77.9		147.0	95.2	151.3	138.8	125.9	157.9	119.6	100.8	96.0	181.5	107.5	95.3		126.6	112.3	92.9	74.4	116.8	78.5
1881	111.7	108.7	75.7		147.1	100.3	157.6	141.9	131.8	161.5	122.1	96.7	93.8	158.6	103.7	95.0		132.9	106.7	96.1	76.8	117.2	76.6
1882	110.0	92.1	84.7		143.1	104.4	156.6	136.3	126.6	161.1	123.3	97.3	90.4	155.7	98.3	81.9	96.8	131.2	93.6	93.0	82.7	111.4	77.3
1883	112.3	101.1	85.3		147.5	113.7	155.4	151.3	123.5	160.4	131.8	97.9	94.5	142.9	88.1	88.3	87.1	133.0	105.2	94.9	80.8	109.2	77.9
1884	117.2	106.0	77.6		161.2	116.0	148.0	149.1	114.9	156.2	125.8	108.9	97.9	134.2	95.1	76.9	90.5	121.6	102.9	88.9	84.8	107.3	78.9
1885	112.0	98.2	76.4		161.5	118.2	164.1	153.8	113.0	143.2	119.7	103.7	97.1	130.5	96.5	81.6	87.7	117.8	97.7	86.4	87.8	108.0	79.9
1886	100.0	111.2	70.5		157.2	146.6	175.0	142.1	111.4	162.0	118.5	123.9	99.4	130.5	101.3	94.2	96.5	118.9	97.2	86.5	82.9	112.9	82.2
1887	119.0	164.2	67.6		156.4	149.2	170.0	148.9	111.8	142.1	125.5	107.7	84.5	167.7	100.2	110.4	111.9	125.2	101.2	83.2	87.3	113.2	81.1
1888	127.0	140.2	83.0		149.0	143.9	148.4	137.9	118.2	151.4	125.5	106.9	82.7	136.0	100.9	100.6	118.9	123.4	106.1	78.1	85.8	111.9	81.4
1889	143.1	164.4	78.1		150.1	166.8	142.1	144.0	113.8	134.6	132.7	104.0	82.0	145.7	105.5	111.4	91.5	139.3	102.9	79.7	93.7	113.0	83.7
1890	105.0	167.3	75.4		159.9	172.3	116.6	150.3	107.2	128.8	128.4	109.8	90.2	155.5	100.9	116.7	89.9	116.8	98.7	82.2	93.8	108.8	89.0
1891	115.5	158.2	72.8		156.5	170.3	186.7	149.8	116.6	131.5	111.4	109.8	91.7	144.5	102.1	123.3	90.8	111.6	108.6	82.4	98.1	117.4	88.0
1892	126.1	147.6	74.0		141.2	176.1	162.2	150.6	104.9	130.3	91.7	105.8	92.6	123.8	102.5	127.3	92.6	115.1	111.7	79.0	109.9	113.0	86.6
1893	94.1	171.0	76.2		130.8	158.7	129.7	149.5	94.7	132.7	94.3	109.7	86.9	127.8	98.2	138.6	85.7	120.0	91.3	77.5	99.7	107.9	86.5
1894	88.0	176.6	78.5		122.5	179.6	166.6	158.1	87.4	131.2	90.7	109.5	87.2	106.1	100.4	133.6	71.6	104.1	89.5	69.0	106.7	108.4	90.6
1895	66.1	176.0	72.6		126.0	187.0	132.7	157.9	98.0	139.3	93.9	115.9	88.5	97.3	96.4	134.4	67.5	97.8	88.5	70.0	115.2	107.8	91.7
1896	93.0	151.1	64.9		128.3	160.2	134.8	142.8	104.6	135.8	110.3	105.8	88.7	94.7	103.2	150.8	52.3	95.9	98.2	76.4	101.8	113.2	90.5
1897	109.0	117.4	74.7		115.3	138.3	146.3	127.9	117.2	134.1	96.6	107.5	97.3	92.0	102.7	133.2	58.3	90.0	107.9	76.7	119.6	114.6	89.3
1898	106.1	98.1	88.1		106.6	138.8	134.5	107.0	123.9	124.1	79.7	124.2	101.6	93.7	100.7	122.7	59.8	101.5	116.6	80.3	111.1	113.3	89.3
1899	110.1	92.2	91.1		102.9	89.9	126.8	112.9	108.4	119.4	83.7	119.0	101.2	101.6	96.9	103.2	90.6	113.0	113.1	96.3	125.1	105.3	93.1
1900	100.0	100.0	100.0		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1901	114.1	91.9	127.2		99.0	102.5	117.1	98.4	102.0	112.3	105.3	106.7	99.2	81.7	92.0	101.5	92.4	97.7	95.0	88.9	104.1	99.7	99.0
1902	124.0	77.6	124.6		84.0	86.8	135.1	103.7	106.7	110.3	99.6	116.5	106.7	77.5	87.7	103.6	95.0	105.7	93.5	97.3	114.8	101.6	94.3
1903	110.1	79.4	126.6		83.4	81.5	145.8	104.0	107.7	109.8	138.8	121.0	102.1	83.5	94.5	112.6	93.1	100.6	108.7	119.5	116.9	106.4	93.2
1904	117.0	98.3	132.0		91.5	87.1	144.6	102.6	112.1	110.0	144.8	110.0	97.7	87.8	100.0	113.0	91.9	106.6	98.5	113.8	110.7	108.8	93.3

Table DA.2 (cont.)

	Latin America						Europe				Middle East			South Asia		Southeast Asia				East Asia			
	Argentina	Brazil	Chile	Cuba	Mexico	Venezuela	Italy	Portugal	Russia	Spain	Egypt	Levant	Ottoman	Ceylon	India	Indonesia	Malaya	Philippines	Siam	China	Japan	Poor periphery excl. East Asia	Britain
1905	129.0	104.3	158.1		96.2	89.8	155.4	109.4	112.8	110.3	122.7	114.9	92.0	81.9	98.0	122.0	103.3	111.9	100.2	112.2	115.3	110.1	93.3
1906	126.1	96.8	190.6		102.2	107.1	146.7	109.0	105.5	125.1	143.6	119.4	97.3	83.2	103.7	103.3	127.4	104.8	103.6	118.9	124.6	108.4	94.4
1907	125.0	76.5	182.7		93.0	95.2	135.6	106.1	107.6	120.6	152.8	126.0	98.6	96.5	102.6	98.6	121.3	95.3	110.7	127.1	116.3	107.0	95.5
1908	130.1	77.4	167.3		82.3	89.0	137.8	97.5	111.3	109.8	135.8	118.7	97.3	93.2	98.7	105.4	101.7	87.3	106.0	104.4	111.5	106.3	96.6
1909	155.1	95.1	142.3		80.1	83.7	143.7	99.2	124.0	118.4	131.4	124.4	98.2	101.3	95.7	118.6	103.6	94.4	103.5	104.3	103.9	111.3	91.4
1910	146.1	112.5	132.8		81.3	98.0	143.3	96.5	111.8	117.4	201.5	121.2	99.3	107.0	102.8	134.0	116.7	95.8	102.0	109.0	93.8	113.6	88.8
1911	137.0	128.7	144.2		84.4	122.1	147.4	92.4	105.4	110.4	162.2	157.4	104.9	104.2	110.1	148.4	151.0	94.7	114.4	107.8	101.2	117.5	96.5
1912	127.0	135.5	163.1		102.7	120.4	139.9	97.8	114.6	100.2	156.2	154.8	97.6	103.5	108.4	145.4	148.2	101.5	137.2	108.3	111.5	118.1	96.5
1913	129.0	107.7	159.3		98.6	105.6	138.1	99.4	108.6	96.6	159.6	161.4	102.8	102.7	109.1	138.6	142.6	94.4	109.7	110.4	107.0	115.0	95.5

Note: The 21 series are reproduced here as in Professor Williamson's database. As in the original, all are referenced so that 1900 equals 100, except Cuba, which is referenced so that 1826 equals 100. In the case of Argentina there is a data entry error for 1895, which should read 86, according to what is most likely to be Williamson's root source (di Tella and Zymelman, *Etapas del desarrollo*, p. 56, Cuadro 10). The other series have not been checked for accuracy against the original sources.

Source: Data underlying Williamson, 'Globalization and the Great Divergence', p. 362, Figure 2; also idem, *Trade and Poverty*, p. 32, Figure 3.2; kindly provided by Professor Williamson.

Table DA.3

Own-Price and Proxy Terms-of-Trade Series for Six Countries, 1861-1913

	Canada		China		Indonesia		India		Italy		Japan	
	TM	BHW	HH	W	KA	BHW	New	W	FV	GBB	YY	BHW
1861							63.9	189.0				
1862							65.7	147.5	87.2	183.6		
1863							57.1	124.1	84.5	147.1		
1864							48.7	97.1	84.4	153.5		
1865					24.9	94.2	47.3	79.1	83.8	143.3		
1866					20.3	85.2	60.5	83.1	85.5	109.8		
1867			79.0	93.9	30.3	92.9	58.6	94.8	92.7	125.8		
1868			69.2	91.0	35.0	99.0	61.3	115.2	92.0	131.9		
1869	60.3	90.8	76.1	94.8	38.2	100.3	69.1	112.8	92.0	131.4		
1870	67.5	85.7	76.5	98.1	34.4	97.6	71.6	93.8	92.5	109.2		
1871	61.1	88.4	75.9	90.3	40.8	109.3	72.6	90.3	97.1	115.7		
1872	58.9	87.5	71.1	89.0	43.5	111.2	75.8	92.7	107.8	106.6		
1873	64.4	99.2	70.8	85.6	47.5	117.7	70.4	88.0	103.0	93.6		
1874	68.3	105.9	62.8	83.0	52.4	133.4	73.9	93.0	100.3	99.7		
1875	70.2	102.4	65.3	81.5	53.3	134.9	78.6	95.4	99.7	107.5	75.8	107.4
1876	73.7	104.0	54.4	89.0	61.6	133.2	76.7	92.9	112.2	112.1	89.9	145.5
1877	73.9	113.7	65.2	92.3	81.9	146.4	91.6	99.4	109.5	112.4	65.3	142.9
1878	79.8	104.7	66.3	86.4	76.7	129.1	92.8	105.8	111.4	115.7	65.0	124.4
1879	78.8	97.5	69.7	86.4	75.7	122.6	92.8	107.9	113.9	114.2	73.6	118.6
1880	76.9	96.5	69.3	84.2	68.8	117.1	93.1	98.5	105.4	109.6	69.6	99.5
1881	77.3	103.7	72.8	87.1	68.5	118.8	85.9	95.0	104.3	114.2	71.8	110.5
1882	82.0	101.0	76.7	84.3	59.1	105.1	82.4	90.1	106.0	113.5	77.3	110.2
1883	83.6	98.4	75.1	86.0	63.7	110.7	82.1	80.8	107.4	112.5	75.5	114.0
1884	82.3	91.7	83.6	80.5	55.5	104.5	92.8	87.2	107.6	107.3	79.3	113.1
1885	83.0	92.1	83.3	78.2	58.9	99.8	82.8	88.5	109.7	119.0	82.0	104.4
1886	85.0	90.8	91.4	78.4	68.0	99.4	82.8	92.8	111.6	126.9	77.5	116.6
1887	88.5	86.9	62.4	75.4	79.7	134.7	77.0	91.9	107.9	123.1	81.6	121.8
1888	95.2	97.5	62.7	70.8	72.6	119.4	81.9	92.5	98.1	107.6	80.2	111.3
1889	90.8	94.8	63.0	72.3	80.4	131.2	93.5	96.7	102.4	102.9	87.6	114.4
1890	89.6	89.9	59.8	74.4	84.2	125.0	85.3	92.5	103.2	84.6	87.7	114.7
1891	94.5	95.8	56.1	74.6	89.0	124.8	81.0	93.5	101.1	135.3	91.7	114.1
1892	93.9	87.7	58.8	71.6	91.9	121.5	90.4	93.9	103.0	117.6	102.7	110.5
1893	96.8	81.8	67.0	70.2	100.0	131.4	93.5	90.0	102.5	94.0	93.2	114.6
1894	101.5	84.2	91.1	62.5	96.4	122.9	94.4	92.0	102.1	120.7	99.7	106.9
1895	95.1	88.9	96.4	63.4	97.0	116.0	92.8	88.4	107.2	96.2	107.7	107.7
1896	97.4	98.3	91.0	69.2	108.8	105.9	87.7	94.6	101.5	97.7	95.1	111.4
1897	98.0	107.7	85.7	69.5	96.2	97.6	92.3	94.1	98.5	106.0	111.7	110.5
1898	89.0	107.0	91.2	72.8	88.6	88.4	89.6	92.3	94.3	97.4	103.8	109.0
1899	95.6	98.5	68.5	87.3	74.5	89.5	76.4	88.8	99.4	91.8	116.9	113.0
1900	89.8	95.3	82.3	90.6	72.2	89.6	79.1	91.7	87.8	72.5	93.5	110.5
1901	91.1	95.9	85.4	80.6	73.3	86.2	76.7	84.3	92.1	84.9	97.3	100.5
1902	95.5	90.1	82.6	88.1	74.7	76.0	85.4	80.4	96.4	97.9	107.3	103.4
1903	95.9	90.7	85.5	108.2	81.3	77.1	85.0	86.6	98.4	105.8	109.2	115.5
1904	94.5	92.9	94.1	103.1	81.6	90.0	89.3	91.7	92.0	104.9	103.5	112.4
1905	92.0	95.4	89.8	101.6	88.1	94.9	90.2	89.9	97.0	112.6	107.8	111.2
1906	94.5	95.2	83.2	107.8	74.5	87.2	98.3	95.0	94.9	106.3	116.4	112.2
1907	93.4	92.7	84.3	115.2	71.2	81.1	95.3	94.0	96.8	98.2	108.7	114.6
1908	95.3	94.9	101.4	94.6	76.1	89.9	92.6	90.4	92.6	99.9	104.2	99.9
1909	102.1	97.5	105.1	94.5	85.6	93.4	91.9	87.7	92.8	104.2	97.1	96.6
1910	102.5	92.4	111.7	98.8	96.7	97.8	86.4	94.3	97.6	103.8	87.6	99.2

Table DA.3 (cont.)

	Canada		China		Indonesia		India		Italy		Japan	
	TM	BHW	HH	W	KA	BHW	New	W	FV	GBB	YY	BHW
1911	100.4	96.3	111.7	97.7	107.1	106.5	94.6	100.9	100.2	106.8	94.5	101.8
1912	101.1	105.5	112.9	98.1	105.0	110.8	90.1	99.4	98.6	101.5	104.2	99.0
1913	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: For each country, the lefthand column contain the own-price series, the righthand column the proxy series.

Sources:

BHW: Data underlying Blattman, Hwang, and Williamson 'Winners and Losers'; and Williamson, 'Globalization and the Great Divergence'.

