

*Essays on
markets, prices, and consumption
in the Ottoman Empire
(late-seventeenth to mid-nineteenth centuries)*

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DECLARATION

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ABSTRACT

This thesis consists of separate papers that examine markets, prices, and consumption in the Ottoman Empire between the late seventeenth and mid-nineteenth centuries. Recent scholarship has posited that market development, new consumption patterns, and productivity gains in non-agricultural sectors that were marked by changing price-product structures are among the structural alterations that paved the way for industrialisation at the turn of the nineteenth century. This research investigates whether these phenomena were particular to the West or can be expanded to other parts of the world. As such, the study contributes to the literature seeking to understand where the "distinctive advantage" of Northwestern Europe lay.

The findings reveal that on the eve of the first wave of globalisation, domestic wheat markets in the Ottoman Empire were no better integrated than they were two centuries previously. Nevertheless, Europe and the Ottoman Empire shared several characteristics of early-modern consumerism. This research demonstrated that the interiors of Ottoman houses grew richer and more varied throughout this period. From the second half of the eighteenth century onwards, Ottomans who were not richer and who were not better-positioned in the social hierarchy than their counterparts in 1700 owned a greater quantity and variety of domestic goods. In both regions, a decline in the real prices of consumer goods was a major factor, if not the only one, that triggered this change. Moreover, the analysis on prices and inventory valuations refutes the argument that the decline in prices of non-food items was a distinctive pattern in Northwestern Europe in the pre-industrial era; instead, this was mirrored in the Ottoman Empire.

Overall, the findings of this research point to long-term market development (and its absence), rather than changing consumption patterns, as well as productivity gains in non-agricultural sectors as a major source of divergence prior to the Industrial Revolution between parts of Europe and the Ottoman Empire.

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CHAPTER 1

INTRODUCTION

This thesis consists of separate papers that examine markets, prices, and consumption in the Ottoman Empire between the late seventeenth and mid-nineteenth centuries. Recent scholarship has posited that market development, rising consumer demand, and productivity gains in non-agricultural sectors that were marked by changing price-product structures are among the structural alterations that paved the way for the industrialisation of the late eighteenth and early nineteenth centuries, or at the very least, made quicker growth in Europe possible during the era of the Industrial Revolution. These developments, which stand out as three important phenomena associated with the growth path of pre-industrial Europe, occupy a central place in the current debates in economic history about the nature of pre-industrial economies and the causes of global economic divergence and growth. The present study is an attempt to contribute to these debates by providing insights from a non-Western context.

Since Pomeranz's (2000) widely cited but equally controversial book, *The Great Divergence: China, Europe and the Making of the Modern World Economy*, was first published,¹ when and why Europe diverged from the rest of the world in terms of productivity and living standards has been discussed in the light of ever-burgeoning evidence and new insights into regional variations both in Europe and in Asia.

As the California School's argument, namely, that the most advanced parts of Europe and Asia were on the same development level with "shared constraints" before 1800 (Pomeranz 2000: 107), has been attacked on several grounds, early-modern history has attracted unprecedented attention. Seeking the roots of modern economic growth in the pre-modern era, recent research has replaced the picture of the early-modern economy as a stagnant economy incapable of generating long-term growth with a more optimistic tone. Today, the preponderant view is that the North Sea Area, if not the whole continent, underwent a series of structural and institutional changes that led to the rise of living standards, making

¹ Wong's (1997) *China Transformed*; Frank's (1998) *ReORIENT*; Parthasarathi's (1998) "Rethinking wages and competitiveness in the eighteenth century: Britain and South India"; Lee and Feng's (1999) *One Quarter of Humanity*; and Goldstone's (2000) "The Rise of the West- or not? A Revision to Socio-economic History" are the other essential works representing the California School's position.

this region “more dynamic, competitive, and creative than the rest of the world” (van Zanden 2009) even before industrialisation took place, while also preparing the ground for the Industrial Revolution.

In an effort to understand where pre-modern Northwestern Europe’s ‘distinctive advantage’ lay, economic historians have directed their attention towards institutions, markets, technical innovation, and demand-side changes as possible candidates. While institutional improvements and innovations (security of property, representative institutions, efficient systems of taxation and government debt management, effective national banks, etc.) have been proposed as the ultimate or deeper explanation, the rise of efficient and integrated markets, productivity gains in non-agricultural sectors, and upward demand shifts are cited as closer and more direct sources of pre-modern growth.

Despite several controversies in the growing body of empirical research on these topics, today it is widely accepted that during the early-modern era, most advanced parts of Europe gradually – if not without setbacks – became more integrated within themselves and with other parts of the continent; that there was a marked increase in the consumption of durable goods and luxuries by individuals from different economic and social backgrounds; and that manufactured and traded goods became increasingly inexpensive relative to agricultural products in these regions. Drawing upon trade-led, demand-led, and innovation-led growth theories, economic historians have assigned varying roles to these developments in explaining pre-modern economic growth.

With the aim of understanding whether these phenomena were particular to the West or can be expanded to other parts of the world, this thesis first looks at the evolution of Ottoman commodity markets from the mid-seventeenth to mid-nineteenth centuries; second, it examines the existence of an ‘Ottoman consumer revolution’; and third, it explores whether consumer goods in the Ottoman realm dropped in price, relative to agricultural products during the same period. In so doing, the study employs new evidence from inheritance inventories.

The Ottoman Empire has been cited alongside Qing China and Mughal India as a site where divergence can be identified and analysed. It was “one of the greatest, most extensive,

and longest-lasting empires in the history of the world," (Quataert 2005: 3). Together with the Venetian Republic, it represents a region that stood at the centre of the pre-Columbian world economy but which gradually lost ground throughout the seventeenth and eighteenth centuries, in parallel to the rise of the North Sea area. Although as a 'waning' power (Tabak 2010), the Ottoman Empire provides fertile ground to explore the sources of early divergence, it has assumed little significance within the Great Divergence literature compared to early-modern China and India, a lacuna that can be partly explained by the lack of long-term and systematic quantitative research. The present study addresses this geographical bias in the existing literature.

The period under study here begins in the second half of the seventeenth century, when economic and social life in the Ottoman realm showed signs of recovery from the seventeenth-century crisis and ends in the mid-nineteenth century, shortly before the first wave of globalisation. The 1840s have been considered a threshold in the economic and political modernisation of the empire. From this date onwards, new dynamics, institutions, and actors shaped the Ottoman economy.

This periodization also corresponds to De Vries' reinterpretation of the "long-eighteenth century" that stretches across the period 1650-1850. It should also be noted that the short eighteenth century that stands in the middle of the time span of the study has been identified by recent research on markets, prices, and consumption in Europe as an era of substantial developments. There is a general tendency to locate the consumer revolution in the eighteenth century, while several studies have detected integration in European markets in the first half of the century. In contrast, the second half of the eighteenth century appears as a period of decline in the prices of manufactured and traded goods.

In what follows, I present an outline of the Ottoman Empire and provide an overview of the political and economic background of the period, together with a discussion of the empire's place in the divergence debate. Subsequently, the chapter surveys the literature on early-modern market integration, the consumer revolution, and changes in relative prices of manufactured and agricultural goods, briefly discussing how each of these phenomena were linked to pre-industrial growth in Europe. Next, I introduce the primary sources that are

employed in the analysis. The chapter concludes with an outline of the following chapters, while also highlighting the empirical and methodological contribution of this new research.

1. The Ottoman Empire: Political and Economic Environment

The Ottoman state emerged in western Asia Minor around 1300, expanding in the following centuries from a small chiefdom to an empire with vast territories. Stretching from the Balkans and the Black Sea region through Anatolia to Syria and Mesopotamia, and from the Gulf to Egypt and most of the North African coast, the Ottoman Empire stood at the crossroads of intercontinental trade until its dissolution after World War I (See Map 1). In the seventeenth and eighteenth centuries, its population exceeded 30 million.

Map 1- The Ottoman Empire c.1683-1800



Source: Quataert (2000: 39)

1.1. The Ottoman Empire before the seventeenth century

Throughout its entire history, the Ottoman Empire remained an agrarian economy. Before the Land Code of 1858, the Ottoman legal and political system did not develop a category of alienable property rights over agricultural land. Arable lands were registered as

state lands (*miri*) and as a rule, they could not be bought, sold, or inherited.² On this legal basis, the organisation of agricultural production traditionally relied on the *çift-hane system*, where peasant households, acquiring hereditary usufruct rights, cultivated the land with a pair of oxen and family labour and paid taxes to the local agents from the centre (Keyder 1991).

These local agents were cavalrymen and other members of the ruling class who were granted the right to collect the tax revenue from arable lands in certain localities in return for performing military services during wartime. They were responsible for supervising their territory and its method of cultivation by peasants. Fiefs could not be inherited, although it was not uncommon for these to be reassigned to a son provided he performed military service. This tax collection and revenue-sharing system complementing the Ottoman land regime was called the *timar* system, and lasted from roughly the fourteenth century through to the late sixteenth century (Inalcık 1994). The Ottoman central administration did not attempt to impose the *timar* regime in all of its conquered territories, however. In many of the more distant areas such as Eastern Anatolia, Iraq, Egypt, Yemen, Wallachia, Moldavia, and the Maghreb, the Ottomans were eager to collect taxes but only altered the existing land regimes to either a limited extent or not at all³ (Inalcık 1954).

Ottoman society consisted of the tax-exempt ruling class (*askeri*) and the large subject class of *reaya*. The ruling class was comprised of people who were in the sultan's service, such as bureaucrats, army troops, and religious functionaries. Merchants, artisans, and peasants constituted the ruled, and were organised into religiously based communities called *cema'ât*, *taife* or *millet*, as well as into guilds (*esnâf*), mystic orders of dervishes (*tariqât*) and other groupings that formed a substratum of Ottoman society. The Ottoman social structure did allow upward mobility, that is, the penetration of the lower classes into the ruling class

2 There were, however, important exceptions to this rule. Among others, small plots of arable land (orchards, vineyards, and vegetable gardens) in proximity to urban areas were registered and recognized by the state as freely held property and could be bought, sold, and inherited. Land under this status is frequently encountered in the property transaction documents in court registers and in probate inventories (Keyder 1991). Although it has not attracted the attention of Ottoman historians until now, sources point to the existence of a lively, if not large, land market, particularly near large urban agglomerations.

3 For an analysis of regional variation in Ottoman tax practices, see Coşgel (2015). Coşgel stresses the significance of political economy constraints, alongside economic factors, in explaining the tax bases and rate structures that varied across different parts of the empire.

(Karababa 2006). Membership in the ruling class was open to all who declared and manifested loyalty to the sultan, his dynasty, and his empire, and who accepted the religion of Islam. The Ottoman state was unique compared to its European counterparts in that it lacked an aristocracy but was run by men chosen by merit and loyalty to the sultan (Karababa 2006).

Over the centuries, the empire developed a complex system of administration with the sultan as the supreme ruler. The central administration consisted of three main aspects: the sultan's household; the departments of government grouped under the control of the grand vizier who was the sultan's deputy in all state matters; and the Muslim religious institution, which consisted of Muslim functionaries concerned with education and law. The administration employed a language (Ottoman Turkish) which was Turkish in grammar but largely Arabic and Persian in vocabulary, and written in an Arabic-based script (Karpat 1972).

Administratively, the empire was first subdivided into provinces (*eyalet*), ruled by governors appointed by the centre. *Sancaks* (sub-provinces) were governed by *sancak beys*, selected from the high military ranks by the central government. The *kaza* was a subdivision of the *sancak*, and the fundamental division in the Ottoman administrative and judicial system, ruled by a *kadi*, who looked after local administration and criminal and civil law (Karpat 1972).

In the late-sixteenth century, when the empire reached its greatest extent, it comprised central Hungary, the Balkan Peninsula, Anatolia, Mesopotamia, Syria and Palestine, western Arabia, Egypt, and lands in the Caucasus and western Iran. In Europe, Transylvania, Moldavia, and the Crimea were tributary principalities, while in North Africa, Tripoli, Tunis, and Algiers were semiautonomous provinces. The Balkans, together with western and central Anatolia, including the capital city and its environs, constituted the core regions of the Ottoman Empire. These were administered by the capital with institutions closely resembling those in the Istanbul region, and were integrated into the larger Ottoman system of taxation, provisioning, and trade. In contrast to these core lands, in the more distant regions, institutions and administrative structure were shaped by local practices and power relations with the centre (Inalcik 1954).

1.2. Political environment and decentralisation

In his monumental work, *Freedom and Growth*, Epstein (2000) stresses the political

conditions of pre-industrial economic growth, and posits jurisdictional centralisation under the late Medieval and early-modern rules as the ultimate source of the rise of efficient and integrated markets in Europe. In new institutionalist economics, political regimes are defined as ways to facilitate cooperation for mutual advantage. In line with this literature, Epstein suggests that pre-modern centralised states were more efficient than decentralised ones because they suffered from fewer multiple coordination failures.

Although decentralisation, centralisation, and the changing relationship between the imperial centre and the periphery in 1700-1850 have been subject to ample research in Ottoman historiography (Inalcik 1977; Piterberg 1990; Salzmann 1999, 2004; Hathaway 2002; Khoury 1990, 2002; Smiley 2008), these processes have rarely been addressed in relation to the general functioning of the economy and its underlying incentive structure. Between the seventeenth and mid-nineteenth centuries, the empire witnessed major socio-political transformations which reshaped the institutional environment within which economic actors operated. Without examining what occurred in the political sphere, we cannot acquire a full understanding of the changing economic environment.

Building upon Byzantine and Seljuk military agrarian organisation, the Ottomans established a strong centralised regime in the fourteenth and fifteenth centuries with state control of agricultural lands, a central military force, and a fiscal organisation oriented towards the central treasury (Pamuk 2009). As Salzmann (1993: 396) states, "the Ottomans... achieved one of the first examples of an early-modern state structure with centralised judicial, military, and administrative powers." During the classical period, the rise of the Ottoman Empire was closely associated with territorial expansion. Military success, in turn, depended on the land tenure and fiscal regimes that supported a large cavalry-based army (Pamuk 2009). Up until the second half of the sixteenth century, the fief-holding *sipahis* as the traditional cavalry armed with conventional weapons of bow and arrow, lance, and sword, constituted the backbone of the Ottoman army. In this system, 30 to 40 percent of military expenses were covered by revenues collected in rural areas by the *sipahis* (Kunt 2000).

However, from the late sixteenth century onwards, warfare increasingly began to constitute a drain upon Ottoman state finances. At the end of the sixteenth century, the Ottoman Empire was engaged in a series of long and exhaustive wars on the Iranian and

Habsburg frontiers. Unlike the successful campaigns of the earlier period, which had led to the inflow of annual remittances from the newly incorporated provinces, the limited conquests during this period were no longer sufficient to render warfare profitable (Pamuk 1984).

At the same time, military costs began to soar as technology altered warfare. The ever-more widespread use of firearms by the Habsburg armies made obsolete the traditional cavalry, which had proven ineffective against Austrian musketeers (Kunt 2000). In order to keep up with the transformation in warfare, the Ottoman government was forced to increase the number of janissaries, the standing infantry corps. Their numbers rose from 13,000 in the 1550s to 38,000 in the 1600s. Another source of soldiers using muskets was the numerous vagrants in the countryside (Pamuk 2001). Armed young men from *reaya* or from nomads were recruited as mercenaries by the central government (Kunt 2000).

The additional costs resulting from the expansion of the central army and the recruitment of mercenaries fell upon the central treasury, since their wages were paid in cash. The costs of warfare were also enhanced by the price revolution (Pamuk 2001). With the outbreak of war with the Persians in 1578, the treasury began to experience shortages of silver for payments to soldiers. The debasement of 1584-86 was a symptom of financial crisis (Pamuk 2001).

The military transformation brought about changes in Ottoman fiscal practices, and the dissolution of the classical institution of the *timar*. The central government tried to increase its income by implementing a new revenue collection system, the *iltizam* system, where an entrepreneur was delegated the right to collect taxes from a tax source by the state for a limited period of time in return for an annual lump-sum. The tax contractor was endowed with several privileges and immunities. This new tax-farming system was not limited to the tithes and taxes on villages and fields, but also expanded to cover a variety of state revenues from market taxes to custom revenues (Salzmann 1993).

It is often stated that during the early-modern period, the Ottoman Empire followed a trajectory of state-formation that is different than that of Western Europe (Barkey 1994). The institutional centralism of the Ottoman state in the classical period was gradually succeeded by a fragmented political structure over the course of the seventeenth and eighteenth centuries. These two centuries witnessed the rise of provincial elites who held local power and

who operated autonomously from the capital. In almost all parts of the empire, the central state became visibly less important (Khoury 2006). The provincial power holders, *ayan*, came from two different groups: prominent notables whose families had been among the local elites of an area before the Ottoman period, and centrally appointed officials who subsequently put down local roots (Quataert 2005).

In both cases, their economic and political power was rooted in the life-term tax-farming system. The Habsburg-Ottoman war of 1683-1699 exerted considerable pressure on Ottoman finances in a period of extreme financial instability. Attempts to create funds to finance the war and to balance budgets could not ease the government's need for cash. Under these conditions, the *iltizam* system was expanded in 1695 into the *Malikane* system which depended on contracts on state revenues held for life, with the contractor determined by public auctions (Genç 1987).

During the first half of the eighteenth century, the redistribution of state wealth and titles did not subvert state authority, as provincial elites did not rebel against the centre. Until the late 1760s, the relation between provincial elites and the centre was one of mutual recognition and interest, and it depended on negotiation to establish a balance of power. Local dynasties recognised the sultan and central authority in general, sent troops for imperial wars and, more importantly, responded to the increasing cash demand of the state, in exchange for legitimacy from the central state, the right to collect state revenues, and several other privileges and immunities (Quataert 2005).

The coalition between the centre and periphery lasted for as long as it was lucrative for both sides. The 1768-1774 Russo-Ottoman war marked the breakdown of the tacit pact between local elites and the central government. In the post-1770 period, as economic conditions worsened, the rates of profit in the tax-farming sector declined, leading provincial elites to shift their portfolio towards more lucrative areas of the economy, such as money lending and urban real estate. Besides, the wartime chaos gave the notables greater latitude of action, which weakened the provincial ties to the centre. The pattern of negotiation, mutual recognition, and control lost its place to an unavoidable conflict between the centre and periphery. A struggle for power between the imperial centre and the provincial elites marked the last decades of the eighteenth century (Salzmann 1993).

Although the practice of the *malikane* was maintained until the 1840s, institutional centralisation began at the turn of the century. The central government took an important step in 1826 by destroying the Janissary corps, which had resisted centralisation efforts. These efforts culminated in the imperial reform edicts of 1839 and 1856. Ending political fragmentation and rivalry, the edicts ushered a centralised bureaucracy into power. Administrative centralisation and a vast expansion in the numbers and responsibilities of bureaucrats accompanied military changes that resulted in a state apparatus vastly larger and more powerful than that of the previous era (Quataert 2005).

For a long time, Ottomanists interpreted decentralisation as a sign of the dissolution of the classical order of the golden age of the empire and associated it with the "decline" of state power. This view has been challenged in recent decades by a growing body of revisionist literature, which suggests that the decentralisation in the seventeenth and eighteenth centuries should be interpreted as a way of adapting to changing circumstances in Eurasia in the early-modern era (Barkey 1994; Salzmann 1993; Khoury 2006).

In this line of research, Salzmann re-conceptualised the tax-farming system, the backbone of Ottoman decentralisation, as the "privatisation of the fiscal agency," (1993: 395) and claimed that this was a transitory phase between the "precocious imperial centralisation" (1993: 396) of the fifteenth and sixteenth centuries, and the institutional centralisation of the early nineteenth century. According to Salzmann (1993: 399), during the seventeenth and eighteenth centuries, Ottoman rulers chose to implement a strategy of "selective inclusion of certain strata of provincial society within the political hierarchy" to amplify the state's political capacity, rather than attempting to directly eliminate these alternative sources of power, as their European counterparts did. The pragmatic attitude of the rulers and the institutional flexibility substantially contributed to the longevity of the empire, preventing the resistance of peripheral sources, and enabling their incorporation into the political system.

While thoroughly examining the Ottoman institutional regime of the seventeenth and eighteenth centuries from the perspective of political efficiency, the revisionist view did not assess this "alternative path" in terms of its fiscal outcomes. Recent findings by Karaman and Pamuk (2010, 2013) suggest that in comparison to their counterparts in the centralised states of Western Europe, Ottoman fiscal institutions were relatively less efficient. Examining long-

term trends in the revenues of the Ottoman central administration based on the evidence provided by Ottoman budgets, Karaman and Pamuk's (2010, 2013) studies reveal that between the sixteenth and nineteenth centuries, the Ottoman central administration did not experience a growth in its extractive capacity, unlike its European counterparts. It remained immune from the strong rising pattern in per capita tax revenue and in total revenues across Europe during this period. As a result, by the eighteenth century, a large gap had emerged between the revenues of most European states and those of the Ottomans – a development that was accompanied by a discrepancy in military performances.

Karaman and Pamuk (2010, 2013) suggest that the decentralised nature of the tax-collection system that involved numerous intermediaries was the underlying reason for the Ottoman state's failure to expand its resources. "The intermediaries influenced the size and incidence of the tax burden and captured a significant portion of tax revenue at the cost of the central treasury through temporary assignments, long-term alienation, or embezzlement," (2010: 595). These studies confirm the association between the enhanced fiscal capacities of the early-modern European states and the political centralisation and state consolidation processes they experienced, effectively providing support to Epstein's argument regarding the benefits of jurisdictional centralisation.

1.3. Economic policy

According to Genç (2000), until the middle of the nineteenth century, the Ottoman economic mentality was shaped by three principles: provisionalism, fiscalism, and traditionalism. Provisionalism entailed making goods and services accessible, ample, and affordable for the empire's subjects via state intervention in production and trade. Fiscalism was predicated on maintaining or increasing the revenues of the treasury and decreasing expenditures with the aim of bolstering the state's financial power. In line with this principle, all economic activity was considered above all as a basis of potential tax income. Traditionalism refers to the concern of preserving a social and economic balance that was believed to be immutable. Ottoman authorities were uneasy with economic changes and innovations and consistently tried to achieve a return to the economic status quo ante through reform.

Genç (2000) states that out of these three principles, provisionalism was the most important principle of Ottoman economic policy. This policy undergirded state monopolies,

internal tariffs, export/import prohibitions, and price control mechanisms. Like many local and central governors in pre-industrial Europe, Ottoman rulers perceived the availability of essential goods at affordable prices in the urban markets as a prerequisite for social order and political stability (Yıldırım 2003). Supplying the capital city, the armed forces, and to a lesser extent, other urban areas with abundant foodstuffs, was always a major concern for them. From an early period, Ottoman internal and international trade policy was shaped by this priority (Genç 2000). In general, imports were fostered and facilitated, while exports were curtailed by prohibitions, quotas, and taxes. When the possibility of shortages emerged, the government prohibited the exportation of basic necessities, especially foodstuffs and raw materials (Pamuk 2009).

The state established a complex provisioning network that encompassed the Ottoman territories, with the capital at its centre. A large portion of the surplus production in grain, sheep, cattle, horses, butter, wax, and timber was shipped from the Black Sea coast of Bulgaria, the Romanian principalities, Thrace, Macedonia, Thessaly, Morea, Egypt and several districts of Anatolia to Istanbul. The organisation of this network included many institutions and policies (Yıldırım 2003). Although the major priority was to supply the capital, the provisionist policy also concerned other parts of the empire, particularly during times of supply interruption. In these situations, measures taken by the state included waiving tax obligations and obliging prosperous regions to make temporary loans of specified amounts of grain to areas hit by hardship (Murphrey 1987).

Alongside provisioning the cities, the requirements of warfare and providing raw materials for public construction works and manufactured goods for members of the palace and military class were the principal reasons for state interference (Quataert 2005). As in the past, the Ottoman state continued to intervene in markets to varying degrees in the eighteenth century, claiming the right to control economic resources when deemed necessary. According to Genç (1984), warfare, which put enormous pressure on the state's finances, was the most important determinant of the degree of intervention. This explains why during the period of relative peace that lasted until the 1760s, intervention remained limited, whereas in the following period marked by wars, state involvement in the economy substantially increased. This intervention took the form of price ceilings, trade regulations, internal tariffs, forced purchases, and state command over resources.

Quataert (2005: 42) underlines the doubly disruptive and negative effects of these interventions: "The state often paid below-market prices for the goods and, often, drained away all or most of a commodity, thus creating scarcities. Crops of entire areas or the manufacturing output of certain guilds were commandeered for particular purposes, for example, to supply the royal household or marching armies." These pejorative effects on producers and consumers, as well as their political consequences, were not unknown to state officials, who were actually very eager to avoid or at least limit these effects. Therefore, particularly after the seventeenth century, state intervention in domestic markets was done selectively (Pamuk 2009). For instance, for price ceilings (*narh*), Pamuk (2004: 19) states: "The *narh* came to be considered not as permanent policy but as an instrument reserved for extraordinary conditions such as wars, exceptional difficulties in the provisioning of the capital city, or periods of monetary instability." The centre always sought a balance between its military and political priorities, the welfare of the producers and consumers, and the potential effects of its actions on the overall economy. It also took measures to avoid negative effects or redressed the losses of producers and consumers whenever possible. Its limited technological capacities also restricted the state's ability to exercise strict control over the markets. Thus, it is often suggested that one should not exaggerate the extent of the state interference in pre-modern period (Quataert 2005).

1.4. General trends in the Ottoman economy

In the 1580s, the Ottoman Empire entered an era of political difficulties, social unrest, economic turmoil, and financial crises. The first half of the seventeenth century was characterised by military revolts and conflicts among political factions in the capital; bandit campaigns and rebellious governors in Anatolia and in the Arab lands; and long and exhausting wars on the eastern and western fronts – all of which had destructive effects on the Ottoman economy and its finances. The crisis manifested itself in the form of a dramatic fall in agricultural and craft production, while also resulting in a drop in tax revenues, vast population movements, and urban decline (Faroqhi 1994). Attacks, invasions and plundering by bandits, mercenaries, landless peasants, and religious school students resulted in the large-scale depopulation of Anatolian villages and towns in the first decade of the seventeenth century.

An important aspect of the seventeenth-century crisis was the decline and even interruption of domestic trade. Besides the fall in production, the insecurity of routes was an important impediment to interregional exchanges. Even the main routes in Anatolia were partly controlled by bandits, and traveling merchants had no surety for their lives or their goods. *Cela/i* bands established themselves in fortresses, assembled small armies, laid siege to commercial centres and towns of considerable importance and even briefly occupied Bursa, an imperial town and industrial centre. Under these conditions, mid-sized and large towns sought to protect themselves by constructing city walls and by developing self-sufficiency. Infrastructure and investments previously made by pious foundations in order to facilitate trade, such as shops, storage spaces, covered markets, caravanserais, and roads, were damaged and often totally destroyed (Faroqhi 1994).

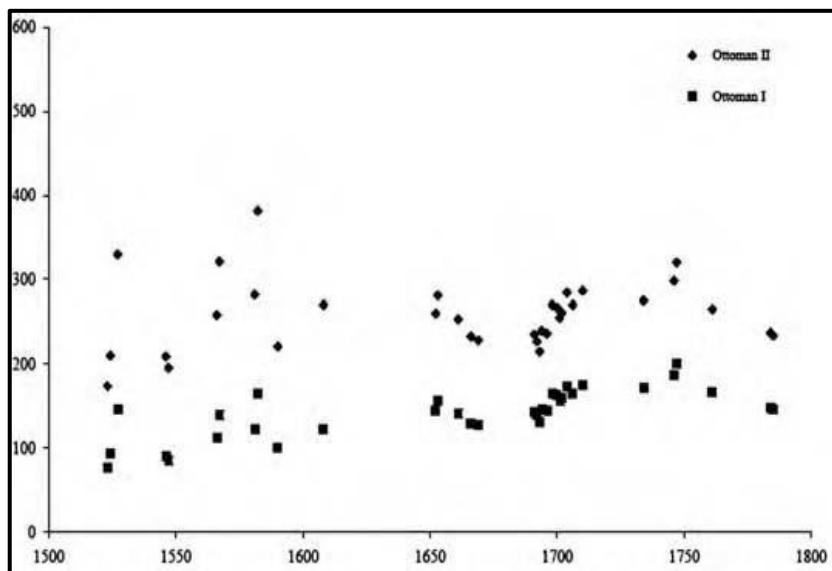
As relative peace and order was restored in Anatolia by the mid-seventeenth century, agricultural and craft production was resuscitated, precipitating a decline in food prices and a revival of trade. Official attempts to prevent peasants from abandoning their land and to resettle refugees in their former places of residence had born fruit by this time. The extent of the recovery remains unknown, but the long wars on the European frontier and the fiscal difficulties that resulted accordingly were likely to have restricted it (Faroqhi 1994).