FV: Federico and Vasta, 'Was Industrialization', pp. 22-23, Table 2

GBB: Glazier, Bandera, and Berner, 'Terms of Trade', pp. 30-33, Table 5.

HH: Ho, *Index Numbers*; as corrected by Hou, *Foreign Investment*, pp. 194-98.

KA: Korthals Altes, *Changing Economy in Indonesia*, XV, pp. 158-60.

New: See Appendix 2.2 and Table DA.5 below.

TM: Taylor and Michel, *Statistical Contributions*, pp. 18-19

YY: Yamazawa and Yamamoto, *Estimates of Long-Term Economic Statistics*, XIV, pp. 169-70, 193, 197.

Table DA.4

Indonesia's Terms of Trade, 1820-1913

	Px	Pi	NBTT		Px	Pi	NBTT
1820	152			1871	111	272	40.8
1821	192			1872	117	269	43.5
1822	175			1873	123	259	47.5
1823	155			1874	129	246	52.4
1824	112			1875	129	242	53.3
1825	103	1,112	9.3	1876	133	216	61.6
1826	92	851	10.8	1877	158	193	81.9
1827	68	507	13.4	1878	135	176	76.7
1828	72	656	11.0	1879	131	173	75.7
1829	66	591	11.2	1880	128	186	68.8
1830	59	579	10.2	1881	122	178	68.5
1831	59	572	10.3	1882	104	176	59.1
1832	76	577	13.2	1883	109	171	63.7
1833	79	436	18.1	1884	91	164	55.5
1834	80	436	18.3	1885	86	146	58.9
1835	77	435	17.7	1886	85	125	68.0
1836	99	435	22.8	1887	102	128	79.7
1837	86	437	19.7	1888	98	135	72.6
1838	76	443	17.2	1889	111	138	80.4
1839	81	434	18.7	1890	112	133	84.2
1840	92	400	23.0	1891	113	127	89.0
1841	83	383	21.7	1892	113	123	91.9
1842	69	416	16.6	1893	121	121	100.0
1843	66	406	16.3	1894	108	112	96.4
1844	74	450	16.4	1895	98	101	97.0
1845	77	466	16.5	1896	111	102	108.8
1846	67	443	15.1	1897	100	104	96.2
1847	66	400	16.5	1898	93	105	88.6
1848	59	355	16.6	1899	76	102	74.5
1849	64	336	19.0	1900	83	115	72.2
1850	80	304	26.3	1901	85	116	73.3
1851	80	345	23.2	1902	74	99	74.7
1852	77	345	22.3	1903	78	96	81.3
1853	78	341	22.9	1904	84	103	81.6
1854	78	322	24.2	1905	96	109	88.1
1855	79	298	26.5	1906	82	110	74.5
1856	97	287	33.8	1907	84	118	71.2
1857	113	298	37.9	1908	86	113	76.1
1858	90	305	29.5	1909	89	104	85.6
1859	99	314	31.5	1910	89	92	96.7
1860	100	308	32.5	1911	106	99	107.1
1861	99	279	35.5	1912	106	101	105.0
1862	102	317	32.2	1913	100	100	100.0
1863	105	391	26.9	1914	109	103	105.8
1864	109	483	22.6	1915	141	115	122.6
1865	108	434	24.9	1916	152	154	98.7
1866	107	527	20.3	1917	139	203	68.5
1867	97	320	30.3	1918	110	256	43.0
1868	92	263	35.0	1919	300	275	109.1
1869	100	262	38.2	1920	503	303	166.0
1870	93	270	34.4	1921	201	181	111.0

Table DA.4

	Px	Pi	NBTT		Px	Pi	NBTT
1922	176	182	96.7	1932	40	90	44.4
1923	237	181	130.9	1933	37	78	47.4
1924	222	179	124.0	1934	45	74	60.8
1925	282	173	163.0	1935	45	72	62.5
1926	233	163	142.9	1936	59	74	79.7
1927	202	157	128.7	1937	82	98	83.7
1928	149	152	98.0	1938	58	94	61.7
1929	136	151	90.1	1939	75	95	78.9
1930	91	142	64.1	1940	76	113	67.3
1931	57	112	50.9				

Note: The indices represent prices in East Indies guilders.

Source: Korthals Altes, *Changing Economy in Indonesia*, XV, pp. 158-60.

Table DA.5

India's Terms of Trade, 1861-1913

	Official			New		
	Px	Pi	NBTT	Px	Pi	NBTT
1861	57.1	81.2	70.4	55.9	87.5	63.9
1862	57.1	81.2	70.4	61.9	94.1	65.7
1863	60.4	96.6	62.5	71.5	125.3	57.1
1864	66.9	112.8	59.3	78.3	160.7	48.7
1865	64.9	106.8	60.8	71.0	150.2	47.3
1866	71.4	107.7	66.3	81.6	134.8	60.5
1867	66.2	106.0	62.5	69.7	119.0	58.6
1868	61.0	91.5	66.7	61.2	99.8	61.3
1869	70.1	82.9	84.6	66.5	96.2	69.1
1870	68.2	81.2	84.0	70.2	98.2	71.6
1871	61.7	75.2	82.0	63.5	87.4	72.6
1872	65.6	77.8	84.3	68.3	90.1	75.8
1873	64.9	85.5	76.0	66.4	94.4	70.4
1874	66.2	84.6	78.3	66.2	89.6	73.9
1875	61.7	76.9	80.2	63.6	80.9	78.6
1876	58.4	77.8	75.1	60.4	78.8	76.7
1877	71.4	75.2	95.0	67.6	73.7	91.6
1878	74.0	71.8	103.1	66.0	71.1	92.8
1879	72.7	70.9	102.5	67.8	73.1	92.8
1880	71.4	75.2	95.0	72.2	77.5	93.1
1881	64.3	73.5	87.5	65.5	76.3	85.9
1882	61.7	72.6	84.9	62.4	75.8	82.4
1883	60.4	67.5	89.4	60.2	73.3	82.1
1884	62.3	66.7	93.5	65.0	70.1	92.8
1885	59.1	64.1	92.2	62.6	75.6	82.8
1886	60.4	68.4	88.3	62.0	74.9	82.8
1887	61.0	70.9	86.0	59.3	77.1	77.0
1888	63.6	78.6	80.9	63.3	77.3	81.9
1889	67.5	77.8	86.8	68.5	73.3	93.5
1890	67.5	77.8	86.8	65.9	77.3	85.3
1891	66.9	71.8	93.2	61.5	75.9	81.0
1892	70.8	71.8	98.6	66.5	73.6	90.4
1893	72.7	76.1	95.6	71.4	76.4	93.5
1894	71.4	71.8	99.5	70.9	75.2	94.4
1895	72.1	74.4	96.9	69.3	74.7	92.8
1896	76.0	80.3	94.6	68.7	78.4	87.7
1897	80.5	73.5	109.5	68.3	74.0	92.3
1898	66.2	68.4	96.9	60.7	67.8	89.6
1899	64.9	74.4	87.3	56.9	74.5	76.4
1900	80.5	82.1	98.1	67.9	85.9	79.1
1901	75.3	82.1	91.8	66.1	86.1	76.7
1902	73.4	73.5	99.8	66.6	78.0	85.4
1903	66.9	75.2	88.9	66.8	78.6	85.0
1904	67.5	79.5	85.0	69.6	77.9	89.3
1905	75.3	82.1	91.8	70.0	77.5	90.2
1906	90.3	89.7	100.6	82.9	84.4	98.3
1907	94.2	99.1	95.0	89.6	94.0	95.3
1908	98.1	90.6	108.2	85.9	92.8	92.6
1909	86.4	84.6	102.1	79.7	86.7	91.9
1910	82.5	93.2	88.5	83.8	97.0	86.4

Table DA.5

	Official			New		
	Px	Pi	NBTT	Px	Pi	NBTT
1911	88.3	96.6	91.4	94.9	100.3	94.6
1912	94.2	100.0	94.2	94.5	104.9	90.1
1913	100.0	100.0	100.0	100.0	100.0	100.0

Note: The indices represented prices in Indian rupees.

Sources:

New: See Appendix 2.2.

Official: DCIS, *Index Numbers*, p. c.

Table DA.6

International Exchange Rates, 1791-1938

	East Ind. guilder per £	French franc £ per 1,000	German mark £ per 1,000	Indian rupee £ per 1,000	Italian lire £ per 1,000	US dollar per £
1791						4.56
1792						4.47
1793						4.51
1794						4.75
1795						4.53
1796						4.29
1797						4.44
1798						4.39
1799						4.13
1800						4.55
1801						4.38
1802						4.48
1803						4.54
1804						4.55
1805						4.35
1806						4.43
1807						4.43
1808						4.63
1809		48.75				4.57
1810		48.35				4.30
1811		55.35				3.82
1812		52.27				3.62
1813		51.59				3.75
1814		46.95	58.45			4.24
1815		46.59	55.77			4.90
1816		39.59	48.98			5.22
1817		39.94	49.61			4.60
1818		41.25	51.34			4.50
1819		40.77	50.09			4.51
1820	9.30	39.13	47.57			4.52
1821	9.80	38.88	46.07			4.82
1822		39.27	46.76			4.98
1823	11.50	38.78	46.23			4.80
1824	12.50	39.36	47.16			4.87
1825	12.90	39.66	47.67			4.83
1826	12.70	38.97	46.69			4.92
1827	12.10	39.24	47.40			4.94
1828		39.43	47.80			4.93
1829		39.04	47.46			4.86
1830		39.03	47.06			4.76
1831		39.62	47.98			4.86
1832		38.82	47.29			4.86
1833	12.60	38.69	47.57			4.79
1834	12.50	39.39	48.15			4.64
1835	12.80	39.19	47.94			4.85
1836	12.80	39.26	47.77			4.82
1837	13.10	39.20	47.77			5.10
1838	13.60	39.21	48.09			4.89
1839	13.40	39.56	48.44			4.98
1840	13.70	39.56	48.76			5.00

Table DA.6 (cont.)

	East Ind. guilder per £	French franc £ per 1,000	German mark £ per 1,000	Indian rupee £ per 1,000	Italian lire £ per 1,000	US dollar per £
1841	13.40	39.34	49.83			4.99
1842	13.80	39.15	48.09			4.80
1843	16.40	39.00	47.77			4.79
1844	16.50	39.14	47.98			4.86
1845	16.00	38.90	47.60			4.87
1846	13.50	38.94	47.67			4.82
1847	13.70	39.19	47.80			4.79
1848	14.00	39.20	47.77			4.87
1849	14.00	39.38	47.84			4.81
1850	14.00	39.36	49.44			4.87
1851	13.20	39.90	48.83			4.91
1852	13.20	39.60	48.44			4.90
1853	12.40	39.94	49.08			4.89
1854	11.90	39.99	49.42			4.88
1855	12.30	39.73	48.91			4.89
1856	12.20	39.50	48.54			4.91
1857	11.70	39.59	48.73			4.89
1858	12.11	39.83	49.08			4.86
1859	12.09	39.85	49.45			4.90
1860	12.08	39.80	49.38			4.85
1861	12.43	39.48	48.58	109.01		4.77
1862	12.36	39.73	48.87	100.74	39.12	5.56
1863	12.10	39.63	48.87	100.24	39.02	7.08
1864	11.87	39.58	48.66	100.57	38.74	9.97
1865	12.01	39.69	48.58	98.26	39.06	7.69
1866	12.18	39.70	48.51	97.57	37.46	6.88
1867	12.34	39.71	48.54	97.25	36.51	6.75
1868	12.30	39.70	48.37	96.88	35.66	6.83
1869	12.21	39.70	48.15	97.83	37.54	6.48
1870	12.26	39.70	48.26	95.34	37.37	5.59
1871	12.16	39.12	48.33	95.16	36.95	5.46
1872	11.95	39.19	48.26	96.07	35.96	5.44
1873	12.23	39.30	48.73	93.13	34.12	5.55
1874	12.27	39.64	48.52	92.59	34.84	5.42
1875	12.31	39.65	48.26	90.19	36.20	5.59
1876	12.48	39.64	48.44	85.38	36.13	5.42
1877	12.38	39.77	48.45	86.63	36.06	5.08
1878	12.42	39.72	48.48	82.34	35.92	4.89
1879	12.40	39.60	48.52	83.17	35.40	4.85
1880	12.27	39.55	48.47	83.15	35.49	4.84
1881	12.34	39.55	48.36	82.90	38.47	4.83
1882	12.38	39.66	48.35	81.35	38.17	4.87
1883	12.41	39.60	48.42	81.40	39.10	4.85
1884	12.32	39.69	48.49	80.45	39.22	4.85
1885	12.27	39.57	48.53	76.06	39.77	4.86
1886	12.23	39.61	48.65	72.67	39.11	4.86
1887	12.12	39.50	48.63	70.41	38.68	4.85
1888	12.04	39.51	48.65	68.25	38.63	4.87
1889	11.97	39.60	48.50	69.03	38.75	4.87
1890	12.10	39.60	48.44	75.37	38.62	4.86
1891	12.19	39.60	48.60	69.72	38.48	4.86

Table DA.6 (cont.)

	East Ind. guilder per £	French franc £ per 1,000	German mark £ per 1,000	Indian rupee £ per 1,000	Italian lire £ per 1,000	US dollar per £
1892	12.18	39.70	48.71	62.43	38.08	4.87
1893	12.10	39.67	48.53	60.61	36.50	4.86
1894	12.12	39.71	48.69	54.58	35.32	4.88
1895	12.21	39.62	48.59	56.83	37.20	4.89
1896	12.23	39.67	48.53	60.21	36.32	4.87
1897	12.13	39.73	48.61	64.19	37.36	4.86
1898	12.12	39.56	48.43	66.58	36.65	4.85
1899	12.04	39.61	48.31	66.95	35.78	4.86
1900	12.00	39.72	48.21	66.55	36.78	4.87
1901	12.09	39.64	48.46	66.61	37.46	4.87
1902	12.26	39.71	48.50	66.68	38.73	4.87
1903	12.18	39.72	48.45	66.87	39.23	4.86
1904	12.17	39.71	48.49	66.85	39.20	4.87
1905	12.08	39.73	48.46	66.84	39.32	4.87
1906	12.13	39.73	48.27	67.02	39.23	4.85
1907	12.14	39.69	48.09	66.79	39.12	4.86
1908	12.14	39.78	48.41	66.52	39.32	4.87
1909	12.10	39.72	48.48	66.84	39.16	4.87
1910	12.07	39.64	48.31	66.92	38.90	4.86
1911	12.06	39.59	48.35	67.01	38.89	4.86
1912	12.02	39.62	48.24	66.91	38.71	4.87
1913	12.03	39.61	48.17	66.96	38.37	4.87
1914	12.06	39.70			39.00	4.93
1915	11.94	37.75			34.75	4.76
1916	11.46	35.64			32.03	4.77
1917	11.43	36.41			27.95	4.76
1918	10.22	37.37			26.69	4.77
1919	11.30	30.91			25.69	4.43
1920		19.21			13.56	3.66
1921		19.37			11.16	3.85
1922		18.52			10.74	4.43
1923		13.29			10.06	4.57
1924		11.86			9.87	4.42
1925		9.87	49.29		8.24	4.83
1926		6.67	48.99		8.01	4.86
1927		8.07	48.89		10.61	4.86
1928		8.06	49.03		10.80	4.87
1929		8.06	49.02		10.78	4.86
1930		8.07	49.06		10.77	4.86
1931		8.64	52.11		11.48	4.53
1932		11.20	67.74		14.62	3.51
1933		11.88	72.03		15.84	4.24
1934		13.04	78.14		16.99	5.04
1935		13.47	82.13		16.82	4.90
1936		12.30	81.07		14.67	4.97
1937		8.18	81.32		10.64	4.94
1938		5.89	82.15		10.76	4.89

Sources:

East Indies guilder: van Laanen, *Changing Economy*, VI, pp. 123-26, Table 8, Lines 4 and 16.

French franc, German mark, Italian Lire, and US Dollar: Officer, 'Dollar–Sterling Exchange

Table DA.6 (cont.)

Rates' and 'Bilateral Exchange Rates', Series Ee618, Ee625, Ee626, Ee629, and Ee636; and Denzel, *Handbook of World Exchange Rates*, pp. 15-28, 42-43.

Indian rupee: DCIS, *Index Numbers*, p. 18, Table 9; and Denzel, *Handbook of World Exchange Rates*, pp. 53-54, Table 1.3.1.

Table DA.7

International Commodity Prices, 1813-1913

	Cotton			Raw sugar		Cotton shirtings		
	In Bombay (d. per kg)	In Alexandria (d. per kg)	In Liverpool* (d. per kg)	In Java (d. per kg)	In London (d. per kg)	In Java (d. per m2)	In Manchester (d. per m2)**	In Calcutta (d. per kg)
1813	13.58							
1814	13.58							
1815	13.58						11.18	
1816	13.58						11.59	
1817	13.58						9.39	
1818	13.25						8.72	
1819	12.94						8.83	
1820	12.61	15.52					7.04	
1821	12.28	14.10					6.82	
1822	11.97	13.66					6.48	
1823	11.64	15.54					6.26	
1824	11.31	11.72	19.73				6.48	
1825	11.00	11.81	31.76					
1826	9.57	11.59	15.69				4.69	
1827	10.34	11.55	13.62				4.47	
1828	10.03	10.68	14.11				4.36	
1829	9.70	10.83	13.06				3.91	
1830	9.70	9.67	15.29				3.89	
1831	9.63	13.54	14.98				3.99	
1832	9.57	22.58	14.99				3.82	
1833	9.50	28.18					3.99	
1834	9.44	23.88					4.17	
1835	11.22	16.73					4.55	
1836	7.76	14.42		5.67	9.80	6.28	4.47	
1837	7.28	15.72	23.20	4.40	8.27	5.91	3.46	
1838	7.14	19.96	33.01	3.93	8.86	5.78	3.77	
1839	7.89	13.94	25.07	4.06	9.21	5.75	3.86	
1840	7.72	14.16	23.12	3.93	11.57	5.56	3.24	
1841	6.83	10.71	18.06	3.87	9.45	5.41	3.24	
1842	6.50	8.63	17.08	3.17	8.74	6.02	2.82	
1843	6.22	20.09	15.72	3.13	8.74	5.12	2.88	
1844	5.78	6.60	14.39	3.81	7.79	5.78	2.91	
1845	5.38	11.25	17.10	4.03	7.80	6.39	2.77	
1846	5.14	11.10	17.87	4.21	7.80	6.99	2.52	
1847		8.08		4.29	6.61	5.73	2.68	
1848		10.98		3.75	4.96	5.14	2.21	
1849		13.04		3.54	5.67	4.99	2.43	
1850		9.60		3.75	5.91	4.82	2.85	
1851		11.15		3.68	6.14	5.42	2.75	
1852		10.90		3.61	5.43	5.35	2.61	
1853		9.84		3.92	6.14	5.40	2.76	
1854		10.12		3.76	5.91	5.44	2.54	
1855		11.76		3.95	6.85	4.86	2.41	
1856		17.69		5.80	7.79	4.62	2.56	
1857		13.94		6.09	9.68	5.03	2.93	
1858		13.20		5.30	7.79	5.05	2.78	

Table DA.7 (cont.)

	Cotton			Raw sugar		Cotton shirtings		
	In Bombay (d. per kg)	In Alexandria (d. per kg)	In Liverpool* (d. per kg)	In Java (d. per kg)	In London (d. per kg)	In Java (d. per m2)	In Manchester (d. per m2)**	In Calcutta (d. per kg)
1859		13.36		5.79	7.32	5.22	3.07	
1860		15.43		4.95	7.56	5.14	3.14	
1861	10.23	25.75		5.00	6.85	4.82	3.09	38.17
1862	13.97	34.86		4.83	6.61	5.31	4.26	38.80
1863	24.86	33.99	38.00	4.66	6.38	7.73	5.96	54.60
1864	39.71	17.01	28.98	5.40	7.56	9.43	6.76	75.12
1865	22.71	24.49	27.43	5.42	6.38	8.40	5.38	66.52
1866	26.92	17.49	31.27	4.55	6.14	9.83	5.45	56.94
1867	17.72	15.04	19.72	5.04	6.61	6.25	3.96	48.81
1868	12.46	18.00		4.66	6.61	5.07	3.39	39.58
1869	16.11	16.07		5.03	7.09	4.90	3.61	39.20
1870	19.43	15.06		4.70	7.09	5.19	3.40	39.69
1871	12.84	21.10		5.07	7.32	4.96	3.06	34.06
1872	15.75	15.86		5.07	7.09	5.02	3.28	34.76
1873	16.03	14.39		4.95	6.61	4.67	3.19	34.42
1874	13.12	18.58		4.74	6.26	4.51	3.01	31.70
1875	12.45	13.08		4.56	5.91	4.41	2.95	28.07
1876	10.98	12.07		4.28	6.14	4.04	2.64	25.91
1877	12.26	14.31		5.59	7.09	3.66	2.75	23.93
1878	11.46	15.37		4.80	5.91	3.33	2.44	22.10
1879	12.39	15.79		4.54	5.67	3.21	2.23	23.30
1880	14.09	15.17		4.59	6.02	3.51	2.49	24.59
1881	13.59	16.60		4.62	6.26	3.23	2.54	24.19
1882	12.57	14.82	18.77	4.71	6.02	3.27	2.51	23.42
1883	10.84	13.84	17.75	4.54	5.77	3.26	2.33	23.75
1884	11.73	12.56	16.62	3.51	4.13	3.12	2.30	22.54
1885	11.75	13.21	13.28	3.21	4.13	2.97	2.19	20.71
1886	10.53	13.40	14.25	2.93	3.37	2.45	2.17	22.62
1887	10.31	14.32	15.51	2.96	3.43	2.60	2.22	21.09
1888	11.19	14.20	14.90	3.03	3.78	2.64	2.25	19.91
1889	10.92	14.94	16.43	3.31	4.49	2.75	2.31	20.14
1890	11.88	15.33	15.35	2.65	3.60	2.58	2.32	20.53
1891	10.12	13.26	12.98	2.69	3.66	2.46	2.21	19.80
1892	8.05	10.55	10.62	2.77	3.78	2.37	2.01	16.52
1893	9.78	10.37	11.60	3.12	4.07	2.29	2.09	16.51
1894	7.92	10.35	10.48	2.53	3.25	2.03	1.87	14.44
1895	7.77	12.23	12.78	2.03	2.83	1.85	1.79	14.59
1896	8.83	11.07	13.37	2.56	2.95	1.90	1.84	15.93
1897	8.49	8.65	10.92	2.15	2.60	1.99	1.71	16.48
1898	7.86	9.82	9.86	2.15	2.78	2.04	1.70	15.54
1899	6.80	13.49	12.02	2.25	2.89	1.97	1.70	17.97
1900	9.84			2.31	3.01	2.20	1.95	20.71
1901	9.67			2.11	2.54	2.49	1.94	21.25
1902	9.54			1.63	2.01	2.22	1.87	19.45
1903	9.35			1.84	2.30	2.22	2.05	19.51
1904	11.19			2.05	2.72	3.15	2.28	19.25
1905	9.72			2.54	3.01	3.05	2.26	18.46
1906	11.40			1.88	2.36	3.25	2.41	22.16

Table DA.7 (cont.)

	Cotton			Raw sugar		Cotton shirtings		
	In Bombay (d. per kg)	In Alexandria (d. per kg)	In Liverpool* (d. per kg)	In Java (d. per kg)	In London (d. per kg)	In Java (d. per m2)	In Manchester (d. per m2)**	In Calcutta (d. per kg)
1907	11.21			1.91	2.57	3.63	2.45	23.38
1908	11.07			2.15	2.72	3.65	2.22	22.51
1909	10.92			2.16	2.89	2.71	2.31	21.06
1910	13.68			2.35	3.13	3.02	2.75	23.69
1911	15.47			2.92	3.31	2.99	2.91	26.07
1912	12.78			2.83	3.16	2.98	2.69	26.29
1913	13.96			2.53	2.59	2.77	2.68	25.79

* To convert to d per kg, multiply by 0.103.

** Egyptian cotton.

Cotton in Bombay: Select Committee on the Growth of Cotton in India, 'Report', pp. 375-76; and DCIS, *Index Numbers*, pp. 7, 9, Table 5.

Cotton in Alexandria and Liverpool: Issawi, *Economic History*, pp. 447-48, 518. Converted to sterling using US$ exchange rate from Table DA.6

Cotton shirtings in Java: Korthals Altes, *Changing Economy*, XV, pp. 27-31, Table 1A, Series 27.

Cotton shirtings in Manchester: *Economist*, 'Commercial History', supplement, various years; Sandberg, 'Movements in the Quality', pp. 8, 10-11, Tables 1, 2, and 4; and Korthals Altes, *Changing Economy*, XV, p. 31, Table 1A, Series 60.

Cotton shirtings in Calcutta: DCIS, *Index Numbers*, pp. 7, 9, Table 5.

Raw sugar in Java: Korthals Altes, *Changing Economy*, XV, pp. 87-96, Table 2A, Series 27, 60, 62.

Raw sugar in London: *Economist*, 'Commercial History', supplement, various years; and Korthals Altes, *Changing Economy in Indonesia*, XV, pp. 27-31, 87-96, Table 2A, Series 68 and 69.

Table DA.8

International Freight Rates, 1757-1913

	Baltic to UK	Indonesia to Europe	United States to UK		Baltic to UK	Indonesia to Europe	United States to UK
1757	245.9			1805	304.9		
1758	253.9			1806	282.0		
1759	266.0			1807			
1760	243.0			1808			
1761	260.8			1809			
1762	268.8			1810			
1763	230.4			1811			
1764	174.8			1812			
1765	174.8			1813			
1766	174.8			1814			1,171.8
1767				1815			1,226.8
1768				1816			754.6
1769				1817	208.1		393.0
1770				1818	251.1		982.3
1771				1819	248.8		448.5
1772				1820	210.4		702.1
1773				1821	216.1		509.5
1774				1822	215.5		468.4
1775				1823	247.1	1167.4	507.6
1776				1824	257.9	1074.0	432.8
1777				1825	256.8	997.8	459.8
1778	236.2			1826	212.7	1035.3	430.5
1779	247.1			1827	193.7	1086.7	419.4
1780	294.1			1828	190.3	964.8	358.5
1781	252.8			1829	203.5	958.3	341.0
1782	474.0			1830	192.6	906.1	347.8
1783	184.0			1831	224.1	900.0	424.2
1784	159.9			1832	191.5	893.9	340.6
1785	162.2			1833	176.0	887.9	303.7
1786	155.9			1834	191.5	895.0	315.3
1787	153.0			1835	191.5	874.1	297.1
1788	159.9			1836	191.5	874.1	343.4
1789	148.5			1837	191.5	854.0	359.9
1790	163.4			1838	187.4	822.6	421.6
1791	153.0			1839	201.8	808.0	362.5
1792	155.9			1840	192.6	790.3	445.1
1793	281.4			1841	182.9	808.0	276.2
1794	284.9			1842	141.6	758.4	195.0
1795	323.9			1843	141.6	638.2	230.7
1796	350.8			1844	149.0	611.7	209.6
1797	210.9			1845	161.1	630.8	226.8
1798	286.0			1846	172.5	747.6	249.0
1799	404.1			1847	243.0	736.7	294.0
1800	452.3			1848	143.3	720.9	153.1
1801	323.3			1849		627.3	149.7
1802	175.4			1850		627.3	117.0
1803	346.2			1851		546.8	120.0
1804	304.9			1852		546.8	144.6

Table DA.8 (cont.)

	Baltic to UK	Indonesia to Europe	United States to UK		Baltic to UK	Indonesia to Europe	United States to UK
1853		535.5	173.1	1884	73.3	126.9	115.3
1854	219.5	558.0	170.3	1885	84.6	113.7	100.3
1855	233.3	539.9	160.7	1886	82.6	99.3	101.5
1856	199.5	544.3	155.9	1887	86.4	115.1	95.6
1857		567.6	120.6	1888	111.4	129.9	101.0
1858	173.1	548.4	126.8	1889	99.9	174.9	126.9
1859	173.1	549.3	136.6	1890	80.5	115.3	107.7
1860	202.9	476.0	169.7	1891	90.6	107.6	107.3
1861	213.8	462.6	230.7	1892	64.5	85.9	103.7
1862	195.5	465.2	176.7	1893	73.8	86.5	99.4
1863	208.1	475.2	116.3	1894	68.0	115.1	82.5
1864	247.1	407.4	71.4	1895	79.9	70.9	77.2
1865	191.5	245.4	93.0	1896	75.3	42.3	97.6
1866	184.6	150.1	113.9	1897	71.6	57.5	95.3
1867	166.8	317.8	131.0	1898	80.5	86.4	113.8
1868		382.4	128.6	1899	87.3	86.9	90.2
1869	123.2	257.2	106.0	1900	111.0	106.3	124.9
1870	142.5	241.4	128.3	1901	74.2	45.8	88.4
1871	131.5	272.1	152.0	1902	67.1	42.2	72.4
1872	139.1	276.8	161.5	1903	74.5	45.4	77.6
1873	154.8	470.2	201.2	1904	70.7	57.3	81.7
1874	140.2	392.2	177.2	1905	77.3	53.8	83.4
1875	125.4	390.9	166.5	1906	82.1	40.7	82.6
1876	142.0	348.9	161.8	1907	79.8	71.3	78.7
1877	128.4	323.6	159.2	1908	66.6	50.5	68.8
1878	117.2	238.3	163.6	1909	73.3	66.6	67.3
1879	111.1	266.8	155.6	1910	73.8	42.9	68.1
1880	96.2	341.2	158.6	1911	85.5	71.8	79.0
1881	96.2	352.9	140.3	1912	111.7	100.1	115.4
1882	91.9	225.4	116.6	1913	100.0	100.0	100.0
1883	104.8	196.8	128.1				

Note: When necessary, the series were converted to sterling using the exchange rates in Table DA.6, then referenced so that 1913 equals 100.