Our knowledge of the Ottoman economy in the eighteenth century is more ample than that of the late seventeenth century. Ottoman economic and political history in this period is divided into two parts. The first period, which runs from the turn of the century until the 1760s, was an era of peace and stability for the empire. Despite the on-and-off conflict on the Iranian border between 1722 and 1747, the Ottoman state was not engaged in large-scale fighting during the three decades between the Treaty of Belgrade (1739) and the Russo-Ottoman war of 1768-1774. These decades were also characterised by a general trend in expansion and development in almost all sectors of the economy. The growth in industrial production and rise of new industrial centres in Anatolia and in the Balkans in the first half of the eighteenth century is well-documented (Genç 1994). Like industrial output, agricultural production and exports also significantly rose during this period. The state did not confront major fiscal difficulties, and even experienced an increase in its revenues, albeit an unspectacular one (see Figure 1). The purchasing power of the Ottoman akçe remained largely stable (Pamuk 1994), while the emergence of new trade nodes in the Ottoman urban network,

the maintenance of security on the trade routes, the spread of commercial agriculture, and the growth of agricultural output created conditions favourable to economic growth (Faroqhi 1979).

This period of expansion came to an end with decades of war, fiscal difficulty, inflation, and rising insecurity in the countryside after the late 1760s (Faroqhi 1994). Declining tax revenues due to a decline in agricultural and industrial output, together with the increasing exigencies of warfare provoked massive state interference in markets, which took the form of price ceilings, trade regulations, internal tariffs and state's command over resources. The akçe lost half its value by the end of the century (Pamuk 1994).

Figure 1- Revenues of the Ottoman Central Administration (in tons of silver)



Source: Karaman and Pamuk (2010: 604)

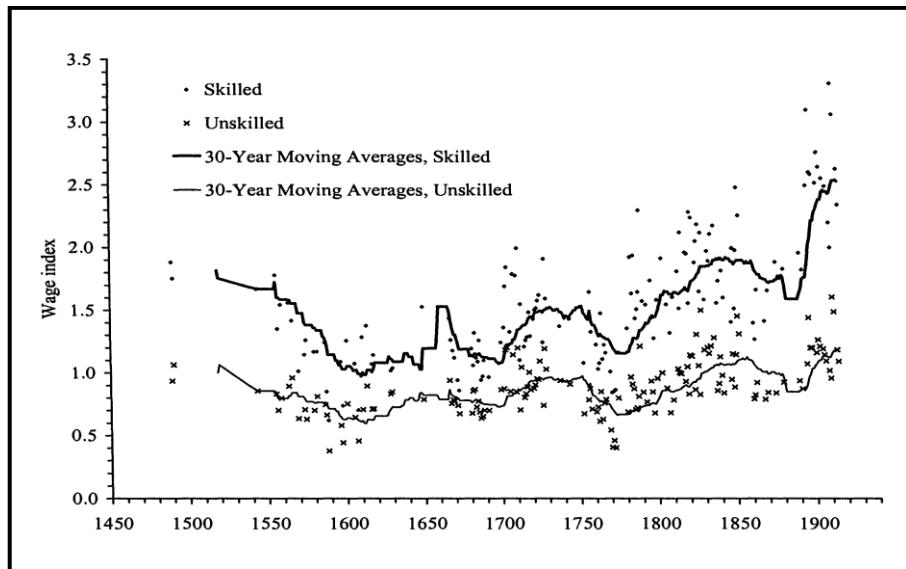
The early nineteenth century was marked by treasury shortfalls, frequent debasements, and monetary instability. This era of long and exhaustive wars with European powers was also one of national awakening in the Balkans that began with the Serbian Revolution (1804-1815). Napoleon's invasion of Egypt was succeeded by the Russo-Turkish War of 1827-28, the Greek War of Independence, and Mehmed Ali's invasions of Syria and Anatolia. Despite the wars and high inflation of the early 1800s, the Ottoman economy experienced a second wave of expansion towards the mid-nineteenth century in parallel to its increasing integration into the world economy. As with many regions of the world, following

the Napoleonic wars, the Ottoman Empire was incorporated into the world market at an unprecedented pace due to its agricultural exports (Quataert 1994).

Three events around 1840 – the 1838 Anglo-Ottoman convention, the 1839 reform edict, and the introduction of the first railway line in 1856 – represent milestones in the economic and political history of the Ottoman Empire and marked the opening of a new era. In the several decades that followed this date, the explosion of international trade; the rise of commercial agriculture; economic liberalisation; the centralisation of the state apparatus; and extensive improvements in transportation and communication facilities changed the face of the economy. Although most of these transformations began in the late eighteenth century, they accelerated during this period, leaving substantial legacies from the mid-nineteenth century onwards.

The urban real wage series constructed by Pamuk (2000a) is the best evidence available to observe the evolution of standards of living in the Ottoman realm. Taken together with the changes in population, these series confirm the general trends in the Ottoman economy outlined above. His estimations suggest that from their relatively high levels at the end of the fifteenth century, construction workers' wages in Istanbul experienced a steady and large decline during the sixteenth century by as much as 40 percent (see Figure 2). By the end of the sixteenth century, real wages stood close to their levels before the Black Death in the mid-fourteenth century. From this date onwards until the turn of the eighteenth century, urban real wages remained largely unchanged. Between 1700 and 1750, real wages continuously increased, albeit remaining under the level from the early sixteenth century. The decline in daily real wages in the third quarter of the eighteenth century was followed by a recovery and then increase until the mid-nineteenth century. From 1775 to 1850, wages almost doubled, equalling the levels from the early sixteenth century. Overall, the post-Black Death peak in wages was not surpassed during the early-modern era. At the end of the eighteenth century, wages in Istanbul were no higher than their levels at the end of the fifteenth century (Pamuk 2014). In short, the wage evidence suggests limited growth in the Ottoman realm prior to the nineteenth century.

Figure 2- Real Daily Wages of Construction Workers: Istanbul, 1489-1914
(Wages in Grams of Silver/CPI)



Notes: 1489/90 Unskilled=1

Source: Özmucur and Pamuk (2002: 306)

1.5. The Ottoman Empire and the divergence debate

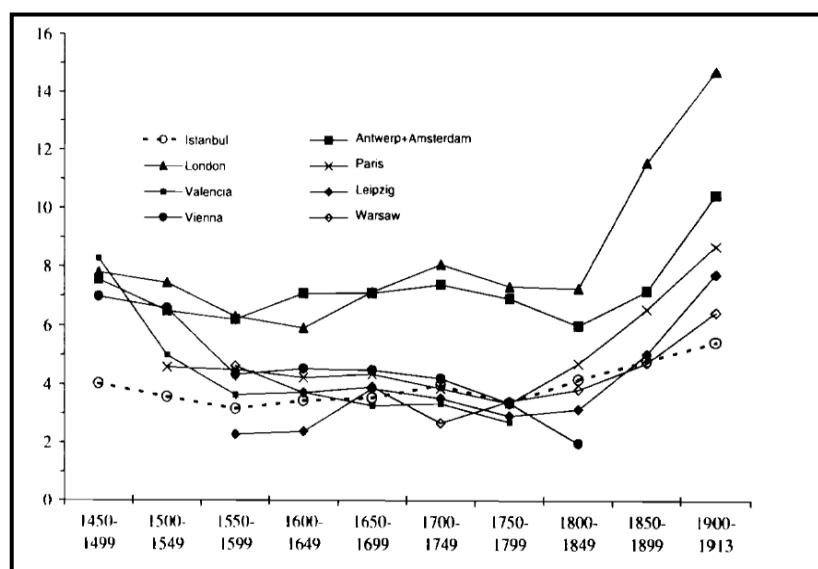
Although it offers a promising ground for comparative work, the Ottoman Empire has found little place within the recent literature on the Great Divergence, unlike China and India. There are only rare studies that deal with the Ottoman economic history in the pre-industrial era in a comparative perspective, and that explore when and why the region diverged from the Western Europe in terms of economic performance and standards of living. This limited body of literature is mostly comprised of Pamuk and Kuran's works, which focus on institutional environment in the Ottoman Empire as the ultimate source of absence of intensive growth in this region.

Both Pamuk and Kuran claim that institutional improvements and the evolution of the legal systems paved the way to modern economies in the Western countries in the early-modern era, whilst institutional stagnation in the Ottoman Empire impeded economic development. Nevertheless, Kuran and Pamuk represent the two strands of explanation of the institutional trajectories. Kuran stresses the role of Islam as a legal and cultural system in

shaping this institutional setting, while Pamuk highlights vested interests, social structure, and power relations.

Pamuk's (2005) comparative study on the evolution of the urban real wages in several European cities and in Ottoman Istanbul, shows that the gap in urban real wages between Northwestern Europe and the Ottoman Empire existed as early as the first half of the sixteenth century. This gap persisted until the Industrial Revolution and further widened thereafter. However, such a gap occurred only after industrialisation between the Ottoman Empire and other parts of Europe. Moreover, urban wages remained close to each other in most parts of Europe, with the exception of Great Britain and the Low Countries, where real wages were distinctly higher than the rest of the continent during the eighteenth century (See Figure 3). While on the one hand, points to the regional differentiation within pre-industrial Europe itself, Pamuk's findings go partly against the revisionist accounts of the California School, in that they demonstrated the existence of a gap in labour productivity between Northwestern Europe and the rest of the continent, as well as the Ottoman Empire, prior to the Industrial Revolution.

**Figure 3- Real Wages of Unskilled Construction Workers in European Cities, 1450–1913
(Wages in Grams of Silver/CPI)**



Source: Pamuk (2005: 221)

Pamuk (2007) suggests that the wage gap originated in the Black Death, which created a high-wage, labour-scarce environment. According to him, the Low Countries and England responded more successfully to the changing environment via a number of long-term

structural changes that occurred in demographic behaviour, agriculture, manufacturing, trade, technology, and, most importantly, the institutional setting.

While Pamuk's study (2007) offers an explanation for Northwestern Europe's success, Kuran concentrates on Ottoman "failure." Kuran's⁴ explanation for the economic backwardness of the Middle East focuses on the legal infrastructure of the region, as shaped by Islamic law. He suggests three reasons for these economic shortcomings that had become evident by the eighteenth century, namely, the Islamic law of inheritance, which inhibited capital accumulation; the absence of the concept of a corporation in Islamic law, which kept civil society weak; and the *waqf* institution, which locked vast resources into unproductive organisations for the delivery of social services. Although these Islamic institutions, incompatible with modern economic life, were radically reformed during the nineteenth century, traditional Islamic law remained a factor in the Middle East's on-going economic disappointments (Kuran 1997, 2000, 2003, 2005, 2012)⁵.

Pamuk's (2009) analysis of Ottoman institutions and factor markets provides a more nuanced, balanced, and realistic account that escapes Orientalist narratives. While on the one hand, he emphasises that the flexibility of certain Ottoman fiscal and economic institutions

4 For a comprehensive overview of Kuran's views, see Kuran (1997, 2004) For other essential works on the same subject by the author, see Kuran (2000, 2003, 2005, 2012).

5 Kuran's views represent a revival of an old paradigm that is coloured by modernisation theory and the association of Islam with underdevelopment. His views have been severely criticised by revisionist scholars on a number of fronts. First, Kuran overestimates the role of legal norms. Recent research (Peirce 2003; Çizakça 2004; Ergene 2010) showed that in several cases, Ottoman judicial practice significantly diverged from the sharia and that local power relations and individual strategies played an important role in shaping legal outcomes. Second, in Kuran's account, the "West" and the "Middle East" appear as monolithic entities mainly defined by religion, and completely isolated from each other. One needs hardly emphasize the regional diversities within both geographical areas, as well as the several channels of exchange and flows between them. Furthermore, Kuran focuses only on religion and ignores vested interests, social structure and power relations, distributional coalitions, and factor endowments as determinants of institutional environment and its evolution.

For a political economy approach to the impact of Islamic law on economic development, see Coşgel (2011). Coşgel (2011) explains institutional and technological change and stagnation in the Ottoman Empire focusing on the relationship between the rulers and the Islamic legal community, which was an influential group due to its power in conferring legitimacy on rulers. According to him, change and stagnation were an outcome of the interaction between these two parties, rather than a reflection of an intrinsic quality of Islamic law.

contributed to the longevity of the empire, on the other, he argues that many of the key institutions of the Ottoman order, including state ownership of land and urban guilds, remained intact until the nineteenth century due to the resistance of ruling elites who had vested interests in the traditional order. In his account, the fact that economically productive classes were never in a position to influence state policies and push for institutional changes appears as the main explanation for the relative institutional stagnation prior to the modernising reforms of the nineteenth century, and in turn was responsible for the absence of intensive economic growth before this date.

Albeit limited, this body of literature on the long-term trajectory of the Ottoman economy, and the role of institutional factors in its divergence from that of Europe, provides a basis for the present research. Assessing the institutional environment, explaining its evolution and stagnation, and investigating how it shaped the economy is outside the scope of this study. Nevertheless, by attempting to identify differences and commonalities in the developmental prospects of pre-modern Europe and the Ottoman Empire, this research will draw on and contribute to this literature linking the Ottoman experience in pre-industrial era to the Great Divergence debate.

2. Literature review: pre-industrial growth, market integration, consumption, and relative prices

After this brief introduction to the political and economic environment of the Ottoman Empire, and an overview of the two strands of explanations concerning the causes of its divergence from the European path of growth, we now turn our attention to the literature on markets, prices, and consumption. Market integration, the rise of new consumer patterns, and changes in the relative prices of industrial goods are three phenomena associated with the growth path of pre-industrial Europe. As such, they stand firmly entrenched at the centre of the debates on divergence across different parts of the world prior to the Industrial Revolution. Yet, these three potential drivers of divergence have not been explored in the Ottoman context. In what follows, this paper discusses trade-led, demand-led, and innovation-led growth theories with reference to the existing empirical literature on Western and non-Western economies.

2.1. Market integration and trade-led growth

The “trade-led growth” theory is perhaps the best-established and most-widely recognised explanation of pre-industrial growth since Adam Smith. It argues that the rise of efficient and integrated markets, and the intensification of trade across regions were the key driving forces for economic growth in early-modern Europe, and set the stage for industrialisation (De Vries 1994; Persson 1988; van Zanden 1999; 2002). According to this view, since the contribution of technological innovation remained limited, improvements in productivity in pre-industrial era were generated by the development of trade between previously distinct markets, which facilitated specialization and a more efficient allocation of resources on an inter-regional scale (Özmucur and Pamuk 2007). Accordingly, market integration is defined as the “opening and development of trade between heretofore autonomous markets and their integration into a single operative entity” (Jacks 2004: 286).