Sources

Baltic: Harley, ‘Ocean Freight Rates’, pp. 873-75, Table 9; and. Mohammed and Williamson, ‘Freight Rates’, pp. 179-81, Table 1.

Indonesia: Korthals Altes, *Changing Economy* XV, pp. 159-60.

United States: North, ‘Role of Transportation’, p. 236, Table 2.

Table DA.9

Arable Potential, Cropland, and Population, 1780-1910

	Arable potential*	Cropland (1,000 ha)		Population (1,000)	
		1780	1910	1780	1910
Afghanistan	3,039	360	2,709	2,998	5,730
Albania	834	174	291	391	874
Algeria	12,834	1,081	4,073	2,376	6,887
Angola	88,105	220	1,016	2,316	2,721
Argentina	90,571	107	7,701	300	7,055
Armenia	422	240	351	465	906
Australia	124,913	0	8,849	250	4,540
Austria	3,348	1,367	1,812	2,969	6,648
Azerbaijan	3,929	675	1,436	743	2,103
Bangladesh	9,401	3,549	7,385	18,164	31,299
Belarus	17,185	2,605	5,542	1,986	5,623
Belgium	2,401	531	957	3,076	7,424
Belize	984	7	19	15	41
Benin	9,753	639	413	1,569	989
Bhutan	18	12	33	30	81
Bolivia	61,917	334	822	930	2,009
Botswana	9,173	106	234	144	312
Brazil	549,389	272	2,498	2,421	22,274
Brunei	259	2	4	11	24
Bosnia & Herzegovina	2,708	371	700	617	1,560
Bulgaria	7,763	1,575	2,498	1,790	3,802
Burkina Faso	20,341	745	891	1,689	1,968
Burundi	1,414	240	361	808	1,185
Cambodia	12,212	430	1,285	2,003	3,070
Cameroon	35,910	1,817	2,173	1,849	2,154
Canada	125,317	44	30,106	690	7,239
Central African Rep.	47,887	338	713	312	640
Chad	33,051	1,446	2,147	1,534	2,219
Chile	3,327	359	1,682	741	3,384
China	201,647	81,432	98,118	277,094	423,000
Colombia	65,536	1,177	1,993	1,248	4,890
Congo	167,831	235	351	453	658
Congo, Dem. Rep.	22,995	3,510	4,927	8,088	11,064
Costa Rica	1,205	15	133	43	374
Cote d'Ivoire	26,226	243	908	256	793
Croatia	3,716	609	1,149	893	2,257
Cuba	7,494	74	492	332	2,150
Cyprus	433	58	106	110	270
Czech Rep.	6,500	1,470	2,056	2,549	4,773
Denmark	3,594	885	1,988	960	2,890
Djibouti	0	0	0	26	30
Dominican Rep.	2,169	40	249	141	849
Ecuador	12,864	903	1,263	500	1,617
Egypt	121	1,091	1,572	487	712
El Salvador	864	27	228	155	1,002
Eq. Guinea	1,646	103	151	128	183
Eritrea	590	77	144	198	361
Estonia	2,181	290	815	238	897
Ethiopia	42,945	1,269	6,440	2,766	13,676
Falkland Is.	0	0	0	1	2

Table DA.9 (cont.)

	Arable potential*	Cropland (1,000 ha)		Population (1,000)	
		1780	1910	1780	1910
Fiji	337	37	72	99	185
Finland	13,839	740	2,076	818	3,072
France	38,806	18,764	21,641	26,723	41,280
French Guiana	6,627	1	2	4	17
Gabon	17,873	73	113	254	382
Gambia	785	54	47	0	82
Georgia	2,378	388	826	886	2,509
Germany	28,125	5,468	12,295	20,882	62,884
Ghana	18,321	1,039	1,159	2,210	2,402
Greece	6,479	1,358	2,643	2,041	5,320
Guatemala	3,710	225	529	628	1,441
Guinea	13,217	402	425	1,226	1,263
Guinea-Bissau	2,306	108	121	230	250
Guyana	13,305	293	281	145	321
Haiti	846	86	537	296	1,809
Honduras	3,424	84	413	118	564
Hong Kong	24	0	0	17	485
Hungary	8,040	2,082	4,486	2,795	7,118
Iceland	0	3	3	58	80
India	206,327	67,271	121,819	191,840	264,044
Indonesia	71,233	2,905	14,186	11,500	45,800
Iran	4,709	6,063	10,073	6,033	12,967
Iraq	4,406	917	1,880	1,001	2,657
Ireland	4,861	3,369	2,758	4,000	4,385
Israel	720	85	107	316	515
Italy	16,764	8,209	11,998	17,617	34,487
Jamaica	156	40	140	246	834
Japan	12,861	1,750	3,185	28,400	50,368
Jordan	563	34	83	72	228
Kazakhstan	7,313	598	5,555	1,589	3,755
Kenya	15,845	844	2,003	2,525	4,611
Korea, North	3,627	688	969	3,539	4,670
Korea, South	3,931	546	825	7,129	10,096
Kuwait	1	1	1	128	146
Kyrgyzstan	864	575	1,088	694	1,402
Lao	5,900	215	431	680	1,455
Latvia	5,395	262	1,027	327	1,715
Lebanon	269	71	99	359	645
Lesotho	362	43	150	106	358
Liberia	6,294	103	123	192	224
Libya	2,464	495	940	2,376	7,026
Lithuania	5,481	694	2,718	381	1,999
Luxembourg	143	33	64	100	260
Macedonia, TFYR	1,007	211	485	282	868
Madagascar	35,602	545	981	1,364	2,394
Malawi	6,771	166	397	507	1,180
Malaysia	12,828	358	1,389	759	2,870
Mali	26,513	750	1,195	2,398	3,726
Malta	39	8	14	92	214
Mauritania	1,381	112	182	358	565
Mexico	52,162	3,198	9,458	6,685	15,160
Moldova	2,852	1,314	2,795	1,052	2,977

Table DA.9 (cont.)

	Arable potential*	Cropland (1,000 ha)		Population (1,000)	
		1780	1910	1780	1910
Mongolia	177	158	460	611	913
Morocco	12,270	990	3,807	1	1
Mozambique	63,544	634	1,368	1,897	3,988
Myanmar	24,487	1,835	7,150	5,800	13,800
Namibia	11,889	92	331	217	400
Nepal	2,269	259	792	3,587	5,630
Neth.Antilles	17	1	2	17	45
Netherlands	1,856	376	658	2,034	5,951
New Zealand	8,637	249	1,461	175	1,000
Nicaragua	5,546	91	380	141	573
Niger	10,278	4,418	7,155	1,356	2,139
Nigeria	66,230	13,652	19,417	22,482	31,154
Norway	2,238	286	640	796	2,392
Oman	1	27	30	302	440
Pakistan	5,442	5,571	7,435	15,826	20,580
Panama	2,363	36	167	74	337
Papua New Guinea	14,108	110	223	1,360	1,411
Paraguay	21,589	83	298	280	775
Peru	43,363	866	1,450	1,376	5,332
Philippines	9,342	189	1,740	1,867	8,816
Poland	27,980	7,081	16,271	8,657	26,644
Portugal	5,027	1,434	2,346	2,791	6,115
Puerto Rico	114	11	154	86	1,209
Qatar	1	0	0	12	19
Romania	17,383	4,102	7,497	4,848	11,866
Russian Fed.	282,569	39,917	120,881	22,087	89,007
Rwanda	746	158	299	770	1,419
Saudi Arabia	1	3	13	2,061	2,670
Senegal	13,270	409	434	1,129	1,165
Serbia & Montenegro	6,444	1,242	2,982	1,600	5,226
Sierra Leone	3,955	119	199	18	384
Slovenia	1,010	77	145	342	864
Solomon Islands	446	8	25	19	59
Somalia	2,381	37	275	959	1,546
South Africa	28,097	48	2,274	541	5,535
Spain	24,481	11,155	15,175	10,936	19,925
Sri Lanka	3,717	97	954	1,313	4,029
Sudan	86,728	1,767	5,488	4,694	7,485
Suriname	9,273	13	18	35	108
Swaziland	805	15	45	43	127
Sweden	13,891	1,361	2,656	1,909	4,991
Switzerland	1,093	185	331	1,565	3,754
Syrian Arab Rep.	5,636	2,580	2,925	1,308	1,919
Tajikistan	1,896	533	808	611	1,234
Tanzania	67,285	1,468	2,176	2,555	3,689
Thailand	32,198	474	3,104	2,894	8,310
Togo	4,291	631	755	550	641
Trinidad & Tobago	321	1	38	12	331
Tunisia	3,310	551	2,006	786	2,204
Turkey	25,318	12,108	12,794	9,511	13,000
Turkmenistan	759	996	1,512	483	975
United Arab Emirates	1	5	6	40	61

Table DA.9 (cont.)

	Arable potential*	Cropland (1,000 ha)		Population (1,000)	
		1780	1910	1780	1910
Uganda	14,169	1,219	1,458	2,135	2,488
Ukraine	51,897	10,037	31,144	7,468	30,837
United Kingdom	15,659	2,284	6,499	10,941	41,699
United States	354,315	4,249	167,897	4,493	91,604
Uruguay	14,245	78	785	45	1,043
Uzbekistan	4,345	2,437	3,699	2,518	5,086
Venezuela	55,092	812	1,511	553	2,382
Viet Nam	11,594	668	3,127	5,367	19,335
Western Sahara	1	0	0	3,700	12,343
Yemen	5	902	927	2,466	3,280
Zambia	58,471	627	1,497	412	959
Zimbabwe	24,575	249	930	488	1,775

* 1,000 hectares of arable land potentially suitable for rain-fed agriculture.

Sources: Bort, Nachtergaele, and Young, 'Land Resource Potential', pp. 37-38; and van Drecht and de Vos, 'HYDE 3.1'.

Table DA.10

Potential Arable Land and World Population, 1500-1900

Country	Arable pot.*	1500	1600	1700	1800	1900
Afghanistan	3,039	2,000	2,500	2,500	3,136	5,289
Albania	834	200	200	300	414	800
Algeria	12,834	1,500	2,250	1,750	2,533	6,421
Angola	88,105	2,008	2,134	2,259	2,331	2,667
Argentina	90,571	300	300	300	300	4,989
Armenia	422	218	261	309	516	861
Australia	124,913	254	254	250	252	3,838
Austria	3,348	2,000	2,100	2,120	3,064	6,004
Azerbaijan	3,929	465	558	651	872	1,941
Bangladesh	9,401	9,600	12,480	15,360	18,913	29,165
Belarus	17,185	576	720	960	2,331	5,191
Belgium	2,401	1,250	1,500	1,750	3,407	6,694
Belize	984	7	8	8	18	37
Benin	9,753	3,000	3,100	2,977	1,337	969
Bhutan	18	15	20	25	31	73
Bolivia	61,917	900	800	800	966	1,744
Botswana	9,173	80	86	92	162	293
Brazil	549,389	1,000	1,000	1,220	2,928	17,671
Brunei	259	4	5	6	14	23
Bosnia & Herzegovina	2,708	360	440	440	668	1,408
Bulgaria	7,763	800	1,250	1,250	1,964	3,252
Burkina Faso	20,341	1,280	1,451	1,644	1,700	1,928
Burundi	1,414	650	715	780	813	1,111
Cambodia	12,212	1,500	1,665	1,830	2,047	2,865
Cameroon	35,910	1,378	1,575	1,800	1,861	2,111
Canada	125,317	200	200	200	967	5,511
Central African Rep.	47,887	274	288	303	314	560
Chad	33,051	834	973	1,112	1,639	2,166
Chile	3,327	600	600	602	781	2,931
China	201,647	91,714	98,545	99,929	293,502	400,000
Colombia	65,536	4,000	1,260	800	1,360	3,998
Congo	167,831	333	381	435	458	625
Congo, Dem. Rep.	22,995	5,888	6,256	6,624	8,488	10,801
Costa Rica	1,205	450	8	23	50	301
Cote d'Ivoire	26,226	340	389	445	223	569
Croatia	3,716	540	660	660	967	2,037
Cuba	7,494	25	50	100	448	1,635
Cyprus	433	200	120	110	110	234
Czech Rep.	6,500	2,160	3,240	3,240	2,376	4,398
Denmark	3,594	600	700	800	1000	2561
Djibouti	0	22	23	24	26	29
Dominican Rep.	2,169	200	98	102	153	673
Ecuador	12,864	600	500	499	500	1,400
Egypt	121	4,000	5,000	4,500	3,500	10,795
El Salvador	864	92	100	109	202	784
Eq. Guinea	1,646	112	119	126	128	171
Eritrea	590	116	131	145	212	344
Estonia	2,181	63	66	69	324	862
Ethiopia	42,945	2,355	2,355	2,355	2,868	12,487
Falkland Is.	0	0	0	1	1	2
Fiji	337	53	59	65	109	177

Table DA.10 (cont.)

Country	Arable pot.*	1500	1600	1700	1800	1900
Finland	13,839	100	200	400	978	2,674
France	38,806	14,867	18,314	21,992	27,876	40,519
French Guiana	6,627	2	2	2	5	15
Gabon	17,873	166	189	216	265	365
Gambia	785	0	0	0	0	55
Georgia	2,378	568	681	795	1040	2316
Germany	28,125	9,000	12,000	13,000	22,871	54,388
Ghana	18,321	1,982	2,265	2,589	2,124	2,354
Greece	6,479	1,000	1,500	1,500	2,177	4,962
Guatemala	3,710	800	600	700	611	1,300
Guinea	13,217	1,270	1,451	1,658	1,137	1,238
Guinea-Bissau	2,306	206	236	269	221	245
Guyana	13,305	90	90	100	159	296
Haiti	846	200	40	50	463	1,560
Honduras	3,424	58	72	90	126	524
Hong Kong	24	13	13	12	18	306
Hungary	8,040	1,250	1,250	1,500	3,119	6,532
Iceland	0	60	50	50	61	79
India	206,327	82,000	106,600	131,200	207,000	284,500
Indonesia	71,233	7,750	8,500	9,500	12,500	38,000
Iran	4,709	4,000	5,000	5,000	6,291	11,980
Iraq	4,406	1,000	1,250	1,000	1,002	2,325
Ireland	4,861	800	1,250	2,500	5,200	4,469
Israel	720	230	230	184	348	505
Italy	16,764	9,000	13,273	13,481	18,853	32,246
Jamaica	156	18	36	72	335	736
Japan	12,861	12,300	17,000	26,700	28,000	44,774
Jordan	563	87	87	69	72	182
Kazakhstan	7,313	1,340	1,530	1,720	1,556	2,973
Kenya	15,845	1,500	1,750	2,000	2,703	4,381
Korea, North	3,627	1,440	1,800	2,250	3,921	4,623
Korea, South	3,931	2,560	3,200	4,000	8,184	9,896
Kuwait	1	69	135	117	131	145
Kyrgyzstan	864	350	400	450	773	1,328
Lao	5,900	400	500	600	700	1,500
Latvia	5,395	86	91	95	445	1,543
Lebanon	269	435	508	435	345	639
Lesotho	362	62	71	81	113	318
Liberia	6,294	169	178	187	194	220
Libya	2,464	500	500	500	494	685
Lithuania	5,481	100	106	111	519	1,799
Luxembourg	143	62	63	64	112	247
Macedonia, TFYR	1,007	180	220	220	301	772
Madagascar	35,602	700	850	1,000	1,460	2,274
Malawi	6,771	357	387	418	528	1,062
Malaysia	12,828	396	495	594	800	2,455
Mali	26,513	1,083	1,264	1,444	2,566	3,602
Malta	39	20	40	70	100	190
Mauritania	1,381	258	301	344	384	546
Mexico	52,162	25,000	1,000	4,000	7,357	13,615
Moldova	2,852	312	390	520	1,234	2,748
Mongolia	177	600	600	600	615	830
Morocco	12,270	1,500	2,250	1,750	2,533	6,544

Table DA.10 (cont.)

Country	Arable pot.*	1500	1600	1700	1800	1900
Mozambique	63,544	1,000	1,250	1,500	1,997	3,753
Myanmar	24,487	4,000	4,500	5,000	6,000	12,500
Namibia	11,889	131	140	151	238	381
Nepal	2,269	2,000	2,500	3,000	3,734	5,283
Neth.Antilles	17	2	5	9	19	42
Netherlands	1,856	1,086	1,543	2,000	2,089	5,180
New Zealand	8,637	80	140	200	172	833
Nicaragua	5,546	68	75	81	162	502
Niger	10,278	822	959	1,096	1,454	2,066
Nigeria	66,230	11,000	14,000	18,000	22,938	30,116
Norway	2,238	400	500	600	854	2,240
Oman	1	200	235	270	310	418
Pakistan	5,442	8,500	11,050	13,600	16,479	20,168
Panama	2,363	31	39	49	82	263
Papua New Guinea	14,108	1,207	1,264	1,324	1,369	1,408
Paraguay	21,589	200	200	200	300	600
Peru	43,363	4,000	1,300	1,500	1,346	4,836
Philippines	9,342	500	800	1,250	2,022	7,324
Poland	27,980	4,000	5,000	6,000	9,502	24,750
Portugal	5,027	1,207	1,925	1,981	3,033	5,617
Puerto Rico	114	5	7	10	146	981
Qatar	1	3	3	8	13	18
Romania	17,383	2,000	2,000	2,500	5,566	11,000
Russian Fed.	282,569	7,560	9,450	10,710	24,931	71,523
Rwanda	746	600	660	720	775	1324
Saudi Arabia	1	2,000	2,250	2,000	2,076	2,581
Senegal	13,270	972	1,215	1,518	1,048	1,142
Serbia & Montenegro	6,444	990	1,210	1,210	1,697	4,750
Sierra Leone	3,955	6	7	8	22	247
Slovenia	1,010	231	239	248	370	779
Solomon Islands	446	3	3	3	30	57
Somalia	2,381	778	827	876	979	1,469
South Africa	28,097	516	602	860	461	4,126
Spain	24,481	6,500	8,500	8,000	11,552	18,594
Sri Lanka	3,717	1,000	1,250	1,500	1,262	3,490
Sudan	86,728	4,000	4,300	4,600	4,713	7,111
Suriname	9,273	15	16	17	41	97
Swaziland	805	13	15	21	51	117
Sweden	13,891	800	1,000	1,500	2,120	4,615
Switzerland	1,093	800	1,000	1,250	1,656	3,316
Syrian Arab Rep.	5,636	1,065	1,243	1,250	1,323	1,954
Tajikistan	1,896	310	350	390	681	1,169
Tanzania	67,285	1,750	2,125	2,500	2,572	3,505
Thailand	32,198	2,020	2,272	2,525	3,002	7,005
Togo	4,291	410	469	536	554	628
Trinidad & Tobago	321	0	0	0	27	268
Tunisia	3,310	800	1000	800	788	1,889
Turkey	25,318	6,250	8,000	8,500	9,788	12,740
Turkmenistan	759	240	280	310	538	924
United Arab Emirates	1	31	42	53	38	58
Uganda	14,169	1,500	1,750	2,000	2,149	2,438
Ukraine	51,897	2,748	3,435	4,580	8,321	25,000
United Kingdom	15,659	4,200	5,000	6,839	12,060	37,844

Table DA.10 (cont.)

Country	Arable pot.*	1500	1600	1700	1800	1900
United States	354,315	1,887	779	927	6,314	76,215
Uruguay	14,245	24	27	30	50	915
Uzbekistan	4,345	1,260	1,440	1,620	2,806	4,818
Venezuela	55,092	400	400	500	567	2,353
Viet Nam	11,594	2,000	2,500	3,000	5,959	17,133
Western Sahara	1	0	1	1	1	1
Yemen	5	2,250	2,500	2,250	2,529	3,170
Zambia	58,471	303	329	355	429	863
Zimbabwe	24,575	340	369	398	589	1,597

* 1,000 hectares of arable land potentially suitable for rain-fed agriculture.

Sources: Bort, Nachtergaele, and Young, 'Land Resource Potential', pp. 37-38; and van Drecht and de Vos, 'HYDE 3.1'.

Table DA.11

Estimated Exchange Rates for Argentina, 1780-1938

	Grams of silver in peso	Grams of silver per £ in London	Pesos per £ (est.)*	Pesos per £	Gold pesos (o$s) per £	Paper pesos (m$n) per £		
						Market	Exporters	Importers
1780	24.433	107.3	4.39					
1781	24.433	101.7	4.16					
1782	24.433	98.7	4.04					
1783	24.433	101.9	4.17					
1784	24.433	108.3	4.43					
1785	24.245	111.3	4.59					
1786	24.245	109.3	4.51					
1787	24.245	108.8	4.49					
1788	24.433	108.2	4.43					
1789	24.433	109.4	4.48					
1790	24.433	109.9	4.50					
1791	24.433	109.6	4.49					
1792	24.433	107.8	4.41					
1793	24.433	111.0	4.54					
1794	24.433	112.6	4.61					
1795	24.433	109.6	4.49					
1796	24.433	108.6	4.44					
1797	24.433	109.3	4.47					
1798	24.433	113.7	4.65					
1799	24.433	105.9	4.34					
1800	24.433	100.5	4.11					
1801	24.433	97.1	3.98					
1802	24.433	102.0	4.18					
1803	24.433	102.7	4.20					
1804	24.433	103.4	4.23					
1805	24.433	98.5	4.03					
1806	24.433	101.0	4.13					
1807	24.433	102.5	4.19					
1808	24.433	101.1	4.14					
1809	24.433	99.7	4.08					
1810	24.433	98.4	4.03					
1811	24.433	97.1	3.98					
1812	24.433	90.0	3.68					
1813	24.809	84.5	3.40					
1814	24.809	91.8	3.70					
1815	24.809	91.0	3.67					
1816	24.809	113.0	4.56	4.21				
1817	24.809	110.4	4.45	4.62				
1818	24.809	106.8	4.31	3.66				
1819	24.809	108.0	4.35	4.40				
1820	24.809	114.3	4.61	4.44				
1821	24.809	117.0	4.72	4.21				
1822	24.809	116.5	4.70					
1823	24.809	117.0	4.71	5.27				
1824	24.809	114.6	4.62	6.03				
1825	24.809	113.4	4.57	5.60				
1826				7.95				
1827				16.96				
1828				14.94				

Table DA.11 (cont.)

	Grams of silver in peso	Grams of silver per £ in London	Pesos per £ (est.)*	Pesos per £	Gold pesos (o$s) per £	Paper pesos (m$n) per £		
						Market	Exporters	Importers
1829				25.33				
1830				33.84				
1831				34.01				
1832				33.60				
1833				35.03				
1834				33.75				
1835				35.04				
1836				34.29				
1837				38.43				
1838				42.55				
1839				66.57				
1840				100.41				
1841				89.55				
1842				81.70				
1843				78.96				
1844				64.69				
1845				73.69				
1846				100.98				
1847				100.79				
1848				113.55				
1849				96.07				
1850				70.38				
1851				82.04				
1852				84.93				
1853				99.71				
1854				99.01				
1855				106.07				
1856				103.07				
1857				96.71				
1858								
1859								
1860								
1861								
1862								
1863								
1864					4.84			
1865					4.89			
1866					4.81			
1867					4.94			
1868					4.89			
1869					4.78			
1870					4.79			
1871					4.75			
1872					4.69			
1873					4.85			
1874					4.78			
1875					4.79			
1876					4.74			
1877					4.76			
1878					4.77			
1879					4.79			

Table DA.11 (cont.)

	Grams of silver in peso	Grams of silver per £ in London	Pesos per £ (est.)*	Pesos per £	Gold pesos (o$s) per £	Paper pesos (m$n) per £		
						Market	Exporters	Importers
1880					4.76			
1881					4.76			
1882					4.73			
1883					4.76			
1884					5.11			
1885					5.31			
1886					5.06			
1887					5.06			
1888					5.03			
1889					5.01			
1890					4.98			
1891					4.95			
1892					5.01			
1893					5.03			
1894					5.00			
1895					5.01			
1896					5.02			
1897					5.06			
1898					5.02			
1899					4.97			
1900					5.00			
1901					4.99			
1902					5.00			
1903					4.98			
1904					4.99			
1905					4.98			
1906					4.99			
1907					4.97			
1908					4.98			
1909					5.00			
1910					5.00			
1911					5.00			
1912					4.98			
1913					4.98	11.5		
1914					4.97	11.6		
1915					4.91	11.4		
1916					4.71	11.3		
1917						10.9		
1918						10.7		
1919						10.2		
1920						9.3		
1921						12.0		
1922						12.3		
1923						13.3		
1924						12.8		
1925						12.0		
1926						12.0		
1927						11.5		
1928						11.5		
1929						11.6		
1930						13.3		

Table DA.11 (cont.)

	Grams of silver in peso	Grams of silver per £ in London	Pesos per £ (est.)*	Pesos per £	Gold pesos (o$s) per £	Paper pesos (m$n) per £		
						Market	Exporters	Importers
1931						15.5		
1932						13.7		
1933						13.4		
1934							15.5	17.6
1935							15.5	17.3
1936							15.4	17.2
1937							15.2	16.1
1938							15.6	16.7

* Calculated by dividing the grams of silver per £ in London by the grams of silver in the peso.

Note: When monthly data were given in the sources, any gaps in the series were interpolated exponentially, then annual averages were calculated.

Sources:

Grams of silver in peso: Álvarez, *Temas de historia*, pp. 80-124; as compiled by Rodolfo G. Frank, available online at http://www.anav.org.ar/sites_personales/5/MONEDA.XLS (accessed 2 May 2013).

Silver market price in London: R.W. Jastram, *Silver: The Restless Metal*, New York, 1981, Table 15 and App. C; reproduced by Gregory Clark and Peter Lindert, available online at http://gpih.ucdavis.edu/files/England_1209-1914_(Clark).xls (accessed 3 May 2013). Actual exchange rate: Reber, 'British Mercantile Houses', p. 313, Table 21.

Gold pesos (o$s) per £: Schneider, Schwarzer, and Denzel, *Währungen der Welt*, VII, pp. 212-18.

Paper pesos (m$n) per £: Balboa, 'Evolución del balance', p. 160.

Table DA.12

Argentine Hide Prices in the Core (£ Per Ton), 1790-1938

City:	London	Hamburg	London	Boston	London	Hamburg	London
Type:	Dry	Dry	Dry	Dry	Dry	Salted	Salted
Source:	GRS	JR.1	HD	P	S.1	JR.1	S.2
1790	65						
1791	60						
1792	51						
1793	53						
1794	72						
1795	49						
1796	54						
1797	60						
1798	69						
1799	85						
1800	79						
1801	81						
1802	67						
1803	78						
1804	71						
1805	68						
1806	63						
1807	63						
1808	59						
1809	61						
1810	82						
1811	50						
1812	60						
1813	73						
1814	88	103					
1815	87	99					
1816	73	99					
1817	73	88					
1818	69	92	80				
1819	68	100	80				
1820	68	105	80				
1821	77	100	90				
1822	85	101	100				
1823	85	102	92				
1824	81	94	90				
1825	82	108	93				
1826	78	98	90				
1827	91	95	95				
1828	99	96	100				
1829	72	94	87				
1830	68	88	87				
1831	69	88	86				
1832	74	82	89				
1833	72	80	91				
1834	67	77	88				
1835	55	75	75				
1836	57	71	77				
1837	59	75	74				
1838	55	75	73				
1839	63	78	76				

Table DA.12 (cont.)

City:	London	Hamburg	London	Boston	London	Hamburg	London
Type:	Dry	Dry	Dry	Dry	Dry	Salted	Salted
Source:	GRS	JR.1	HD	P	S.1	JR.1	S.2
1840	77	84	88	67			
1841	67	76	75	67			
1842	60	68	65	61			
1843	56	65	61	60		33	
1844	58	68	68	59		38	
1845	57	69	68	62		39	
1846	52		67	56	60	37	
1847	47		61	57	54	34	
1848	43		51	45	44	31	
1849	41		52	49	42	30	
1850	41		53	59	45	32	
1851			56	62	53	35	
1852			55	67	51	34	
1853				80	59	44	
1854				95	68	49	
1855				104	80	53	55
1856				120	99	63	73
1857				141	124	83	78
1858				112	101	60	64
1859				118	103	68	73
1860				110	106	74	73
1861				92	92	65	64
1862				98	85	63	60
1863				89	73	52	53
1864				74	71	52	53
1865				81	67	49	51
1866				88	64	49	51
1867				91	64	50	51
1868				93	71	56	55
1869				100	73	53	51
1870				107	76	56	53
1871				113	83		60
1872				121	96		69
1873				118	101		76
1874				118	96		73
1875				100	85		73
1876				89	69		64
1877				102	78		71
1878				93	78		62
1879				95	73		62
1880				96	87		69
1881				108	83		64
1882				110	83		64
1883				107	83		64
1884				108	83		64
1885				103	80		60
1886				95	73		53
1887				87	71		57
1888				77	62		45
1889				73	57		46
1890				64	53		51

Table DA.12 (cont.)