Integration in commodity markets occurs when trading costs (inclusive of transportation and transaction costs) decline, making trade over longer distances profitable. The drivers of reduction in trading costs can be categorised into two headings, technological and institutional. Technological progress fosters integration by curtailing transportation and information costs, as well as costs concerning storage and spoilage. Among the policy-related/institutional causes of market integration, a particular emphasis is placed on the elimination/lowering of policy-promoted barriers to trade such as internal and external tariffs, or import and export prohibitions. Political and economic liberalisation, as well as the emergence of custom unions, is often cited as a crucial development that acted as an impetus for market expansion (Pamuk and Özmucur 2007). Innovations which spread risks (i.e., marine insurance), increased the mobility of capital (i.e., bills of exchange, improvements in the banking system), and reorganised commercial activity (i.e., new firm models), are also mentioned among the dynamics that brought about a decline in the transaction costs in the long-run (Jacks 2004). On the other hand, the integration of markets is susceptible to sporadic external shocks (i.e., wars, epidemic diseases, urban unrest, and others), which result in the interruption of interregional trade. These lead to a temporary disintegration in markets without permanently altering shipping costs.

In recent decades, a wide-ranging corpus of literature on market efficiency and market integration has emerged, as focus has shifted to institutions and markets in explaining long-term economic growth.⁶ Scholars have largely focused on questions of determining when European and transatlantic markets began to integrate, and the relative importance of technological and institutional factors in fostering integration. The spectacular increase in trade volumes in the second half of the nineteenth century, and the strong trend towards integration in intra-European and intercontinental commodity markets during the same period, are among the best-documented phenomena in economic history. However, historians disagree as to whether this was a sudden and unprecedented phenomenon triggered by the transport revolution, or a continuation of a trend that started much earlier with improvements in the institutional environment.

The traditional account of nineteenth-century globalisation as established by O'Rourke and Williamson (1999, 2002, 2004) addresses the drop in freight charges due to technological change as the major cause of market integration in the long run, stating that a large boost towards integration occurred only after the proliferation of steam ships and railroads. According to them, in the absence of improvements in overland and sea transport technologies –hence, of important reductions in freight charges⁷– a continuous trend of integration was not possible in the early-modern era.⁸

6 For the integration of national markets see the following: Austria–Hungary- Good (1981); Szabad (1961), the Benelux countries- Buyst, Dercon, and Campenhout (2000); Dejongh, Campenhout, and Ceusters (2000); Griffiths (1982), France- Chevet and Saint-Amour (1991, 1992); Ejrnas and Persson (2000); Roehner (1994), Germany- Fremdling and Hohorst (1979); Gerhard and Engel (2000); Kopsidis (2002); Kuczynski (1960), Norway- Hodne and Gjolberg (1981), Italy- Sereni (1947, 1966); Zamagni (1983); Federico (2007), Russia- Metzer (1974); Milov (1995), Spain- Pena and Sanchez-Albornoz (1984), the United Kingdom- Chartres (1995); Gourvish (1970); Paterson and Shearer (2001), and the United States- Coelho and Shepherd (1974); Jue (1999); Slaughter (2001). For the integration of international markets see Chilosi et al. (2011); Federico (2011); Findlay and O'Rourke (2003); Gonzales, Garcia-Hiernaux, and Guerrero (2012); Goodwin and Grennes (1998); Hatton, O'Rourke, and Williamson (1994); Jacks (2005); Latham and Neal (1983); Özmucur and Pamuk (2007); Persson (1999); Rönnbäck (2009); Sharp and Weisdorf (2013).

7 Although the introduction of three-mast, larger trading vessels in the latter part of the fifteenth century partially reduced costs, such changes remained limited after this date (Rosenberg, Birdzell, and Mitchell 1986). Freight costs in the mid-eighteenth century were only slightly lower than they were in the high Middle Ages (Menard 1991).

8 These early works by O'Rourke and Williamson (1999, 2000, 2002) are in contradiction to their more recent study (2009) on inter-continental and intra-European spice markets before and after voyages of

Contrary to accounts emphasising the technological limits to integration, scholars such as Epstein (2000) and North (1958, 1968) have developed a new institutionalist perspective. Their argument is based on the idea that pre-modern societies operated significantly below their technological and productive potential, meaning the fundamental constraints to market size – and to growth – were in fact institutional, rather than technological. In other words, coordination failures that increase transaction costs (information, negotiation, enforcement, exaction costs, and the like) were, to a large extent, a result of inefficient institutions. Thus, the removal of direct institutional impediments and the improvement of the institutional environment could and did foster integration in parts of late Medieval and early modern Europe despite stagnant transport technology. In addition, it played a more substantial role in nineteenth-century globalisation than technological improvements.⁹

Within this literature emphasizing the political conditions of pre-industrial growth, Epstein (2000) argued that this early market development in several late medieval European states was facilitated by jurisdictional centralisation, which reduced pre-existing seigniorial dues; helped overcome prisoners' dilemmas between rival feudal and urban monopolies; gave rise to better coordinated systems of road maintenance and systematization of legal codes, weights and measures; and which decreased the rulers' incentives to act autocratically as a 'stationary bandit.'

What do the empirical findings show? First, it is necessary to look at transatlantic trade. Relying on a set of prices of commodities subject to intercontinental trade, O'Rourke and

discovery. In this study, they conclude that the advantage in terms of transport efficiency in using the Cape route, and the changing structure of trade, which led to a more competitive Euro-Asian trade, resulted in lower costs in the inter-continental spice trade, while at the same time stimulating the integration of intra-European spice markets.

⁹ Among others, Uebel (2011) and Jacks (2009) suggested that economic and political liberalisation and wars (or, more accurately, their absence) were the real drivers of global integration in the nineteenth century. In a similar vein, North (1958, 1968) repeatedly argues that organisational improvements played a more important role in lowering transport costs and spurring change in international market integration in the first half the 1800s. More recent studies have also questioned the extent of the drop in freight costs. Transportation costs in Atlantic trade fell after the 1870s, although the fall was modest rather than dramatic. Jacks (2009) estimates that trade costs fell by an average of 10-16 percent between 1870 and 1913. According to Persson (2004), when evaluated against a more accurate deflator that reflects the general fall in the international price level in the last quarter of the nineteenth century, the case for a sharp decline in freight costs disappears.

Williamson (1999, 2002, 2004) discovered no price convergence in intercontinental markets between 1500 and 1800. However, more recent studies employing larger data sets have revealed episodes of transatlantic integration preceding the nineteenth-century transport revolution. Uebele (2011) suggests that important steps towards integration in transatlantic wheat markets occurred in the first half of the nineteenth century before steamships and railroads could make a substantial impact and that the speed of globalisation slowed down in the second half of the century in contrast to conventional wisdom. Rönnbäck (2009) argues that the early-modern period featured a succession of waves of integration and disintegration, with huge variations across trade routes and commodities. Gonzales, Garcia-Hiernaux, and Guerrero (2012) detected a general trend towards closer market integration that started in the eighteenth century. According to their results, globalisation progressed, not without setbacks, gradually into the nineteenth century instead of suddenly appearing at some point after the 1820s. To sum up, the results are contradictory¹⁰ and provide evidence to support both theses. What is certain is that the case for early globalisation cannot be easily dismissed at the present state of research.

Empirical findings on early-modern European markets are no less ambiguous with regards to long-term and continent-wide integration. While some economic historians claim that the process of market integration began under the rule of absolutists in the late Medieval and early-modern era (Achilles 1957; Abel 1980; Unger 1983; Allen and Unger 1990; Persson 1999; Clark 2015; Jacks 2004; Chilosi et al. 2011; Gonzales, Garcia-Hiernaux and Guerrero 2012), others suggest that there was little or no grain market integration in Europe between the late fifteenth and early nineteenth centuries, emphasizing that price differentials persisted (Özmucur and Pamuk 2007; Bateman 2011; Federico 2008).

Despite inconsistencies, existing research gives us important clues, provided a nuanced approach is adopted. First, if Europe as a whole did not become engrossed in a complete and overarching system of markets, some regions within the continent were becoming increasingly more integrated within themselves and among one another during the early-modern era (Özmucur and Pamuk 2007; Chilosi et al. 2011; Studer 2008). Studies on

10 These contradictory results are rooted in differences in geographical coverage and quality of data, as well as in the multiplicity of the methodologies employed in measuring integration (Federico 2012).

Northern and Northwestern Europe unambiguously depict a growing integration of commodity markets and an increasing synchronisation of prices during these centuries (Jacks 2004; van Tielhof 2002; van Bochove 2008; Gonzales, Garcia-Hiernaux and Guerrero 2012). By the early eighteenth century, a national market in wheat emerged in England (Granger and Elliot 1967). Alongside this regional differentiation, Studer (2008) introduces a further distinction, based upon access to waterways. Integration among "lowland markets," clustering around the North Sea, was already very high at the beginning of the eighteenth century, while integration among "landlocked" markets caught up throughout the century.

Second, the study of price convergence has nearly always focused on long-distance trade. However, in order to obtain a fuller picture of the process of European market integration, one needs to also look at the process of regional convergence, which could have followed a different trajectory than inter-regional or international markets (Studer 2008). While transportation costs were more important in the intercontinental and inter-regional trade, and these depended largely on technological capacities, short- and medium-range trade might have been more responsive to institutional pressures, and the costs could have been significantly curtailed by policy-promoted changes, despite no changes in transportation technology. Studying integration between Swiss towns that are 100 to 200 km apart, Studer (2008) identified a pattern very different to that of long-distance markets. His results suggest a much more continuous process of convergence that started in the 1730s and gradually led to a near-equalisation of prices by the 1880s. Thus, distance was a determinant of the extent of integration prior to the nineteenth century. It is reasonable to assume that market expansion started from a regional level, then moved to an interregional, and finally to a Europe-wide (and global) level (Studer 2008). From this perspective, the eighteenth century appears as an era of integration at the regional and national levels (Agelan and Mendez 2001).

Finally, the late Middle Ages and the early-modern period featured a succession of waves of integration and disintegration within Europe, if not a clear long-term trend. For this reason, it would be more accurate to speak of the absence of permanent and sustainable integration, rather than a total absence thereof. Hence, inquiring as to what impeded sustainable market expansion is as important as considering what drove it.

Although there is no consensus as to whether trade-led growth can help explain the Industrial Revolution, regional patterns of specialisation facilitated by expanding markets are cited by many economic historians as factors that contributed to pre-industrial growth. Therefore, whether there was a discrepancy between the Western and the non-Western worlds in terms of the extent of market development, and whether it led to divergence in economic performances across different parts of the world; are highly relevant questions with regards to the Great Divergence debates.

Studer's (2008) comparative study on Indian and European commodity markets, is the most comprehensive work that links the issue of market integration to the pre-industrial economic divergence. In this study, Studer (2008) detected a significant discrepancy between Europe and India in terms of the extent of market development between 1700 and 1914. His results suggest that the level of integration was higher across European wheat markets throughout the entire period and that the region experienced a gradual expansion of markets, even before the nineteenth-century transportation revolution had substantial impacts. Indian wheat markets in contrast, remained largely isolated due to high transportation costs and political fragmentation, and there was no observable development in the market before the mid-nineteenth century.

Studer (2008) also looks at several economic indicators to understand whether the discrepancy between the two regions in terms of market integration was accompanied by a divergence in economic performances. He concludes that alongside having larger markets, Europe was economically much more productive and richer than India already in the eighteenth century. The findings supported the hypothesis that divergence in economic performances across different parts of the world was well underway prior to industrialisation and that unequal market development was an important factor in divergence.

Shiue and Keller's (2007a, 2007b) comparison of markets in China and Europe, however, reveals a different picture. Their analysis shows that before the Industrial Revolution spread to Continental Europe, markets in China were as efficient and well-integrated as those in Europe. Britain, on the other hand, constituted an exception with a significantly higher level of market development around 1770 than those in the most advanced parts of Continental Europe, as well as China. The divergence in terms of market integration and efficiency between

China and Europe in general occurred suddenly in 1780-1830 with industrialisation. During this period, markets in the Continental Europe rapidly caught up to British markets, while no such improvement occurred in China. They conclude that since no Industrial Revolution ensued in China, markets cannot be the explanation of the rise of Europe. They may be a necessary condition, but not a sufficient one for economic development.

Bassino's (2007) findings on Japanese rice markets are similar to Shiue and Keller's findings on China. He suggests that during the long period of peace under the rule of the Tokugawa (1603-1867), Japan experienced a remarkable degree of market integration, as well as the development of regional specialisation. A very high degree of integration was already achieved in western Japan in the early eighteenth century, and throughout the century, eastern Japan rice markets showed a strong trend towards integration within themselves and with the western part of the country.

The question of whether unequal market development across different parts of the world is a key factor in explaining the divergence in economic performances before industrialisation remains an open matter of debate, as studies on different geographical areas reveal different stories. As Studer (2008) has emphasised, in contrast to Europe and the Western world, which are front and centre in the extant literature, empirical evidence from non-Western markets is extremely rare. Therefore, bringing insights from Eastern Mediterranean wheat markets, which operated within a political and institutional environment that was substantially different from that of contemporary Europe, will provide an invaluable contribution to this literature. Unlike China, Japan, and India, commodity markets and trade conditions in the early-modern Ottoman realm have not been the subject of research until today.

One prominent issue in the study of Ottoman commodity markets in the existing literature is the effect of regional differentiation and the importance of examining markets at a regional, rather than national, level. Between 1660 and 1840, the Ottoman Empire encompassed a vast territory stretching from the North African coast to the Balkans and comprised different geographical and economic zones. Taking into account the findings of previous research on European markets, which revealed that long-distance and short-distance markets, as well as coastal and landlocked regions, followed different trajectories in terms of

market integration, the necessity of narrowing the geographical scope and separately analysing regional/inter-regional integration becomes evident.

Another important point concerns the political and institutional conditions underlying early-modern integration. Since the rise of efficient and integrated commodity markets in parts of Europe was linked to institutional improvements, policy-promoted changes, and processes of jurisdictional centralisation in the pre-modern era, the Ottoman Empire, which followed an "alternative path to a modern state" characterised by administrative decentralisation and political fragmentation, and which lacked a powerful merchant class to push for institutional changes, offers an excellent case study to highlight the similarities and contrasts with Europe in terms of market conditions.

Finally, previous research has highlighted the importance of analysing short-term trends, as well as long-term integration. By identifying the periods for which dynamics towards integration were in play, as well as the periods in which these were impeded by counteracting forces, we can arrive at a better understanding of the processes triggering and hindering the integration of commodity markets and, hence, pre-industrial growth.

2.2. Early-modern consumerism and demand-led growth

An alternative explanation for pre-industrial growth concentrates on demand-side changes rooted in sociocultural transformations. This second strand of literature argues that changes in demand in the early-modern era preceded and caused production shifts. According to this account, during the long eighteenth century, a growing desire for consumer goods in the Northwestern Europe led to higher levels of market participation and an increase in the labour supply, triggering the agricultural revolution and proto-industrialization, and paving the way for the Industrial Revolution.