City:	London	Hamburg	London	Boston	London	Hamburg	London
Type:	Dry	Dry	Dry	Dry	Dry	Salted	Salted
Source:	GRS	JR.1	HD	P	S.1	JR.1	S.2
1891				61	51		47
1892					51		42
1893					51		45
1894					51		44
1895					65		57
1896					62		51
1897					60		51
1898					64		56
1899					68		57
1900					75		57
1901					78		55
1902					79		59
1903					73		60
1904					76		62
1905					83		67
1906					92		71
1907					90		70
1908					76		54
1909					85		64
1910					90		70
1911					90		69
1912					96		77
1913					114		87
1914					121		87
1915					119		101
1916					135		122
1917					184		147
1918					185		127
1919					207		178
1920					188		168
1921					89		82
1922					84		82
1923					87		75
1924					92		79
1925					105		81
1926					95		73
1927					113		96
1928					142		109
1929					97		76
1930					62		60
1931					51		54
1932					45		44
1933					48		43
1934					44		45
1935					47		47
1936					57		55
1937					80		69
1938					61		51

Sources:

GRS: Gayer, Rostow, and Schwartz, *Growth and Fluctuation*.

Table DA.12 (cont.)

JR: Jacobs and Richter, *Großhandelpreise in Deutschland*, pp. 68-69.

HD: Halperín Donghi, 'Expansión ganadera', p. 65.

P: US Senate, *Wholesale Prices*, p. 141.

S: Sauerbeck, 'Prices of Commodities and the Precious Metals', p. 640; idem, 'Prices of Commodities in 1898', *Journal of the Statistical Society of London*, 62:1, 1899, p. 192; 'Prices of Commodities in 1912', *Journal of the Statistical Society of London*, 76:4, 1913, p. 408; Editor of the '*Statist*', 'Wholesale Prices in 1917', *Journal of the Statistical Society of London*, 81:2, 1918, p. 348; idem, 'Wholesale Prices of Commodities in 1924', *Journal of the Statistical Society of London*, 88:2, 1925, p. 277; and idem, 'Wholesale Prices in 1939', *Journal of the Royal Statistical Society*, 103:3, 1940, p. 360.

Table DA.13

Hide Prices in Buenos Aires, 1780-1851

Type:	Dry hides (pesos per 35 lb)						Salted hides (pesos per 60 lb)		Dry hides (£ per ton)*						Salted hides (£ per ton)**	
Source:	M	P.1	P.2	B.1	B.2	B.3	P.3	B.4	M	P.1	P.2	B.1	B.2	B.3	P.3	B.4
1780	1.1								15							
1781	1.0								15							
1782	1.0								15							
1783	1.2								18							
1784	1.5								20							
1785	1.1								15							
1786	1.0								14							
1787	1.3								18							
1788	1.3								18							
1789	1.2								17							
1790	0.6								9							
1791	1.1								16							
1792	1.0								14							
1793	1.0								14							
1794	1.2								16							
1795	1.8								24							
1796	1.8								24							
1797																
1798																
1799																
1800																
1801																
1802																
1803																
1804																
1805																
1806																

Table DA.13 (cont.)

Type:	Dry hides (pesos per 35 lb)						Salted hides (pesos per 60 lb)		Dry hides (£ per ton)*						Salted hides (£ per ton)**	
Source:	M	P.1	P.2	B.1	B.2	B.3	P.3	B.4	M	P.1	P.2	B.1	B.2	B.3	P.3	B.4
1807																
1808																
1809																
1810		1.5								23						
1811		1.5								23						
1812		2.5								42						
1813		2.5								46						
1814		2.5								42						
1815		2.5								42						
1816		4.0								55						
1817		4.0								56						
1818		4.0								58						
1819		4.0								57						
1820		4.0								54						
1821		6.0	5.4				5.0			79	71				38	
1822		6.0	5.8				5.3			79	77				41	
1823		6.0	6.3				5.6			71	74				39	
1824		6.0								62						
1825																
1826																
1827																
1828																
1829				23.3				17.6				57				25
1830				34.3				26.2				63				28
1831				31.4				21.7				57				23
1832				31.1				21.0				58				23
1833				32.8				23.2				58				24
1834				33.5				23.5				62				25
1835				32.2				22.8				57				24

Table DA.13 (cont.)

Type:	Dry hides (pesos per 35 lb)						Salted hides (pesos per 60 lb)		Dry hides (£ per ton)*						Salted hides (£ per ton)**	
Source:	M	P.1	P.2	B.1	B.2	B.3	P.3	B.4	M	P.1	P.2	B.1	B.2	B.3	P.3	B.4
1836				30.9				22.2				56				23
1837				32.6				24.0				53				23
1838				32.3				23.5				47				20
1839				38.0				30.8				36				17
1840								41.5								15
1841					61.8	67.3		55.0					43	47		22
1842					56.4	60.3		51.5					43	46		23
1843					54.4	57.9		52.4					43	46		24
1844					45.1	49.3		44.8					43	47		25
1845					39.6	44.5		41.7					33	38		21
1846					41.3	47.7		42.1					25	29		15
1847					40.3	45.2		42.6					25	28		15
1848					39.6	42.8		36.3					22	23		12
1849					43.0	44.4		33.6					28	29		13
1850					44.3	46.4		37.0					39	41		19
1851					57.2	60.4		45.0					43	46		20

* Converted to metric tons by multiplying the peso series by 62.193 (because 35 lb equals 16.079 kg), then dividing by the exchange rates in Table DA.11.

** Converted to metric tons by multiplying the peso series by 36.279 (because 60 lb equals 27.564 kg), then dividing by the exchange rates in Table DA.11.

Sources:

B.1 (35 lb pesada, best quality), B.2 (35 lb pesada, best quality to North America), B.3 (35 lb pesada, best quality to Spain), and B.4 (60 lb pesada, best quality): and Broide, 'Evolución de los precios', pp. 41-43, 50, Cuadros 16-18, 20.

M (unit values): Moutoukias, 'Crecimiento en una economía', p. 804, Cuadro 3.

P.1 (35 lb pesada): Anon., 'Report on the Trade', p. 42

P.2 (35 lb pesada) and P.3 (60 lb pesada): Anon., 'Precios corrientes de productos', p. 60.

Table DA.14

Hide Prices in Buenos Aires, 1863-1938

Type:	Dry hides (o$s per ton)*				Salted hides (o$s per ton)*					Dry hides (£ per ton)				Salted hides (£ per ton)				
Source:	CHG.1	CHG.1a	DGE.1	UV.1	A	CHG.2	CHG.2a	DGE.2	UV.2	CHG.1	CHG.1a	DGE.1	UV.1	A	CHG.2	CHG.2a	DGE.2	UV.2
1864	556	346			149	121	153			115	71			31	25	32		
1865	495	308			128	103	131			101	63			26	21	27		
1866	518	322			134	109	139			108	67			28	23	29		
1867	559	348			148	117	149			113	70			30	24	30		
1868	589	366			168	136	172			121	75			34	28	35		
1869	554	345			163	132	168			116	72			34	28	35		
1870	593	369			171	139	176			124	77			36	29	37		
1871	620	386			200	163	207			131	81			42	34	44		
1872	738	459			230	186	236			157	98			49	40	50		
1873	784	488			253	200	254			162	101			52	41	52		
1874	718	447			253	191	242			150	93			53	40	51		
1875	670	417			246	183	233			140	87			51	38	49		
1876	607	378			209	145	184			128	80			44	30	39		
1877	684	425			227	171	217			144	89			48	36	46		
1878	631	392			195	150	191			132	82			41	31	40		
1879	663	412			209	160	203			138	86			44	33	42		
1880	745				216	180				157				45	38			
1881	592				213	193				124				45	41			
1882	575				204	193				122				43	41			
1883	572				213	166				120				45	35			
1884	657				206	163				129				40	32			
1885	617				212	279				116				40	53			
1886	415				175	198				82				35	39			
1887	388				173	194				77				34	38			
1888	243				167	142				48				33	28			
1889	217				136	127				43				27	25			
1890	197				131	125				40				26	25			
1891	172				126	126				35				25	25			

Table DA.14 (cont.)

Type:	Dry hides (o$s per ton)*				Salted hides (o$s per ton)*					Dry hides (£ per ton)				Salted hides (£ per ton)				
Source:	CHG.1	CHG.1a	DGE.1	UV.1	A	CHG.2	CHG.2a	DGE.2	UV.2	CHG.1	CHG.1a	DGE.1	UV.1	A	CHG.2	CHG.2a	DGE.2	UV.2
1892	189		189		127	117		117		38		38		25	23		23	
1893	195		197		130	125		125		39		39		26	25		25	
1894	175		175		133	133		133		35		35		27	27		27	
1895	316		316		190	177		194		63		63		38	35		39	
1896	285		285		166	173		173		57		57		33	34		34	
1897	298		298		172	153		153		59		59		34	30		30	
1898	290		290		190	188		188		58		58		38	37		37	
1899	329		329		197	190		190		66		66		40	38		38	
1900	332		332		204	199		199		66		66		41	40		40	
1901	330		330		189	190		190		66		66		38	38		38	
1902	330		330		183	180		180		66		66		37	36		36	
1903	337		337		195	185		185		68		68		39	37		37	
1904	358		358		186	185		185		72		72		37	37		37	
1905	404		404		227	224		224		81		81		46	45		45	
1906	459		459		256	257		257		92		92		51	52		52	
1907			409	394	245			243	248			82	79	49			49	50
1908			288	288	202			206	206			58	58	40			41	41
1909			383	406	275			268	270			77	81	55			54	54
1910			462	461	295			281	278			92	92	59			56	56
1911			447	449	283			272	270			89	90	57			54	54
1912			544	549	328			318	316			109	110	66			64	63
1913			649	659	401			374	373			130	132	80			75	75
1914			608	612	415			363	362			122	123	84			73	73
1915			591	598	420			428	428			119	120	84			86	86
1916				753	480				493				154	98				101
1917				770	656				532				160	137				111
1918				694	640				449				147	136				95
1919				843	841				672				188	187				150
1920				667	710				586				163	173				143
1921				397	533				356				75	101				67

Table DA.14 (cont.)

Type:	Dry hides (o$s per ton)*					Salted hides (o$s per ton)*					Dry hides (£ per ton)					Salted hides (£ per ton)				
Source:	CHG.1	CHG.1a	DGE.1	UV.1		A	CHG.2	CHG.2a	DGE.2	UV.2	CHG.1	CHG.1a	DGE.1	UV.1		A	CHG.2	CHG.2a	DGE.2	UV.2
1922				381		572				369				70		106				68
1923				461		544				383				79		93				65
1924				485		518				367				86		92				65
1925				548		448				388				104		85				73
1926				517		388				339				98		73				64
1927				612		445				427				121		88				84
1928				746						463				147						91
1929				472						305				92						60
1930				345						268				59						46
1931				290						253				43						37
1932				244						201				40						33
1933				267						213				45						36
1934				296						225				43						33
1935				316						248				46						36
1936				343						281				51						41
1937				487						381				73						57
1938				335						268				49						39

* During 1917-38 the gold peso (o$s) is a notional money of account, equivalent to 2.27 paper pesos (m$n).

Sources:

A (Argentine meatpackers, steers): Álvarez, *Temas de historia económica*, pp. 212-14.

CHG: Cortés Conde, Halperín Donghi, and Gorostegui de Torres, 'Evolución del comercio exterior', p. 78.

DGE: DGEN, *Extracto estadístico*, pp. 204-05.

UV (unit values, based on wholesale prices): Tornquist, *Economic Development*, pp. 168, 171; and Vázquez-Presedo, *Estadísticas históricas*, II, pp. 206-07.

Exchange rates: Table DA.11.

Table DA.15

Argentina's Export Prices, 1780-1938

	Hides, dried	Hides, salted	Jerked beef	Wool	Fat and tallow	Cattle*	Sheep skins	Wheat	Maize	Wheat flour	Linseed	Goat skins	Px index**
1780	15												16
1781	15												15
1782	15												16
1783	18												18
1784	20												21
1785	15												15
1786	14												14
1787	18												19
1788	18												19
1789	17												18
1790	9												9
1791	16												16
1792	14												15
1793	14												14
1794	16												16
1795	24												25
1796	24												25
1797													
1798													
1799													
1800													
1801													
1802													
1803													
1804													
1805													
1806													
1807													

Table DA.15 (cont.)

	Hides, dried	Hides, salted	Jerked beef	Wool	Fat and tallow	Cattle*	Sheep skins	Wheat	Maize	Wheat flour	Linseed	Goat skins	Px index**
1808													
1809													
1810	23												24
1811	23												24
1812	42												44
1813	46												47
1814	42												43
1815	42												44
1816	55												56
1817	56												58
1818	58												60
1819	57												59
1820	54												56
1821	71	38											74
1822	77	41											80
1823	74	39											76
1824													
1825													
1826													
1827													
1828													
1829	57	25	10.3										58
1830	63	28	8.0										61
1831	57	23	7.2										55
1832	58	23	9.7										57
1833	58	24	8.8	27	32								57
1834	62	25	9.7	32	28								61
1835	57	24	9.8	26	28								57
1836	56	23	12.1	27	30								58
1837	53	23	9.0	25	28								53

Table DA.15 (cont.)

	Hides, dried	Hides, salted	Jerked beef	Wool	Fat and tallow	Cattle*	Sheep skins	Wheat	Maize	Wheat flour	Linseed	Goat skins	Px index**
1838	47	20	7.7	19	25								47
1839	36	17	6.0	16	21								36
1840		15	6.1	14	19								
1841	43	22	8.3	20	30								45
1842	43	23	5.4	23	33								44
1843	43	24	10.4	24	22								46
1844	43	25	7.9	33	16								45
1845	33	21	7.4	28	13								35
1846	25	15	7.7	18	14								28
1847	25	15	8.0	17	20								29
1848	22	12	8.0	19	18								26
1849	28	13	8.8	27	20								32
1850	39	19	12.4	42	23								44
1851	43	20	8.8	40	25								46
1852													
1853													
1854													
1855													
1856													
1857													
1858													
1859													
1860													
1861													
1862													
1863													
1864	71	31	11	52	31	1.6	56						71
1865	63	26	9	57	32	1.3	48						65
1866	67	28	9	54	35	1.5	57						69
1867	70	30	9	45	33	1.4	54						64

Table DA.15 (cont.)

	Hides, dried	Hides, salted	Jerked beef	Wool	Fat and tallow	Cattle*	Sheep skins	Wheat	Maize	Wheat flour	Linseed	Goat skins	Px index**
1868	75	34	9	40	33	1.5	55						62
1869	72	34	9	37	36	1.4	56						59
1870	77	36	13	43	35	1.5	57						66
1871	81	42	18	50	35	1.8	70						75
1872	98	49	13	68	36	1.7	62						90
1873	101	52	13	56	34	1.8	60						83
1874	93	53	17	62	33	1.9	58						85
1875	87	51	24	63	34	2.1	57						86
1876	80	44	24	49	34	2.0	45						72
1877	89	48	30	56	34	2.4	45						81
1878	82	41	25	55	32	2.2	46	8.8					77
1879	86	44	29	66	32	2.4	40	6.8	3.7				85
1880	80	45	31	56	31	3.2	61	15.8	5.0	25.1			81
1881	75	45	32	58	31	3.0	48	13.5	3.8	21.0			78
1882	70	43	32	63	32	3.2	35	11.4	4.3	19.1			79
1883	65	45	25	60	35	2.5	43	7.7	5.0	15.4			75
1884	60	40	20	56	29	2.2	30	7.6	4.0	15.5			67
1885	56	40	18	45	28	1.7	27	5.4	2.8	11.5			55
1886	52	35	18	59	21	1.8	17	8.6	3.3	12.5			61
1887	49	34	23	56	22	1.7	31	6.5	3.1	10.9	7.5		61
1888	46	33	11	45	16	1.7	29	6.5	4.7	12.9	7.1		54
1889	42	27	16	41	16	1.7	34	7.0	5.6	16.4	7.1		53
1890	40	26	18	44	20	1.5	36	6.1	2.3	13.4	7.3		51
1891	35	25	18	41	20	1.4	32	8.3	4.8	13.3	8.9		51
1892	38	25	17	33	20	3.1	32	6.2	3.9	10.9	12.4		49
1893	39	26	21	37	23	3.1	32	4.6	3.7	7.0	7.8	104	50
1894	35	27	21	34	20	4.8	27	3.4	3.8	5.0	6.5	61	46
1895	63	38	16	33	17	5.0	24	3.9	2.6	6.9	5.9	94	49
1896	57	33	13	40	15	5.0	26	4.8	2.0	7.5	5.9	95	51
1897	59	34	13	37	17	4.9	21	6.7	2.9	11.6	6.1	101	57

Table DA.15 (cont.)

	Hides, dried	Hides, salted	Jerked beef	Wool	Fat and tallow	Cattle*	Sheep skins	Wheat	Maize	Wheat flour	Linseed	Goat skins	Px index**
1898	58	38	19	51	17	5.1	28	6.9	2.6	9.9	6.8	117	63
1899	66	40	21	58	19	5.7	42	4.5	2.3	6.4	6.8	75	61
1900	66	41	24	51	23	7.6	42	5.0	3.4	6.7	9.7	127	70
1901	66	38	24	39	23	9.4	34	5.8	3.4	7.6	9.7	139	68
1902	66	37	24	48	26	8.0	40	5.8	3.9	8.2	10.4	143	72
1903	68	39	24	52	25	8.7	48	4.9	3.2	8.7	7.2	130	69
1904	72	37	27	57	22	6.8	46	5.8	3.6	8.9	6.4	102	71
1905	81	46	30	68	22	7.0	62	6.0	4.2	7.5	8.0	113	81
1906	92	51	26	79	26	7.7	70	5.9	4.0	7.0	9.5	110	87
1907	82	49	22	77	31	8.4	70	6.2	4.7	7.4	9.4	124	89
1908	58	40	23	54	28	8.7	43	7.1	4.9	9.1	9.3	81	81
1909	77	55	23	68	28	9.4	51	8.4	5.2	9.7	9.8	93	93
1910	92	59	22	78	33	10.4	54	7.7	4.5	8.6	14.8	118	100
1911	89	57	27	77	31	10.5	52	7.1	4.4	8.0	16.2	102	98
1912	109	66	32	71	30	10.7	54	7.5	4.5	10.5	13.3	107	98
1913	130	80	34	76	32	12.7	59	7.3	4.7	11.6	9.8	117	100
1914	123	73		81	30		62	7.6	4.4	13.4	10.2		104
1915	120	86		95	31		68	10.6	4.3	17.4	9.4		117
1916	160	105		116	41		89	8.9	5.2	13.7	11.9		128
1917	160	111		166	62		127	13.5	9.3	23.6	18.4		175
1918	147	95		207	59		130	11.9	5.2	17.6	18.7		161
1919	188	150		206	71		120	13.7	6.6	18.3	26.0		195
1920	163	143		177	70		117	16.7	8.2	22.0	21.8		195
1921	75	67		58	35		35	14.3	9.6	23.6	16.0		143
1922	70	68		45	33		37	9.6	6.6	21.0	17.3		109
1923	79	65		76	39		53	8.3	6.8	13.6	17.9		117
1924	86	65		109	39		90	8.5	6.7	13.4	17.9		125
1925	104	73		126	43		102	12.1	7.0	15.7	19.3		147
1926	98	64		96	35		81	10.9	4.9	15.1	13.9		119
1927	121	84		101	29		81	9.4	5.1	13.7	13.3		118

Table DA.15 (cont.)

	Hides, dried	Hides, salted	Jerked beef	Wool	Fat and tallow	Cattle*	Sheep skins	Wheat	Maize	Wheat flour	Linseed	Goat skins	Px index**
1928	147	91		126	33		92	9.3	7.0	12.2	14.9		138
1929	92	60		104	33		73	8.2	6.6	11.3	18.1		133
1930	59	46		55	25		46	7.1	4.5	11.4	14.2		98
1931	43	37		38	16		36	3.7	3.0	8.2	8.8		70
1932	40	33		40	17		27	4.8	2.9	7.6	6.9		64
1933	45	36		42	16		39	4.1	2.9	6.2	8.0		62
1934	43	33		70	16		50	4.0	4.1	6.9	10.3		74
1935	46	36		52	22		44	4.6	2.9	7.6	10.1		76
1936	51	41		69	23		63	6.1	3.4	9.4	12.3		90
1937	73	57		92	21		74	8.0	4.3	11.2	13.3		108
1938	49	39		61	18		44	6.1	4.5	7.9	12.3		95

* £ per head.

** 1910 = 100. Includes the prices in Table DA.16. See Appendix 4.1.

Note: All series are in £ per metric ton, except cattle.

Sources:

Exchange rates: Table DA.11.

Hide prices: Tables DA.13 and DA.14.

Other export pricess: Compiled from Broide, 'Evolución de los precios', pp. 26, 30, 34, Cuadros 9, 11, and 13; Cortés Conde, Halperin Donghi, and Gorostegui de Torres, 'Evolución del comercio', pp. 72-79; Tornquist, *Economic Development*, pp. 167-72; Bunge, *Intercambio económico*, ch. 11; and Vázquez-Presedo, *Estadísticas históricas*, II, pp. 194-221.

Table DA.16

Argentina's Export Prices, 1910-1938

	Barley	Beef, chilled	Beef, conserved	Beef, frozen	Bran	Butter	Oats	Sugar	Quebracho logs	Quebracho extract	Rye	Cotton	Sheep skins, bare	Mutton, frozen and chilled	Casein	Guts, salted	Offal, frozen	Wool, washed	Wool, clean	Px index*
1910	5.6	28	35	28	3.6	126	4.4	36	3.3	17	2.5									100
1911	4.4	28	48	28	4.3	133	4.6	36	3.2	15	2.5									98
1912	4.8	29	40	29	3.7	132	4.9	38	2.6	13	4.8									98
1913	4.9	36	35	36	3.5	121	4.6	35	2.6	13	5.2									100
1914	4.9	41	57	41	3.7	130	5.0	35	2.6	13	5.6	49	40							104
1915	5.3	43	71	43	2.2	134	6.4	35	2.6	32	6.6	48	40							117
1916	5.2	46	84	46	3.2	154	4.4	46	2.9	41	6.7	69	106	39	40	10	13	101		128
1917	8.8	46	73	40	3.8	159	7.8	52	3.0	31	20.9	69	137	39	57	13	44	424		175
1918	5.6	48	97	58	2.9	169	6.3	64	3.3	21	8.5	101	76	49	38	27	41	300		161
1919	6.8	69	113	73	3.5	169	6.2	43	4.1	34	7.8	53	70	60	30	19	42	228		195
1920	8.4	52	77	52	5.7	169	7.4	48	4.9	33	13.1	76	81	52	30	28	40	187	139	195
1921	9.3	49	57	50	5.3	169	7.4	44	4.8	22	13.0	39	42	48	27	29	36	149	73	143
1922	7.2	26	55	26	5.1	137	7.1	30	3.9	21	8.3	43	30	23	26	35	14	148	67	109
1923	6.8	35	42	29	4.5	168	6.7	63	3.7	18	7.1	50	33	37	34	36	27	306	94	117
1924	7.6	34	52	30	5.3	152	6.6	37	3.9	16	7.4	79	54	47	27	44	26	213	152	125
1925	10.4	40	52	34	6.1	162	8.2	26	4.4	18	13.1	71	87	49	37	58	26	277	161	147
1926	6.6	35	51	32	4.1	139	6.1	30	3.9	17	7.7	62	85	32	38	44	28	175	119	119
1927	7.7	31	50	28	5.0	139	6.4	13	4.2	21	8.6	57	76	33	39	55	26	214	111	118
1928	9.3	41	51	36	6.1	149	9.0	32	4.8	22	9.8	63	78	42	36	50	38	226	124	138
1929	8.2	48	58	42	6.0	166	7.9	35	5.9	22	9.3	74	81	43	54	56	33	245	131	133
1930	3.4	39	50	34	3.1	109	3.3	27	4.3	18	3.4	59	65	34	42	46	28	188	91	98
1931	3.5	35	45	31	3.1	106	3.3	32	3.9	15	3.6	86	45	31	11	46	25	150	73	70
1932	4.8	25	18	23	3.3	80	3.8	28	3.0	10	4.8	37	34	25	7	42	22	81	65	64
1933	3.3	26	19	19	2.6	68	3.1	30	3.3	11	3.2	42	17	24	26	48	22	78	46	62
1934	4.0	30	22	20	3.9	70	3.8	32	3.6	13	4.4	63	15	33	36	49	23	108	52	74

Table DA.16 (cont.)

	Barley	Beef, chilled	Beef, conserved	Beef, frozen	Bran	Butter	Oats	Sugar	Quebracho logs	Quebracho extract	Rye	Cotton	Sheep skins, bare	Mutton, frozen and chilled	Casein	Guts, salted	Offal, frozen	Wool, washed	Wool, clean	Px index*
1935	4.7	38	25	20	4.0	90	4.5	33	3.8	18	4.1	63	16	53	35	56	22	101	62	76
1936	5.2	41	26	21	4.5	94	4.9	33	4.1	17	5.1	69	33	59	48	58	20	135	65	90
1937	7.2	42	39	27	3.5	92	5.3	31	3.9	18	10.4	58	43	61	52	45	31	189	115	108
1938	7.5	42	52	28	4.8	105	5.1	35	4.1	18	5.9	47	29	61	23	32	34	139	84	95

* 1910 = 100. Includes the prices from Table DA.15. See Appendix 4.1.

Note: All series are in £ per metric ton.

Sources:

Exchange rates: Table DA.11.

Prices: Compiled from Bunge, *Intercambio económico*, ch. 11; Tornquist, *Economic Development*, pp. 167-72; and Vázquez-Presedo, *Estadísticas históricas*, II, pp. 194-221.

Table DA.17

Argentina's Proxy Import Price Index, 1780-1938

	Px indices, 1913=100*						Proxy Pi Index**
	Britain	USA	France	Brazil	Italy	Germany	
1780	395						320
1781	389						316
1782	400						324
1783	393						319
1784	386						313
1785	388						315
1786	392						318
1787	394						320
1788	388						315
1789	390						316
1790	393	73					319
1791	401	63					315
1792	415	61					322
1793	423	72					337
1794	424	73					339
1795	429	113					371
1796	456	134					402
1797	439	131					389
1798	433	157					397
1799	461	177					427
1800	469	107					395
1801	474	117					405
1802	466	98					386
1803	463	97					384
1804	459	108					388
1805	465	120					400
1806	443	107					376
1807	411	102					352
1808	395	83					328
1809	370	85	223				312
1810	373	100	235				324
1811	319	112	233				294
1812	356	117	225				320
1813	362***	112	221				321
1814	368	100	189				314
1815	326	124	189				298
1816	305	158	162				291
1817	284	174	195				285
1818	293	182	206				296
1819	279	144	184				271
1820	251	106	160				235
1821	235	88	157	149			217
1822	219	91	154	119			202
1823	212	79	146	135			196
1824	206	86	140	103			187
1825	216	105	148	128			205
1826	202	78	137	108			184
1827	187	69	126	96			168
1828	183	69	124	90			164
1829	167	73	122	79			154

Table DA.17 (cont.)

	Px indices, 1913=100*						Proxy Pi Index**
	Britain	USA	France	Brazil	Italy	Germany	
1830	164	70	116	71			148
1831	160	68	112	53			139
1832	157	72	111	68			143
1833	149	80	115	70			142
1834	148	91	123	70			145
1835	158	103	124	61			151
1836	164	107	134	68			159
1837	152	93	123	63			146
1838	145	79	121	48			134
1839	143	104	119	54			140
1840	131	66	119	61			128
1841	131	73	117	58			128
1842	124	65	113	52			119
1843	116	53	115	45			110
1844	117	61	124	41			113
1845	124	53	125	40			115
1846	114	64	128	45			115
1847	122	78	110	41			117
1848	104	64	112	43			106
1849	101	58	121	37			102
1850	105	82	127	49			114
1851	102	84	128	51			113
1852	104	65	138	53			115
1853	121	64	155	50			127
1854	121	80	154	61			132
1855	111	81	147	57			124
1856	117	84	156	64			132
1857	125	97	153	70			139
1858	112	88	144	70			128
1859	115	86	151	63			130
1860	113	82	148	78			130
1861	113	83	139	75			127
1862	135	73	141	76	127		137
1863	149	48	141	85	123		139
1864	157	35	140	96	121		139
1865	139	47	137	83	123		133
1866	144	61	130	79	115		135
1867	135	73	123	72	119		130
1868	126	69	119	71	117		124
1869	125	74	117	58	122		121
1870	122	87	115	66	122		123
1871	122	90	115	65	123		123
1872	135	89	117	64	144		131
1873	140	85	113	94	137		135
1874	132	88	108	102	128		130
1875	124	90	106	91	121		124
1876	114	84	105	98	140		120
1877	110	86	103	89	124		116
1878	106	87	98	81	113		111
1879	99	93	99	73	116		107
1880	103	102	101	96	112	130	113
1881	99	105	100	79	114	131	109

Table DA.17 (cont.)