Research on England, France, Spain, Italy, the Netherlands and the American colonies has revealed a rise in the consumption of durable goods in the early-modern period. De Vries (1975), Weatherill (1988), and Overton et al. (2004) relying on large samples of probate inventories, demonstrated that throughout the early modern era, the number and kinds of domestic chattels possessed by British and Dutch households significantly increased, making the domestic environment richer, more comfortable and more specialised. The evidence

suggests that the rest of the continent was not immune from this trend. Among others, Roche (1987) showed that France, too, experienced the same increase in the amount and variety of clothing and furniture pioneered by the urban middle classes in the second half of the eighteenth century. Simultaneously, studies on American probate inventories (Carr and Walsh 1980, 1988; Perkins 1991; Main 1983a, 1983b, 1988; Main and Main 1988) displayed eighteenth-century colonials' participation "in what became a transatlantic revolution in consumer tastes" (Main and Main 1988: 44), through a mass adoption of consumer durables (including new types of furniture and decorative accessories). This "revolution" not only concerned durables, but also goods such as sugar, tea, coffee, tobacco and new kinds of textiles, all of which began to be consumed not only by the rich, but also by the lower strata of society.

When McKendrick first introduced the idea of an early modern revolution in consumption in 1982, he defined it as an independent cultural revolution associated with the abolition of the estate-based society. According to him, the willingness to consume in the eighteenth century England stemmed from a social system characterised by increased social mobility and class competition. The replacement of given social boundaries by a new social hierarchy that was ordered through emulation generated the major driving force behind the proliferation of consumer goods. The middling segment's emulation of the aristocracy, and the consequent efforts to effect social distinction on the part of the aristocratic elite, especially laid the foundations for an early-modern consumer society in which consumer goods were conceived as markers of status, rather than utilities. Fashion was generated by the taste of the elite and "trickled down" the social echelon through a process of aping. In the second half of the eighteenth century, consumption spread rapidly among the middling sorts, especially those living in urban and industrial areas and, most notably, in London. Although not to the extent of the middling groups, the poor in many regions also became more and more integrated into consumer society, turning away from the traditional moral economy. The result was an increasingly rich, more colourful, and more diversified material culture that was shared by all social classes (McKendrick 1982).

Since McKendrick first coined the term, the spread of consumer goods among the middling ranges and the lower classes, was posited as the characteristic feature of the eighteenth century consumer revolution. Nevertheless, this postulation is in contradiction with

previous and more contemporary findings on long-term trends in real wages, which reveal a decline or stagnation rather than an increase in wage rates and labour productivity in Europe as a whole, especially during the eighteenth century. In Britain, for instance, the rise in both wages and income between 1600 and 1750 was very modest – less than 20 percent (Clark 2008). This contradiction has led several economic historians to attempt to bring an explanation to higher levels of consumption by the middling and lower stratum in the face of declining wage rates in the eighteenth century.

The most popular answer to the puzzle is De Vries' 'industrious revolution' thesis (1994, 2008). De Vries defines a process of the reallocation of time between work and leisure, and the higher involvement of women and children in labour that characterized Northwestern Europe between 1650 and 1850. In the main, an increase in daily wage rates is conventionally considered to indicate an increase in standards of living. However, the ability to spend depends on disposable yearly incomes, which are a function of both wage rates and the number of workdays per year. Therefore, earnings can be raised by increasing the labour supplied, even when real day wages are stagnant or declining. De Vries (1994) claims that this was what occurred in the Netherlands starting in the seventeenth century. Driven by an overwhelming desire for more goods, which found its source in changing tastes and commercial incentives (also related to changes in relative prices and reduced transaction costs), consumers began to work more hours per year and to substitute consumer goods with leisure. This increased both the supply of marketed commodities and labour and the demand for market-supplied goods, which eventually led to improved levels of material well-being –contrary to the picture depicted by real wage rates.

While for both McKendrick (1982) and De Vries (1994), the early modern consumerism was an exceptional and unique phenomenon that was strongly associated with sociocultural and economic trajectory of the Northwestern Europe, recent research (Belk, Ger and Askegaard, 2003; Ger and Belk 1999; Howes 1996; Zhou and Belk 2004; Karababa 2006, 2012; McCabe 2014) has suggested that the boundaries of early modern consumerism can be broadened to include the non-Western world. By showing that multiple consumer cultures began to develop across the globe during the early modern era, these studies have challenged a euro-centric account of the consumer revolution.

Consumption is one of the fields, in which Pomeranz (2000: 111) refuted a Western superiority that manifested itself prior to the nineteenth century, claiming that there were no significant differences between Europe and China in the "ability and inclination of a minority of well-to-do households ... to stimulate economic change through changes in what they wished to buy". He suggests that changes in consumption, at least in elite consumption in parts of Asia, were "roughly" comparable to Europe between 1400 and 1800, although Asian consumption did not show the on-going acceleration experienced by Europe during the same period. In China, Japan, and to a more limited extent India, the change in attitude towards goods revealed itself through the display of material possessions as determinants of status, proliferation of different kinds of status goods for different levels of people, and discussions about the "proper," "tasteful" way to use various commodities.

According to Pomeranz' estimates, Chinese consumption of sugar, was higher in 1750 than that in continental Europe, even in 1800, and the consumption of tea and tobacco stacked up quite well against European consumption. China and Japan also witnessed a striking increase in the quantity and variety of home furnishings, elaborate clothes, and eating utensils among the wealthiest people in the sixteenth through eighteenth centuries. There was also a huge boom in the printing of religious texts, medical manuals, and almanacs using simplified language and aimed at a popular audience, at least in Yangzi Delta, during the same period. In the case of Tokugawa Japan, these improvements were enabled by the substantial share of peasant incomes (at least 20 percent) available for savings or discretionary non-subsistence spending (Hanley and Yamamura 1977).

Whether the findings on European and North American probate inventories about changing patterns of consumption are equally valid for other parts of the world, or whether they were specifically a characteristic of the Western economic shift, are central questions in understanding the early roots of consumerism, as well as explaining long-term economic growth. Still, evidence from non-Western contexts is fragmentary and relatively rare. In the absence of Asian counterparts to European probate inventories (Pomeranz 2000), the divergence in terms of consumption of durables across different parts of Eurasia prior to the nineteenth century has been primarily discussed on the basis of qualitative and anecdotal evidence. This lack of data restricts our ability to make sound comparisons and to grasp the real nature of changes that occurred in the domestic environment and in the possession of

personal goods outside Europe and America. In this regard, Ottoman inheritance inventories, which report all movable and immovable assets of the deceased, including personal and domestic goods, provide us with a unique opportunity to achieve quantitative insights into pre-industrial consumerism in a non-Western context.

Beyond this advantage provided by inheritance inventories, studying consumption in the Ottoman realm is illustrative in terms of how consumerism was embedded in sociocultural processes. If changing tastes were the major driver of the early-modern consumer revolution in Europe, and these were rooted in the transformations in the social and cultural spheres as McKendrick (1982) and several others have argued, then we would expect that a similar process would have occurred in the Ottoman Empire, which experienced a profound change in its social structure and power relations from the seventeenth century onwards. In parallel to the dissolution of the classical order, established boundaries between the tax-exempt ruling class (*askeri*) and the large subject class of *reaya* began to disintegrate as mobility between the classes increased. With the monetization of the economy, Ottomans began to gain access to goods, positions and social standing on the basis of their ability to purchase. Throughout the eighteenth century, the new class of local elites that emerged in the provinces struggled not only for political power and economic interests, but also for social influence (Karababa 2006; Hamadeh 2004). This should have created favourable conditions for consumption to gain a social role and began to be used for social differentiation.

Was early-modern consumerism primarily a demand-side phenomenon that was driven by sociocultural transformations and changing tastes and which, in turn, triggered higher industrial output levels? Or was it a consequence of the already changing nature of production and distribution? Even after three decades of research on the roots of modern consumerism, answering these questions and explaining the increased acquisition of consumer goods and luxuries remain controversial tasks.

De Vries' argument of an 'industrious revolution' has been severely criticized by Clark and Werf (1998) on the grounds that there is no evidence in favour of a universal trend displaying an increase in work habits in early-modern Europe. According to them, labour input per person in England was already high in the Medieval Era. As for women and children, even if De Vries is correct, their participation in the workforce would have exerted only a small

impact on the total labour supply. Therefore, the "seeming paradox" (Clark 2004: 21) of rising consumption in the face of stagnant or declining real wages requires a different sort of explanation. Among others for Clark (2004), the proliferation of consumer goods among European societies and the rising demand for these were a result, rather than a cause of, growth. These accounts suggest that the explanation for early-modern consumerism lies in the changing price-product structures indicating productivity gains in particular sectors of the economy. The following section is concerned with the literature that takes the declining relative prices of industrial goods as a sign of innovation-led growth.

2.3. Changes in price-product structures and innovation-led growth

While the trade-led and demand-led growth theories postulate technical stagnation and seek the dynamics underlying pre-modern growth elsewhere; a third strand of literature suggest that as early as the sixteenth century Northwestern Europe experienced significant productivity gains in the non-agricultural sectors, which occurred due to technical and institutional innovation, and which were manifested by the declining prices of manufactured and traded goods in comparison to agricultural prices. With the increasing productivity in the manufacturing and transportation, it is argued, the region became more productive than the southern parts of the continent and the developed parts of Southeast Asia, long before the technological advances of the late-eighteenth century (Broadberry and Gupta 2006).

Almost 20 years after Shammas' (1994) pioneering article on the decline of textile prices in England and British America between the mid-sixteenth and late-eighteenth centuries, early-modern changes in price structures has once again attracted the attention of historians, this time in relation to the Great Divergence debate. Recent research has demonstrated that between 1500 and 1800, the prices of a wide range of manufactured and traded goods in Europe rose much less than the prices of agricultural products, bringing about a rise in the consumption of everyday luxuries and in the acquisition of consumer goods (Hoffman et al. 2002; Allen et al. 2004; Clark 2004; Malanima and Pinchera 2012).

For Allen et al. (2004) and Broadberry and Gupta (2006), during this period, Northwestern Europe particularly stood out as a region with the world's most expensive grains vis-à-vis the world's cheapest non-food industrial goods, reflecting gains in productivity, specific to this part of Europe, and was not experienced elsewhere. According to them, this

product-price pattern refutes the arguments in favour of a Northwestern European superiority in growing food and discredits higher agricultural productivity as "distinctive advantage", and thus, as a potential explanation of early divergence. Rather, it points to productivity gains in the non-agricultural sectors and to improvements linked to urban and non-agricultural developments (Broadberry and Gupta 2006).

An important implication of these findings on prices concerned the previous measurements of real incomes, on which Pomeranz has based his arguments. Broadberry and Gupta (2006: 6) suggest that across-region comparisons of living standards based on grain wages underestimated the divergence between Northwestern Europe and the rest of the world prior to the nineteenth century, since real consumption wages in this region rose "through the increased consumption of non-agricultural goods and services, the prices of which were falling relative to the price of grain," (Broadberry and Gupta 2006), while high silver wages in Northwestern Europe did not translate into high grain wages before the nineteenth century.

However, in the absence of research on the evolution of the relative prices of traded and industrial goods in the non-Western world throughout the early-modern period, it is not possible to realistically assess these arguments. Although manufactured goods were cheaper relative to grains in Northwest Europe or other parts of the continent and presumably other parts of the world, this does not necessarily mean that the decline in relative prices was not a global trend during the same period.

While Clark (2004) identifies technological discoveries from 1200 to 1700 (i.e., the introduction of the knitting frame, printing press, windmills, sailing ships, and new optical instruments – spectacles, telescopes, and microscopes – the mechanisation of silk spinning, et cetera) and the enhanced ability to trade overseas as the prime reasons for the drop in prices of consumer goods and luxuries, Broadberry and Gupta (2006) attribute a crucial role to improvements in the service sector (distribution and finance), alongside improvements in production. However, the change in relative prices might also be interpreted in demographic terms (Hoffman et al. 2002). Under constant productivity, one would expect the relative prices of agricultural goods to rise in epochs of rising population and the relative prices of industrial goods to decline (Malanima and Pinchera 2012). At this juncture, looking at how the prices of manufactured and traded goods evolved relative to agricultural prices in different economic

and demographic settings will contribute to our understanding of the source of changing price patterns.

Ottoman manufacturing in the eighteenth century might not have been a flourishing, dynamic sector competing on international markets, but it was not stagnant either. As Genç (1994) asserts, it displayed a complex pattern, with subsequent phases of expansion and retraction. During this century, Ottoman manufacturing competed first with Asian, and then European, imports but managed to survive. Despite its marginality in foreign markets, the Ottoman textile industry continued to produce for a vast domestic market. Even in the last third of the eighteenth century, when the cotton industry in England was being transformed by the Industrial Revolution, the empire remained self-sufficient in cotton textiles. Around 1820, the share of imported cotton yarn and cloth in total domestic consumption was just 4 percent (Pamuk 1986).

This notwithstanding, throughout the period under study, no substantial improvements seem to have been implemented in the organisation or methods of production in the Ottoman manufacturing sector. Until the mid-nineteenth century, artisans were organised around small-scale manufacturing establishments (Pamuk 1986). At the same time, the Ottoman industry remained under the control of the guilds, which acted as interest groups protecting their members by restricting production and overseeing quality and prices (Quataert 2005), as they sought and obtained the support of the government whenever merchants attempted to organise alternative forms of production (Pamuk 2004). Under these conditions, any significant productivity increases that might have occurred due to technical and institutional innovation is highly unlikely. Therefore, if the Ottoman realm experienced a declining trend in the relative prices of manufactured goods – as was the case for several other European countries – then we should turn our attention to factors other than innovation to explain this drop.

This section provided a brief overview of the literature on three mechanisms of pre-industrial growth. Until today, all three mechanisms of growth have been investigated primarily with evidence from European economies. Nevertheless, the explanatory power of market development, consumer demand, and technical innovation depend not only on their existence in Northwestern Europe, but also their absence elsewhere. This is a key issue in determining

whether the Industrial Revolution was a phenomenon that occurred suddenly and at the intersection of several contingencies, or whether it was the culmination of a long-run evolution. If those regions that were growing slowly also experienced these phenomena, then it would cast doubt on the connection between them and growth and the Industrial Revolution. In this respect, it is relevant to ask whether there was a discrepancy between the Western and the non-Western worlds in terms of the extent of market development, consumption patterns, and trends in relative prices, and whether it led to divergences in economic performances across different parts of the world. Despite this, the non-Western world has attracted scant attention within the existing literature on markets, prices, and consumption, in contrast to the abundant empirical research on pre-modern Europe.