	Px indices, 1913=100*						Proxy Pi Index**
	Britain	USA	France	Brazil	Italy	Germany	
1882	101	107	99	63	111	134	109
1883	97	102	97	48	109	130	104
1884	94	98	93	57	104	120	101
1885	90	91	90	53	101	110	96
1886	86	86	88	48	99	106	92
1887	86	86	87	68	93	107	94
1888	86	90	88	86	87	109	95
1889	87	86	91	87	93	111	97
1890	91	85	91	86	95	111	97
1891	90	88	90	82	88	107	96
1892	86	82	87	81	87	101	91
1893	86	80	88	101	82	100	91
1894	82	70	82	92	74	93	85
1895	79	72	80	85	81	93	84
1896	79	71	79	74	75	95	83
1897	78	69	80	55	75	95	82
1898	79	69	81	52	74	95	82
1899	82	72	86	53	78	99	86
1900	95	81	87	69	79	102	94
1901	90	79	85	59	79	98	90
1902	86	81	85	53	82	95	89
1903	86	87	86	56	86	96	90
1904	87	87	85	71	84	97	91
1905	87	84	87	76	86	98	92
1906	92	90	91	73	91	97	96
1907	96	95	92	73	96	102	100
1908	93	90	91	71	89	97	96
1909	89	94	93	82	90	96	95
1910	93	102	97	110	96	96	100
1911	95	94	99	115	99	97	97
1912	96	96	99	129	99	99	98
1913	100	100	100	100	100	100	100
1914	102	96	103	82	102	99†	99
1915	129	108	148	74	105	124†	118
1916	168	138	146	87	136	144†	146
1917	225	181	209	87	186	193†	194
1918	253	211	293	90	239	233†	230
1919	277	237	302	148	267	248†	256
1920	358	309	225	108	225	264†	281
1921	269	199	169	58	163	186†	197
1922	201	158	169	71	157	154†	165
1923	190	164	146	70	140	144†	157
1924	189	167	155	98	143	145†	161
1925	184	154	134	118	139	142	155
1926	174	141	119	112	146	137	146
1927	165	132	119	94	154	140	142
1928	165	135	118	108	143	142	143
1929	161	134	113	99	134	139	138
1930	154	120	107	62	118	132	125
1931	138	98	92	42	109	124	109
1932	129	110	95	46	116	144	115
1933	128	95	91	36	110	142	107

Table DA.17 (cont.)

	Px indices, 1913=100*						Proxy Pi Index**
	Britain	USA	France	Brazil	Italy	Germany	
1934	129	94	92	33	106	142	105
1935	129	99	92	27	112	140	106
1936	132	99	97	31	114	140	109
1937	143	106	108	35	113	154	117
1938	146	99	94	23	114	163	112

* When not given in sterling, the series were converted using the exchange rates in Table DA.6.

** See Appendix 4.1, pages 187-88.

*** Interpolated.

† Interpolated, following the geometric mean of the export indices of Britain, France, and the United States.

Sources:

Brazil: Calculated from IBGE, *Estatísticas Históricas*, pp. 345-56. See Appendix 4.1, page 188.

Britain: Cuenca Esteban, 'Rising Share', p. 901, App. Table 1; Imlah, *Economic Elements*, pp. 94-98, Table 8; and Feinstein, *National Income*, pp. T132-32, Table 61.

France: Kindleberger, 'Industrial Europe's', p. 21; and Lévy-Leboyer, 'Héritage de Simiand', pp. 108-111, Table 5

Germany: Hoffmann, *Wachstum der deutschen*, pp. 606-09, Table 151.

Italy: Federico et al, *Commercio estero*, pp. 228-29, Tabella 7b.

United States: Irwin, 'Exports and Imports'.

Table DA.18

The 100 Largest Corporations Registered in Argentina, 1914

Rank	Corporation	Activity	Nationality*	Capital**
1	Ferrocarril Central Argentino	Railways	Foreign (British)	580.1
2	Ferrocarril de Buenos Aires al Pacífico	Railways	Foreign (British)	333.8
3	Ferrocarril Central de Córdoba	Railways	Foreign (British)	230.9
4	Anglo Argentine Tramways	Passenger transport	Mixed (Anglo-Argentine)	200.0
5	Banco Hipotecario Franco Argentino	Mortgages	Mixed (Argentine, Belgian, German)	145.0
6	Banco Español del Río de la Plata	Banking	Mixed (Argentine, British, French, Spanish)	137.5
7	Banco de la Nación Argentina	Banking	Argentine (government)	128.0
8	Banco El Hogar Argentino	Mutual credit	Argentine	98.0
9	Ferrocarril de Entre Ríos	Railways	Foreign (Anglo-French)	91.0
10	Ferrocarril de Rosario a Puerto Belgrano	Railways	Mixed (Argentine, Belgian, French)	78.4
11	Banco de la Provincia de Buenos Aires	Banking	Argentine (government)	75.0
12	Banco Francés del Río de la Plata	Banking	Mixed (Franco-Argentine)	70.0
13	North British Mercantile Insurance Company	Insurance	Foreign (British)	50.0
14	Compañía Primitiva de Gas de Buenos Aires	Gas factory	Foreign (British)	43.5
15	Royal Insurance Company	Life insurance	Foreign (British)	42.5
16	Argentine Navegation Company (Nicolás Mihanovich)	Shipping	Mixed (Anglo-Argentine)	35.3
17	Australian Mercantile Land and Finance	Agriculture, finance	Mixed (Argentine, Australian, British)	34.4
18	Scottish Unión y Nacional	Fire insurance	Foreign (British)	34.4
19	Ferrocarril Midland de Buenos Aires	Railways	Foreign (British)	34.2
20	Banco Galicia y Buenos Aires	Banking	Argentine	34.0
21	South American Stores Gath y Chaves Ltda	Retailing	Mixed (Anglo-Argentine)	33.4
22	M.S. Bagley y Cía	Biscuits	Argentine	33.0
23	London and Lancashire Fire Insurance Company	Fire insurance	Foreign (British)	30.0
24	Banco Londres y Río de la Plata	Banking	Foreign (British)	28.0
25	Banco Anglo Sud Americano	Banking	Foreign (British)	27.5
	The River Plate Trust Loan Agency	Mortgages	Mixed (Anglo-Argentine)	27.5
26	Lacroze de Buenos Aires	Passenger transport	Mixed (Anglo-Argentine)	25.0
27	United River Plate Telephone Company	Telephones	Foreign (British)	24.0

Table DA.18 (cont)

Rank	Corporation	Activity	Nationality*	Capital**
28	Guardian Assurance	Fire insurance	Foreign (British)	22.9
29	Banco Italia y Río de la Plata	Banking	Mixed (Argentine, Italian, Swiss)	22.7
30	Sociedad Hipotecaria Belga Americana	Mortgages	Mixed (Belgo-Argentine)	22.0
30	Compañía de Electricidad de Buenos Aires	Electricity	Mixed (Franco-Argentine and others)	22.0
31	Ferrocarril Central de Buenos Aires	Railways	Argentine	20.2
32	Central and South American Telegraph Company	Telegraphs	Foreign (US)	20.0
33	Liebig's Extract of Meat Company	Beef	Foreign (Belgian, British, German)	18.3
34	Crédito Territorial Sud Americano	Mortgages	Mixed (Argentine, Belgian, French)	18.0
	Sociedad General Belga Argentina	Mortgages	Mixed (Belgo-Argentine)	18.0
	Catalinas Warehouses and Mole Company	Warehousing	Mixed (Anglo-Argentine)	18.0
35	Harrods	Retailing	Mixed (Anglo-Argentine)	17.3
36	Ernesto Tornquist Company	Banking	Mixed (Belgo-Argentine)	17.0
37	La Plata Cold Storage	Meatpacking	Mixed (Argentine, British, US)	17.0
38	Comp Argent de Hierros y Aceros (P. Vasena e hijos)	Metalurgy	Mixed (Anglo-Argentine)	16.5
39	Leach's Argentine Est.	Sugar factory	Foreign (British)	16.0
40	New Zealand Insurance Company	Insurance	Mixed (Argentine, Australian, British, New Zealander)	15.5
41	Banco Francés y Italiano	Banking	Foreign (Franco-Italian)	15.0
	Banco Alemán Transatlántico	Banking	Foreign (German)	15.0
	Cervecería Argentina de Quilmes	Brewing	Mixed (Argentine, Belgian, British, French, German)	15.0
42	Banco Londres y Brasil	Banking	Foreign (British)	14.3
43	Establecimientos Argentinos de Bovril	Conserved meats	Mixed (Argentine, Belgian, British)	14.1
44	The General Accident Fire Assurance Corpor	Insurance	Foreign (British)	13.2
45	Muelles y Depósitos del Puerto de la Plata	Port	Argentine	13.0
46	Compañía Sansinena de Carnes Congeladas	Meatpacking	Mixed (Argentine, Belgian, British)	11.6
47	Banco Británico de la América del Sud	Banking	Foreign (British)	11.5
	Crédito Territorial Argentino	Mortgages	Foreign (French)	11.5

Table DA.18 (cont)

Rank	Corporation	Activity	Nationality*	Capital**
48	Alliance Assurance	Insurance	Foreign (British)	11.5
	Cory Brothers Company	Coal importers	Foreign (British)	11.5
49	Ledesma Sugar Estates and Refining Company	Sugar factory	Argentine	11.0
50	Popular Argentino	Banking	Argentine	10.5
51	Crédito Territorial de Santa Fe	Mortgages	Mixed (Franco-Argentine)	10.4
52	Bodegas y Vinnedos Domingo Tomba	Wines, alcohols	Mixed (Anglo-Argentine)	10.3
53	Banco Germánico de la América del Sud	Banking	Foreign (German)	10.0
	Sociedad Hipotecaria Holandesa del Plata	Mortgages	Mixed (Argentine, Dutch)	10.0
	Crédito Territorial del Norte	Mortgages	Mixed (Argentine, Belgian, French)	10.0
	El Saladillo	Land sales	Argentine	10.0
	London Assurance	Insurance	Foreign (British)	10.0
	Bodegs y Viñedos Giol	Vineyards, wine	Argentine	10.0
54	Mercado Central de Frutos	Wholesaling	Mixed (Anglo-Argentine)	9.7
55	Société de Preis Hypothécaires en Argentine	Mortgages	Mixed (Argentine, Belgian, French)	9.0
	Las Palmas del Chaco Austral	Wood, sugar	Argentine	9.0
56	Sociedad Argentina de Edificación	Real estate	Mixed (Franco-Argentine)	8.8
57	Santa Ana	Sugar factory	Mixed (Franco-Argentine)	8.2
58	La Cooperativa Nacional de Consumos	Commerce	Foreign (British)	8.0
59	Royal Exchange Assurance	Fire insurance	Foreign (British)	7.9
60	Cervecería Bierckert	Beer	Foreign (British)	7.8
61	Piccardo y Cía	Cigarettes	Argentine	7.5
62	Sociedad Territorial Belga-Argentina	Mortgages	Mixed (Argentine, Belgian, German)	7.5
	La Holanda Argentina	Mortgages	Foreign (Dutch)	7.5
	La Agrícola Ganadera	Auction house	Argentine	7.5
63	Nuevo Banco Italiano	Banking	Mixed (Italo-Argentine)	7.0
64	Hidro-eléctric de Tucumán	Electric power	Mixed (Anglo-Argentine)	7.0

Table DA.18 (cont)

Rank	Corporation	Activity	Nationality*	Capital**
65	Azucarera Concepción	Sugar, alcohol	Argentine	6.8
66	La Ibero Platense	Loans	Mixed (Argentine, British, French)	6.8
	Destilería, Bodegas y Cervecería Germania	Distilling, brewing	Argentine	6.8
67	Droguería de la Estrella	Pharmaceuticals	Foreign (various)	6.3
68	Compañía de Aguas Corrientes de Buenos Aires	Potable water	Mixed (Anglo-Argentine)	6.2
69	Industrial y Pastoril Belga Sud Americana	Mortgages	Foreign (Belgian, French)	6.0
	Corporación Financiera e Inmobiliaria Argentina	Real estate	Mixed (Argentine, British, German)	6.0
	La Edificadora	Land sales	Mixed (Belgo-Argentine)	6.0
	Estancia 'El Albardón'	Agriculture	Argentine	6.0
	Estancia y Colonia Trenel	Agriculture	Argentine	6.0
	Bodegas Arizú	Vineyards	Mixed (Anglo-Argentine)	6.0
70	Compañía Anglo-Argentina de Electricidad	Electric plants	Mixed (Franco-Argentine)	5.9
71	The Bahia Blanca Water Works	Water works	Foreign (British)	5.7
72	Hipódromo Nacional	Race course	Argentine	5.6
73	Tierras y Colonias 'La Verde'	Agriculture	Argentine	5.2
74	Estancia 'Las Violetas'	Agriculture	Mixed (Anglo-Argentine)	5.2
75	Tramways Eléctricos de Sud	Transportation	Mixed (Argentine, British, French)	5.1
76	Argentine Land and Investment	Real estate	Mixed (Anglo-Argentine)	5.1
	Compañía General de Fósforos	Matches	Argentine	5.1
77	Ciudad de Quequén	Land sales	Argentine	5.1

* Based on where the share and bonds were emitted and/or held.

** Shares and bonds issued, million m$n.

Source: Compiled from Comisión Nacional del Censo, *Tercer censo nacional*, X, *Valores mobiliarios y estadísticas diversas*, Buenos Aires, 1917, pp 2-81

Table DA.19

Land Ownership in Buenos Aires Province, 1836-90

(a) Individual distribution

Amount of land, %

Holdings (has):	1836	1864	1890
101-500	0.1	1.9	7.7
501-1000	0.6	4.9	12.8
1001-1750	1.9	10.0	16.0
1751-2500	2.6	10.5	11.1
2501-3750	8.1	12.3	11.7
3751-5000	9.9	9.4	8.8
5001-10000	24.1	24.5	14.7
10001-15000	18.3	11.4	6.8
15001-30000	20.3	11.7	6.3
30000+	14.2	3.4	4.1
Total (ha)	*1,797,468*	*2,408,259*	*2,394,616*

Number of holdings, %

Holdings (has):	1836	1864	1890
101-500	3.3	15.3	39.5
501-1000	5.2	18.8	23.9
1001-1750	9.7	20.8	16.8
1751-2500	8.2	13.8	7.3
2501-3750	16.7	11.0	5.3
3751-5000	15.2	6.2	2.8
5001-10000	23.0	9.8	3.0
10001-15000	10.4	2.5	0.8
15001-30000	5.9	1.5	0.4
30000+	2.2	0.2	0.2
Total (no.)	*269*	*869*	*1,740*

Table DA.20 (cont.)

(b) Family distribution

Amount of land, %

Holdings (has):	1836	1864	1890
101-500	0.1	1.8	5.1
501-1000	0.6	4.0	8.0
1001-1750	1.7	7.2	9.5
1751-2500	2.5	8.2	8.3
2501-3750	7.7	10.1	11.2
3751-5000	9.6	6.3	7.5
5001-10000	21.3	20.7	13.8
10001-15000	15.6	12.6	9.3
15001-30000	23.0	20.5	18.0
30000+	17.9	8.6	9.3
Total (ha)	*1,797,468*	*2,408,259*	*2,394,616*

Number of holdings, %

Holdings (has):	1836	1864	1890
101-500	3.5	17.5	38.5
501-1000	5.5	17.9	21.3
1001-1750	9.1	18.4	13.8
1751-2500	8.3	13.1	7.7
2501-3750	16.9	11.0	7.2
3751-5000	15.7	5.1	4.2
5001-10000	21.7	9.9	3.7
10001-15000	9.4	3.2	1.5
15001-30000	7.1	3.2	1.6
30000+	2.8	0.7	0.4
Total (no.)	*254*	*719*	*1,740*

Note: The figures are for the aggregated holdings in all 16 counties. Holdings of 100 hectares and less were not included.

Source: Sabato, 'Wool Production', pp. 333-42

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