This is where this study provides an important contribution to the debate, improving on the empirical evidence from a non-Western context that has so far often defied sound assessment by presenting new quantitative evidence for the Ottoman Empire. The present study investigates whether these three phenomena were restricted to Europe or could be experienced to other parts of the world. In a series of five papers, the following questions are asked: (1) Did Ottoman commodity markets experience long-term and sustainable integration so as to produce regional patterns of specialisation? (2) Did the Ottomans enjoy a greater variety and quantity of goods despite stagnant real wages, as was the case in eighteenth-century Europe? (3) Did manufactured goods become cheaper relative to agricultural goods between 1700 and 1840?

3. Sources

3.1. The Ottoman inheritance inventories

This study relies on evidence provided by Ottoman inheritance inventories. Inheritance inventories are lists of the possessions of a deceased individual recorded by a judge to distribute the inheritance among the heirs. These sources are included in the *şer'iye* registers (judicial court registers), which were compiled in all major *kazas* of the empire. Inventories were registered either together with other judicial court records or in separate

books known as *tereke defterleri* (inheritance books). Sometimes inheritance inventories for the ruling and ruled classes were registered separately.¹¹

Thousands of these sources are available for several Ottoman towns and survive for long, continuous periods from mid-fifteenth century to the early twentieth century. Inventories are obligatory in Islamic law when there are minor heirs, a pregnant wife or missing heirs. The court also intervened upon the request of the *emin-i beytülmal* (the local representative of the state treasury) or (1) if no heir existed other than the spouse(s), (2) if no heirs were known, (3) if the heirs were far away, (4) if the and Pascual 1992).

Preparing an inheritance inventory¹² involved the following process: the *kassam*, a judicial official and expert in inheritance matters, would arrive at the home of the deceased and ascertain the particulars of any property possessed by the deceased by referring to copies of court warrants (*hüccets*) in the hands of the family, and possibly, to the testimony of witnesses. He would then make a record of the description. Each of the legal heirs would be summoned, as required by law to act as eyewitnesses themselves (Matthews 2001).

The inheritance inventory constitutes a summary of four main operations subsequently executed by the *kadi* (judge): the identification of the deceased and heirs, the listing of assets, the enumeration and deduction of debts, and the apportioning of shares. In the initial section, "introductory protocol," the deceased would be identified by given name and father's name and place of residence (by neighbourhood or village and the city). Subsequently, the names and degree of affinity of the legatees, the title of the treasury agent (*emin-i beytülmal*) and the date of portioning would be recorded. Occupation and the cause of death were also occasionally mentioned. (Matthews 2001) The second section, "inventory" describes the deceased's patrimony in detail: Buildings (houses, shops, watermills), vineyards, trees and crops, livestock, personal and household goods, stores, commercial goods, as well

11 Inheritance inventories belonging to the *askeri* class were recorded by the *kadiasker* (top administrative official), while the inheritance inventories of ordinary people were recorded by the *kadi* (Karababa 2006).

12 The terminology used in this study is that of Matthews. She suggests that the term "probate" is unsuitable for Ottoman *terekes*, because unlike in Western societies whose legal system relied upon Roman heritage, in Ottoman society, the partitioning of the estate among legatees was executed in a prescribed manner by the court in accordance with Islamic law. (Matthews 2001: 19)

as outstanding loans¹³ (*der zimmet*) and the name of the borrower. All items were recorded with their worth (Establet and Pascual 1992). The values assigned may have reflected a price estimate or the actual amount for which the item was sold at auction. The third section, "personal liabilities," constituted the claims against the inheritance: debts incurred by the deceased (*Düyun*), an outstanding bride price to the wife, claims on the estate, bequests, and sundry expenses (medical expenses, funeral costs, the cost of the inheritance registry process, and taxes). In the fourth section, the net amount of the assets was divided among the heirs (Matthews 2001). (See Appendix for a sample inheritance inventory from the late eighteenth century).

3.2. Comparison with British probate inventories

Although Ottoman inheritance inventories resemble their European and American counterparts in many respects, some significant differences exist in their content. Here, I will focus on English probate inventories for a comparison with Ottoman inventories. The Statue of 1529 and other contemporary legal texts explicitly regulated what a probate inventory should include: all the movable property of the person deceased -goods, chattels, wares, merchandise - found in the houses, yards, barns, stables, shops and workshops - money, jewellery, livestock and other domesticated animals, growing crops on the fields, and debts owed to the deceased. Land and buildings, and all non-movable property including fixtures of a building such as ovens, furnaces and window glasses, wild animals, self-produced crops and debts owned by the deceased were excluded (Overton et al. 2004).

Secondary sources are silent as to whether the process and rules for preparing an Ottoman inheritance inventory was regulated by any particular code besides religious law, confining themselves to asserting that all the movable and non-movable properties of the deceased were fixed, appraised and distributed according to Islamic inheritance rules (İnalcık 1953; Barkan 1966; Öztürk 1995). Hence, we need to turn our attention to the probate inventories themselves to determine what was truly included and what was not.

Unlike English probate inventories, Ottoman inventories included real estate for residence (*beyt, menzil, hane, konak, oda, dam*), shops, workshops, mills, stores, barns, and

13 In the case of married women, this included the unpaid instalment of the dowry, which the husband was liable for.

rural real estates (*çiftlik, tarla, bağ, bahçe, bostan, arsa, yoncalık, cehrilik, ağaçlık, otluk, yurdı*). However, it should be noted that only freely held lands (*mülk*) were subject to the inventory process, and Islamic inheritance law did not apply to state lands (*miri*), which constituted the majority of the agricultural lands until the mid-nineteenth century. Peasants possessed only usufruct rights over state lands, the transfer of which was regulated by customary law (İnalcık 1953). Owning shares of a piece of real estate was a common practice in Ottoman society, and such shares were recorded and inherited. Like English inventories, Ottoman inheritance inventories also included cash money, debts owned by and owned to the deceased, as well as slaves, livestock, commercial goods (raw material and manufactured goods), means of production and personal and household belongings.

At a preliminary glance, the most important advantage Ottoman inheritance inventories have over English probate inventories was the inclusion of real estate. If the question of omissions is ignored, they appear to present a more complete picture of an estate owner's wealth. However, houses or other buildings were never described in detail in Ottoman inventories: They contain no information about the numbers of the rooms or how they were used. On this later point, English inventories are more extensive. In the process of probate, English appraisers often listed items room by room, even though they were not required to do so (Overton et al. 2004). Although the risk of underrepresentation of room numbers is mentioned by historians, the inventories still provide crucial insights into early-modern English houses. Room use is part of material culture. Furthermore, from the perspective of consumption studies, the location of objects in the houses gives clues as to the meanings attributed to them (Overton et al. 2004).

In comparison to English inventories, Ottoman inventories are far less useful sources for the study of agricultural history. Rural underrepresentation is the crucial but not sole factor. Like English inventories, which cannot tell us directly about the extent of land ownership (Overton et al. 2004), Ottoman inventories do not shed light on small family farms, which were the basic form of early-modern Ottoman agriculture (Pamuk 2005). Since small farms were not private property but state land, they left no traces in the sources. For the same reason, information about crops in the fields in England, which have been utilized to infer agricultural productivity in a number of path-breaking works (Campbell 1983; Overton 1979, 1990; Allen 1988), are absent in the field of Ottoman studies.

Ottoman inventories contain information about both the debts owed by and owed to the deceased person, whereas English inventories only contain information about the latter. On this matter, the evidence provided by inheritance inventories can be used to shed light on the extent that credit relations were common in Ottoman society, or to identify moneylenders in a particular town, in order to gain an understanding of them through their social status and economic means. However, Ottoman inventories do not provide any insights about interest rates or terms of debt, which are of central importance for studying credit transactions.

The differences in the amount of detail inserted into the description of certain goods is also noteworthy. In Ottoman inventories, clothing items and textiles used for home furniture were described in a very detailed manner. The description of a cloth always involved its type – often the type and origin of the fabric – and in many cases, its colour and ornaments. In contrast, English inventories often defined clothing items as simply “apparel,” lumping them together instead of itemising them separately (Overton et al. 2004).

Finally, an important differentiation resulting from inheritance laws needs to be underlined. According to English common law, the possessions of a married woman belonged to her husband, as long as he was alive (Overton et al. 2004). Hence, only unmarried women (primarily widows) made wills or had inventories. Unlike English common law, Islamic property law recognized married women’s property rights. A substantial number of inventories belonging to married and unmarried women exist, allowing comparisons across genders. This implies that total estate values reported in married men’s inventories were not representative of overall household wealth, as men’s estates did not include assets of wives. The same applies to household goods. The goods in the house were a combination of goods possessed by husband and wife. For a comprehensive understanding of the inner Ottoman house, male and female possessions need to be evaluated together.

3.3. Limitations

With all the detailed information they provide, inheritance inventories constitute a unique data source for reconstructing the economic and social history of the pre-modern Ottoman Empire (Ergene and Berker 2008). Since Barkan’s (1966) pioneering work, “Edirne

Asker Kassamina Ait Tereke Defterleri (1545-1659),¹⁴ inheritance registers have been employed, particularly in the context of urban and provincial history, to shed light on several aspects of Ottoman society and economy. These included family size and structure,¹⁵ annual and seasonal mortality rates,¹⁶ economic trends, credit relations,¹⁷ money, real estate prices,¹⁸ polarization of wealth,¹⁹ social stratification,²⁰ factors of wealth accumulation,²¹ and consumption.²²

Despite their usefulness, inheritance inventories suffer from critical shortcomings in depicting a realistic picture of the society. Here, I focus on three main problems often associated with employing these records for quantitative study: representativeness, omissions, and accuracy of valuations.

The most recognized shortcoming articulated regarding probate/inheritance inventories concerns their ability to represent the living population of the time. Not all estates were recorded, and those that were registered did not usually constitute a random sample of the individuals in the society²³. The frequency of estates registered increases as we ascend the

14 In this article, Barkan (1966) presents tabulations for more than 3,000 inheritance inventories, demonstrating the distribution of the estates according to sex, social origin, marital status, number of wives and children, as well as the different ranks within the military class, following a short introduction about the sources and Islamic rules of inheritance.

15 See Barkan (1966); Demirel (1990); Establet and Pascual (1994); Öztürk (1995); Rafeq (1994).

16 See Establet and Pascual (1994)

17 See Barkan (1966); Cezar (1977); Establet and Pascual (1994); Gerber (1988); (1995); Rafeq (1994); Seng (1991); Todorov (1983).

18 See Establet and Pascual (1994); Gerber (1988); Öztürk (1995); Seng (1991); Todorov (1983).

19 See Coşgel and Ergene (2011); Establet and Pascual (1994); Raymond (1974).

20 See Canbakal (2007); Raymond (1974); Establet and Pascual (1992), Todorov (1983a)

21 See Ergene and Berker (2008); Canbakal (2007); Establet and Pascual (2004); Öztürk (1995); Coşgel and Ergene (2011).

22 See Karababa (2006, 2012); Göçek (1996); Ceylan (2010).

23 Coşgel and Ergene (2014) extensively discuss the selection bias in the Ottoman court records in the context of eighteenth-century Kastamonu.

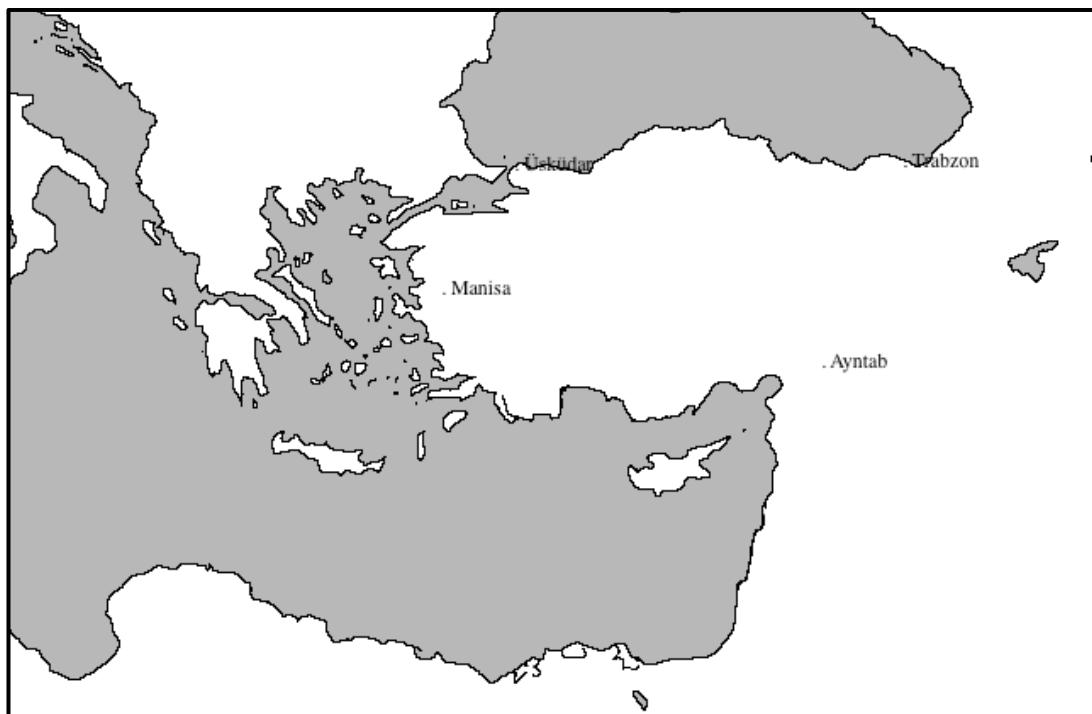
economic ladder, since there was little point in making an inventory when a deceased person left an estate of little value in relation to the costs of obtaining probate (Overton et al. 2004). Besides, the population of the deceased was naturally generally older and hence wealthier than the living population. Therefore, such estate records underrepresent the poor and overrepresent the rich. In other words, there is a systematic upward economic bias in these registers.

Another important question is the degree to which probate inventories were comprehensive and accurate in listing the possessions of the deceased. Many historians draw attention to the fact that, for a variety of reasons, such inventories were incomplete accounts of the movable and, in the case of Ottoman inventories, non-movable assets. Missing items might have been present in the household but ignored by the appraisers, or been concealed by one or more of the heirs before the inventory was made (Overton et al. 2004). The most liquid items, cash money and jewellery, were sometimes removed between the death of the estate owner and the intervention of the court. Everyday objects of little value, whose existence or absence had few economic implications, such as ceramics, sewing gear, or children's toys, were often overlooked by the appraisers (Bedell 2000).

A further doubt regarding probate/inheritance inventories concerns the accuracy of valuations. Like the wealth bias in the sources, or the likelihood of omissions from estates, unrealistic or erratic valuations of inventory items can lead the historian to distorted conclusions, as the total estate values analysed in such studies were calculated from a sum of the total values of the deceased's movable and immovable possessions, the cash they owned and the debts owed to him. To what degree valuations in Ottoman inheritance inventories reflected conventional prices will be discussed in detail later in this study in chapter 2.

3.4. Geographical coverage

This research employs inventories belonging to the Ottoman towns of Üsküdar, Manisa, Ayntab, and Trabzon, which are available at the Centre for Islamic Studies (Istanbul).

Map 2- Ottoman towns of Üsküdar, Manisa, Ayntab, and Trabzon

Located on the Asian shore and a gateway to Istanbul, Üsküdar was one of four official divisions of the capital in the eighteenth and nineteenth centuries. It was a commercial and military hub, and a site for small farming and agricultural industry. The town was the first station of the relay system on the trade routes connecting Istanbul to Anatolia, Arab lands and to Iran, and as such, it was the departure point for the pilgrimage and campaigns to the East. In the eighteenth century, the town's population was estimated to be around 60,000 inhabitants (Bostan 2012).

A residence for imperial princes until the end of the sixteenth century, Manisa was one of the most important administrative centres of the empire and was richly endowed with pious foundations. Surrounded by gardens and vineyards, the city was a supplier of Istanbul markets from an early date, meaning it had strong trading links with the capital (Faroqhi 1994). Manisa benefited from its advantageous location in the vicinity of Izmir and increasingly specialised in cotton production during the eighteenth century. Compared to its symbolic significance, the city's population was modest by the late sixteenth century, with approximately 2,000 taxpayers (Erder and Faroqhi 1980). The substantial population size of the city in the early nineteenth century (an urban population of around 35,000 (Emecen 2003)) suggests that Manisa experienced a growth spurt during the eighteenth century. It is widely assumed that the city

owes its prosperity and its size in the later period to commercial agriculture and large, cotton-growing farms established to meet increasing European demand (Teoman and Kaymak 2008).

Ayntab (modern-day Gaziantep) was a medium-sized town in Southeastern Anatolia with no particular administrative or economic significance for the centre. Due to its insular position, the city did not engage in export-oriented agricultural production during the eighteenth and nineteenth centuries. Nevertheless, references in local sources regarding the local specialty fabrics from Trabzon and Tokat in the north, Ruha in the east, and Hama in the south indicates, according to Canbakal (2007: 43), the town's participation "in a wider commercial network which was primarily domestic, and stretched across Eastern Anatolia, northern Syria, and Iraq." Therefore, inventories from Ayntab can be expected to provide insights into the emergence and development of the regional economy in this part of the empire.

Trabzon, located on the eastern Black Sea coast, was a middle-sized town that contained 2,122 tax-payers in the late sixteenth century (Jennings 1976). It was the seat of a *sancakbey*, an administrative centre, established immediately after the conquest by Mehmed II in 1463. After suffering immensely from the seventeenth-century crisis, the city benefited substantially from Iranian trade and turned into a great international trading entrepôt on the Istanbul-Tabriz trade route and became an important port for the re-export of Iranian silk and goods from the Caspian coast to Europe from the late seventeenth century onwards (Jennings 1976). By the nineteenth century, Trabzon was among the few Anatolian cities with a population exceeding 40,000 (Erder and Faroqhi 1980). In this regard, Trabzon is a cogent setting to observe the impact of trade routes on early-modern urbanisation.

4. Empirical and methodological contributions

Alongside the overall motivation to relate Ottoman economic history to the Great Divergence debate, each paper possesses its own objectives that cut across several current themes in European and Ottoman historiography. The thesis consists of three sections. Section 1 is devoted to a methodological discussion regarding the use of inventories as historical sources. From the 1960s onwards, parallel to the discovery and widespread use of probate inventories by the historians of early-modern Europe and America, substantial effort has been directed towards testing the reliability of the sources, identifying the problems, and

developing methodologies to correct them. In the case of Ottoman inheritance inventories, however, almost no attempt has been made in this direction, despite their increasing use in the last decades. The paper "Ottoman inheritance inventory as a source for price history" addresses historians' doubts concerning the accuracy of valuations in inheritance inventories. It provides a detailed examination of the quality of the valuations and discusses to what degree these reflect conventional commodity prices of the time. It is the first study to test the reliability of the information provided by inheritance inventories, and as such, provides a reference point for future research employing these records, including the remainder of this thesis.

This paper also explores the potential that the inheritance inventories might possess in expanding Ottoman price history. Until today, most research based on inheritance inventories concentrated on wealth and wealth-related issues (polarisation of wealth, factors of wealth accumulation, etc.). With this paper, I aim to introduce a new area of investigation to inheritance inventory studies. The results strongly suggest that inventory valuations are generally consistent and were closely related to the conventional prices of the time. Building upon these findings, it is reasonable to assume that the prices contained in Ottoman inheritance inventories can be reliably employed for historical research.

Employing a price dataset compiled from inheritance inventories and secondary sources, Section 2 examines regional, interregional, and international wheat markets in the Eastern Mediterranean from the late seventeenth to mid-nineteenth centuries in an effort to understand whether these experienced sustainable and long-term integration, and to identify integration and disintegration episodes in the shorter term. Besides contributing to the market integration literature by providing insights from the Eastern Mediterranean, a geographical area neglected by the existing scholarship, this paper sheds light on an under-explored topic in the Ottoman economic history. Trade within and between Ottoman provinces and domestic commodity markets in the seventeenth and eighteenth centuries is far less understood compared to foreign trade during the same period (McGowan 1994). Here, using price data, this paper enhances our knowledge on the conditions of domestic as well as international exchange.

This paper reveals that unlike the North Sea Area and some other parts of Europe, the Eastern Mediterranean despite hosting two leading powers of the pre-Colombian world did

not move towards a regional existence during this period, although in the Adriatic basin a strong trend of integration was observed, particularly in the early nineteenth century. Furthermore, on the eve of the first wave of globalisation, domestic wheat markets in the Ottoman Empire were no better integrated than they had been two centuries previously.

Section 3 is concerned with the evolution of domestic comfort and conveniences in the Ottoman Empire in a long-term perspective. The first paper in this section, "Was there a consumer revolution in the Ottoman Empire? (1700-1850)" looks at the types and quantity of goods possessed by households in Üsküdar as they appeared in the inventories. It explores how the ownership of domestic chattels evolved from 1700 to 1850, and examines the existence of an Ottoman consumer revolution during this period. This paper is the first long-term study on Ottoman consumerism, and the first to quantify the change in consumption patterns over time. It reveals new insights into Ottoman living standards, which cannot be captured by real wage series alone. Doing so, it contributes new quantitative evidence to the broader literature on living standards and consumption from a non-Western context.

Focusing on how the material environment inhabited by ordinary Ottomans evolved, this paper relates itself to the 'decline debate.' For a long time, traditional historiography assumed that following its golden age in the sixteenth century, the empire entered an era of decadence enveloping the military, political, and economic spheres, ultimately leading to its inevitable dissolution. In the last decades, the "Ottoman decline" during the seventeenth and eighteenth centuries as a "totalising historiographical device" has been severely criticised and has been replaced by a more nuanced and non-linear view of the trajectory that the empire followed in these centuries. This study tests the revisionist argument that "in the eighteenth century, Ottomans lived better than their ancestors of the Suleimanic era, in terms of material culture and means, [although] their lot was not improving relative to the lot of those living in other parts of the world (Kafadar 1999: 68)."

The results on Üsküdar inventories depict a picture that is similar to those depicted by most studies on European probate inventories, which show an increase in the ownership of household durables in the 'long eighteenth century'; hence, I reject the postulate of a regressing economy as put forward by the traditional historiography. The interiors of Ottoman houses grew richer and more comfortable throughout this period, with an increase in the

quantity and variety of the household goods possessed.

The second chapter of Section 3 expands on the issue by exploring the changing price structure of durable goods and investigating whether change over time in the types and quantities of domestic chattels possessed by deceased Ottomans was associated with a change in the overall value of domestic durables stock in their estates, and/or with the cheapening of manufactured goods. The results are similar to those for early-modern Europe and America, which have shown that both the absolute value of probated consumer goods and their share within the overall estate remained stable or declined, while people owned increasingly more goods. Throughout the same period, however, the valuations of selected household goods, as well as the prices of several manufactured and traded goods, declined relative to agricultural products' prices. This decline was particularly visible in the 1730-1790 period, when the ownership of goods rose most rapidly.

Until today, Ottomanists have viewed early-modern consumerism as a symbolic field enjoying a broad autonomy and detached from economic constraints. Consumer behaviour and new consumption patterns have intrigued them with their social and cultural aspects. Without ignoring the significance of sociocultural processes in determining consumer choices, and in shaping the manner in which the Ottomans imagined a comfortable and desirable life, this study approaches the phenomenon from a different angle, focusing on the Ottomans' ability to possess consumer goods. Approaching Ottoman consumerism from an economic perspective, this paper fills a significant gap in the literature, by showing that the inhabitants of Üsküdar *could* own more consumer durables without re-allocating their resources in favour of durables.

The third chapter of Section 3, "Gender, religious status, and household durables" focuses on how gender and religious status was related to ownership of domestic goods. I compare male and female and Muslim and non-Muslim estate owners' possessions and the share of consumer durables within their overall estates and examine whether the ownership of selected categories of goods varied across these groups in order to understand how material culture varied between them. Unlike British and American probate inventories, Ottoman inheritance inventories offer a favourable ground to explore differences across genders and religious groups. These sources allow us to identify the social segments that

pioneered the introduction of new consumption patterns in the Ottoman realm, understand whether a gender-based differentiation existed in terms of ownership of domestic chattels, and ascertain whether Ottoman women were more eager consumers than men.

The quantitative analysis demonstrates that Muslim men in the town, rather than the non-Muslim community or Muslim women, appeared to be inclined to acquire novel consumer goods associated with westernization, and a western lifestyle, such as clocks, mirrors, and modern furniture. The ostensible supremacy of women – and particularly Muslim women – in terms of the ownership of household effects resulted from the possession of greater quantities of more established ‘traditional’ goods that were always part of the Ottoman inner house, such as household linen, chests, and towels. Rather than a sign of greater interest in the new consumer regime, the higher shares of household goods in the estates of Muslim women compared to Muslim men at the same wealth level reflects both the limited control over resources and the fewer investment opportunities available to women in Ottoman society, and the gender roles that relegated women to the home and made the creation of a comfortable domestic environment a prime female responsibility.

Overall, the findings of this research point to long-term market development (and its absence), rather than a change in attitudes towards consumption, and productivity gains in the non-agricultural sectors as a major source of divergence prior to the Industrial Revolution between parts of Europe and the Ottoman Empire; and provide support to the literature stressing the significance of institutional improvements and political conditions for the rise of efficient and integrated markets and thus, for pre-modern growth.

SECTION 1
SOURCES

CHAPTER 2

OTTOMAN INHERITANCE INVENTORY AS A SOURCE FOR PRICE HISTORY²⁴

Ottoman historians have been severely limited by the poor availability and low quality of primary sources from which historical prices can be compiled. The lack of reliable information about local prices is a key impediment to our understanding about a range of significant issues, including real wages, wealth inequality, consumption, and market integration. As is the case in many fields of history, historical records of prices are less readily available and accessible for earlier periods, as well as for medium-sized and small towns, than they are for larger centres and more recent periods. The capacity of inheritance inventories – which are available for several Ottoman towns and survive for long, continuous periods – to bridge this significant gap in the historical record has failed to attract sufficient attention. By presenting new quantitative evidence on the potential and limitations of the prices recorded in inheritance inventories, this chapter demonstrates that these documents do, in fact, offer a reliable alternative source for Ottoman prices.

The relation between inventory valuations in the early modern European and American inventories and market prices has been subject to much speculation in the relevant scholarly literature. Recent studies have shown that these are generally consistent and closely related to the conventional prices of the time (Overton 2000). The use of these sources in the field of price history facilitated the discovery of completely new findings and enabled historians to shed further light on the fundamental changes that emerged in the nature of the early modern economies. Shammam's (1994) path-breaking work revealing the decline in textile prices in pre-industrial England and America and Overton's (2000) extensive study providing long-term agricultural, industrial, and consumer price indices for England are only some of the works based on these sources.

²⁴ This paper has been published in *Historical Methods: A Journal of Quantitative and Interdisciplinary History* 49(3): 132-144, 2016.

Like European and American probate inventories, Ottoman inheritance inventories list the items composing a portion of the deceased's estate along with their unit valuations. The idea of using these valuations for constructing price series is not novel. Some studies in the past (Barkan 1966; Çizakça 1978; Establet and Pascual 1994; Öztürk 1987, 1988, 1992) have employed the valuations of certain items in the inventories to offer an insight into conventional prices for specific places, usually for short periods of time. However, the majority of work on Ottoman prices has focused on other types of sources. Moreover, none of the existing studies have offered quantitative evidence on the relationship between the inventory valuations they utilise and market prices even though the significance of the issue was recognized in one of the earliest studies on Ottoman inheritance inventories (Barkan 1966).

Whether inventory valuations reflect market prices and whether they are reliable are also decisive questions for inventory studies that explore wealth and wealth-related questions²⁵. Doubts regarding the accuracy of valuations are often cited among the limitations and problems associated with deploying inventories for quantitative analysis. Like the wealth bias in these sources, or the likelihood of omissions from estates, unrealistic or erratic valuations of inventory items can lead the historian to distorted conclusions, as the total estate values analysed in such studies are computed from a sum of the total values of the deceased's movable and immovable possessions, the cash they owned and the debts owing to him. If valuations did not reflect market or auction prices, or if they were substantially higher or lower than the conventional prices of the time, then the total estate value would not reflect the real wealth of the deceased. In such a situation, research on the evolution or distribution of wealth in a certain region, or wealth accumulation, can be seriously affected.

The question is also critical for studies on the differences in the composition of the wealth of estate owners from divergent social groups and from different periods, as inaccurate or inconsistent valuations might distort the share of the value of consumption and capital

25 For some inventory studies on wealth, wealth accumulation, wealth distribution and inequality in the Ottoman Empire see Berker and Ergene (2008); Canbakal (2007, 2009, 2008-2012); Coşgel and Ergene (2011); Establet, Pascual and Raymond (1994); Özdeğer (1988); Todorov (1983).

goods within the whole estate²⁶. Hence, an evaluation of the consistency of inventory valuations will contribute extensively to the growing range of research that relies on these sources.

The basic process through which inventory items were valued was first described clearly by Barkan (1966), who showed that possessions were either sold at public auction by an auctioneer, with the prices of the transactions being recorded in the inventory, or that they were appraised by experts appointed by the court (*ehl-iibre*). However, recent work has revealed that the processes were more complicated, as in certain cases, heirs purchased the items from the estate or shared them among themselves without publicly attending auctions (Gradeva 2005). Perhaps the same applied for creditors.

Two contradicting views exist in the literature on the credibility of the valuations in Ottoman inventories. The first view argues that court officials generally tended to overvalue an estate, since the court's own fee was indexed to this valuation (Barkan 1966; Cezar 1977; Ergene 2002; Seng 1991). As Barkan (1966) showed, decrees were sent by the administrative centre to local judges warning them against artificially inflating the values of estates. Nevertheless, the existence of decrees does not, *ipso facto*, prove that the manipulation of the valuations was a common practice. The historical documents tend to over-represent the violations of the rules, as there would be no need to take action in cases where the rule is obeyed. According to Gradeva (2005) and Establet and Pascual (1994), any desire of the court to manipulate the valuations would have been constrained by the presence of local people, heirs and creditors, as it would probably end in an unfair assignation of shares, whilst the heirs and creditors would resist biased valuations. The discussion remains open, however, and empirical studies are required for us to acquire a precise idea about the accuracy of the valuations.

Recently, Bozkurt (2011) offered a new argument in favour of the accuracy of inventory valuations. He suggests that the valuations in the inventories could be manipulated only when they were appraised prices, since it was the transaction prices that were directly recorded in

26 For studies on the composition of estates, see Establet and Pascual (2000, 2002); Rafeq (2012); Wilkins (2010).

the inventory when part or all of the estate was sold at an auction. Considering that individuals typically came to the court to register a deceased's estate due to situations that involved either conflicts (among heirs and creditors/debtors, or among the heirs themselves), or the existence of minors among the heirs, he argues that it is likely that most of the estates were sold at an auction and hence reflected actual market prices. Bozkurt (2011) supports his argument by demonstrating that in 90 percent of the 792 estates in his sample, the estates were sold at an auction²⁷. However, he also acknowledges that this situation might have been particular to Istanbul and/or to the period under study. Especially in small towns where the market economy was underdeveloped, estates could have been shared directly by the heirs and creditors instead of being sold.

This paper provides further evidence about the accuracy of inventory valuations by testing their reliability in the light of empirical evidence from primary and secondary sources. Further, this study undertakes a comparison between inventory valuations and price data from independent sources, investigating whether the valuations are internally consistent.

The paper is organized as follows: In the first section, the potential of inheritance inventories for expanding the field of Ottoman price history and the advantages of employing these alternative sources are highlighted. This is followed by an investigation of various types of items reported in the inventories. Agricultural, consumer and capital goods, for which prices can be compiled from these documents, are listed. Subsequently, some alternative uses of inventory valuations are presented and the accuracy of the relationship between market prices and inventory valuations are tested.

1. Advantages of inheritance inventories as a source for price history

The scarcity of price data is the main reason why most Ottoman price studies are restricted in their chronological and geographical scope. Aside from Pamuk's (2000a) study covering 500 years of prices in Istanbul and in some other cities of the empire, the general tendency of price studies has been to focus on prices over short periods (not exceeding 50

27 It is possible to identify estates that were sold at the auction, as these included auctioneers' fees (*dellaliye*) or porters' fees (*hammaliye*) that were deducted from the total value before it was shared among the heirs.

years) in the big cities and important administrative centres.

To date, early modern and modern Ottoman price studies have generally relied on the following four groups of sources:

- *Waqf* palace account books (*vakıf muhasebe defterleri*), which show prices paid by pious foundations and their soup kitchens (*imaret*) (Barkan 1975; Faroqhi 1984; Güran 2006; Pamuk 2000a; Orbay 2001, 2007a, 2007b);
- Palace kitchen account books, which reflect the food prices in the palace purchases (Barkan 1964; Pamuk 2000a);
- Ceiling-price listings (*narr*), which include state-controlled prices for basic items. These listings were promulgated as separate registers or were placed among court records (Kütükoğlu 1978, 1983; Özlü 2006; Öztürk 1987, 1988, 1992; Sahillioğlu 1967);
- Wholesale prices of the Commodity Exchange (for the nineteenth century) (Pamuk 2000a).

Among these sources, Waqf account books have a particular prominence. In Islamic law, these institutions are designed to be permanent institutions whose *modi operandi* are described in detail in the deeds that establish them. These sources allow us to continuously observe current market prices over time. The use of books that belong to a number of different pious foundations established in the same city and in the same period allows us to check their consistency and reliability (Orbay 2008), and also to substitute these sources with each other when data is partially missing. Barkan (1975) presented the first price index relying on waqf account books to elucidate the sixteenth century "price revolution in the Ottoman Empire." Subsequently, Faroqhi (1984) published sixteenth- and seventeenth-century price data for Konya, a mid-sized Anatolian city, in her study on Konya waqfs. Waqf account books also constitute the main source of Pamuk's (2000a) study.

Two other sources have also been important: tax registers and private expenditure books. For proportionally taxed products like grains, enumerators had to specify a price to convert physical quantities to nominal values in order to calculate the total tax revenue in each

village (Coşgel 2006). In his study, Coşgel (2006) makes use of these sources for exploring agricultural productivity in the sixteenth-century Ottoman Empire and gives grain prices for a number of localities. The extent to which these prices reflect market prices remains a critical question, although this is beyond the scope of this paper. However, considering that tax registers are among the most available and accessible historical sources for Ottoman history, the opportunity they provide for price history should be addressed by further studies. The prices reported in private expenditure books recording the purchases for the households of Ottoman statesmen have been studied by Pamuk (2000a), who concluded that data drawn from these sources are not particularly helpful, since they include both wholesale and retail prices and, hence, are not standard.

Compared to these widely used sources, inheritance inventories possess several advantages as an alternative source for Ottoman price studies. One of these is related to the availability and accessibility of these documents. These legal documents were prepared by Ottoman courts through an effectively standard procedure across the empire, yet they were recorded and compiled on an urban basis, reflecting the local economy and society. The easy availability and accessibility of inheritance inventories for numerous medium-sized and small towns located in the more remote areas of the empire, as well as for big towns in the core regions, makes them a unique source of comprehensive local price data. For most of the cities where they survive, inventories can offer regular and continuous information over centuries, an important requirement for long-term price studies.

In comparison to the other main sources used in Ottoman price studies, inheritance inventories have two other advantages. First, the prices indicated in the inventories can be assumed to reflect consumer prices, whereas most other surviving price data comes from institutions. Institutions are likely to have paid lower prices in the market than those most individual consumers, as their purchases were conducted regularly and in large quantities. Overton (2000) argues that in the British case, the difference between prices in the institutional records and general retail prices could be quite large. Second, and more importantly, inventories cover a wide range of commodities that were excluded from the existing series (Overton 2000). Allen et al. (2004) suggest that price histories have been biased towards over-using food prices and under-using other prices for consumer and capital goods. A pertinent

reason for this is a lack of sources, including information about these latter items. In this regard, inventories that encapsulated a wide range of manufactured goods can be of crucial benefit for an effective study of the topic.

2. Goods in the inventories

Inventories describes the deceased's patrimony in detail: Buildings (houses, shops, watermills), vineyards, trees and crops, livestock, personal and household goods, stores, commercial goods as well as debts owed to the deceased. Each item is usually recorded with its worth.

Estate owners' movable goods can be grouped under three categories: agricultural, consumer, and capital goods. In a significant number of estates, agricultural goods that were stored for consumption or commercial purposes, including growing crops on the field, were reported in units of measurement, allowing a unit valuation to be calculated (see Table 1). The types of agricultural goods appearing in the estates, and their frequency, substantially varied from one region to another and over time. However, for a considerable number of commodities in Table 1, continuous and long-term yearly price series can be constructed based on inventory valuations.

The second group of commodities, consumption goods, can be categorized into two sub-groups: household and personal consumer goods. Personal consumer goods included mainly clothing, watches and leisure goods (books, tobacco pouches, hookas, and the like). Since the clothing items that were reported were usually described as 'old' or 'torn' and had little to no market value, their valuations are less easily deployed for price studies. Although the adjectives 'old' and 'torn' were also applied to household goods (see Table 2), it is possible to identify 'new' or 'unused,' as well as relatively more standard goods among this second category. Furthermore, despite being second-hand, household goods possessed a visibly higher market value than the clothing items. The third group, capital goods (see Table 3), mainly concerned agricultural production. For this group, the differences between unused and second-hand goods were probably less marked. In regions where sericulture and cotton production was common, it is possible to find raw cotton and silk given in weight units among inventories. Similarly, processed cotton and silk were frequently reported in certain locations.

Table 1- Goods reported in units in Ottoman inheritance inventories

Most frequently appearing food items	Other food items	Non-food items
Wheat (<i>bugday, hınta, kamh, kendüm</i>)	Cooking oil (<i>sadeyag</i>) Olive oil (<i>zeytinyağı</i>)	Fodder (<i>Saman, alef</i>) Firewood (<i>odun, hateb</i>)
Barley (<i>arpa, sair</i>)	Coffee (<i>kahve</i>)	Coal (<i>kömür</i>)
Cracked wheat (<i>bulgur</i>)	Salt (<i>tuz</i>)	Boll (<i>Penbe kozası</i>)
Bitter vetch (<i>burçak</i>)	Sugar (<i>seker</i>)	Cottonseed (<i>penbe çekirdeği</i>)
Chick-pea (<i>nohud</i>)	Roasted chick-pea (<i>leblebi</i>)	Tobacco (<i>Tütün, duhan</i>)
Lentil (<i>mercimek</i>)	Almond (<i>badem</i>)	Soap (<i>sabun</i>)
Corn, white corn (<i>darı, ak dari</i>)	Olive (<i>zeytin</i>)	Wax, beeswax (<i>mum, balmumu</i>)
Rice (<i>pirinç</i>)	Onion (<i>soğan</i>)	
Broad bean (<i>bakla</i>)	Vinegar (<i>sırke</i>)	
Cowpea (<i>börülce</i>)	Grapes (<i>üzüm</i>)	
Flour (<i>un, dakik</i>)		
Molasse (<i>pekmez</i>)		
Honey (<i>bal, asef</i>)		

Table 2- Household goods in inventories

Household linen	Sheet, pillow case, cushion case, table cloth, curtain, towel
Mattress	Mattress, thin mattress
Interior lighting implements	Candlestick, cresset, oil lamp
Floor coverings	Carpets, rugs, felts, rush mats, prayer rugs
Sanitation utensils	Bath jug, bath bowl, bath tub, washtub, dipper, loincloth, etc.
Coffee utensils	Coffee pot, coffee cup, saucer
Cookware	Pot, cauldron, pan, pastry tray, etc.,
Cutlers and serviettes	Plate, vessel, knives, forks, spoons, tray, compote bowl etc.
Heating utensil	Brazier

Table 3- Capital goods reported in inventories

Plough (<i>saban, çift alatı</i>)
Plough iron (<i>saban temuru</i>)
Millstone (<i>değirmen taşı</i>)
Scales (<i>kantar</i>)
Balance (<i>terazi</i>)
Oxen and horse (<i>öküz, at</i>)
Sickle (<i>orak</i>)
Hatchet (<i>balta</i>)
Adze (<i>keser</i>)
Windlass (<i>çırkik</i>)
Raw silk and cotton
Processed silk and cotton

3. Alternative uses of inventory valuations

To facilitate comparisons across time and space, price studies focus on intermediary and standard commodities, rather than goods whose quality variations cannot be ascertained (Allen et al. 2004). This is, however, a criterion of inclusion which is often quite hard to satisfy, particularly when studying historical prices. For instance, one of the reasons historians avoid positing prices for a wider range of manufactured goods, particularly those of textiles, is because it is not possible to control for the changes in their quality (Pamuk 2000a). If we are focused on absolute price levels, as is the case when comparing the prices of a particular commodity across different localities, or if we are investigating the relationship of a price series with another variable series expressed in absolute terms, as when constructing a standard of living index, then ensuring the goods remain as homogenous as possible is of crucial importance. In this regard, most of the items for which we can find inventory valuations, particularly consumer goods, are not of great use for conventional price analysis.

However, price analysis does not always concern absolute levels, and when appraising relative prices and price trends, valuations which were not in perfect accord with the market prices can be utilized by applying alternative methodologies. As Overton (2000: 123) states, "It is important to realize that absolute price levels are less important in historical analysis than relative prices. What is of most significance, therefore, is not whether inventory valuations are identical to the actual prices the items concerned would fetch when sold, but whether the

trend of inventory prices follow the sale prices."

Price trends and relative prices can be constructed for many inventory items that cannot be included in conventional price analysis. Inheritance inventory valuations can be employed for constructing price indices for consumer and capital goods to investigate price movements or the evolution of relative prices. For instance, the question of whether the relative prices of consumer goods declined, leading to a change in consumer preferences in the seventeenth- and eighteenth-centuries Ottoman Empire, can be explored by producing a basket of consumer goods from the inventories and comparing this basket to wheat and barley prices. In this vein, Overton (2000: 21-2) uses British inventories to confirm a rise in the price of capital goods relative to consumption goods, arguing that "the increased prices of such items as ploughs, harrows and spinning wheels suggest improvements in their production and possibly, therefore, technological change leading to increased production efficiency." Similarly, price relatives can be imputed for domestic and foreign goods to investigate their relative competitiveness in the domestic market. Çizakça (1978) makes use of valuations in inheritance inventories to follow the evolution of the price ratio of raw silk to silk cloth between 1550 and 1650 in Bursa, a major centre of silk cloth production, concluding that the sharp increase in the relative price of raw silk demonstrates the decline of the Ottoman silk industry vis-à-vis its European counterpart.

Inventory valuations can equally be used to follow inflation in a certain locality or to create a local deflator. Rothenberg (1979) relies mainly on prices from probate inventories in constructing a price index for rural Massachusetts for the period 1750-1855 and uses the frequency of the appearance of goods in inventories in weighing the consumer basket. Similarly, Harris (1996) observes inflation in early America through valuations in these sources. On the other hand, the lack of a deflator that can be used to observe the evolution of the real wealth in eighteenth-century Maryland led Carr and Walsh (1980) to impute a deflator based on these valuations.

In studies on Ottoman inheritance inventories and more generally in the field of Ottoman economic history, a deflator based on Pamuk's (2000a) consumer price index is now often used to transform nominal values into real terms. However, the widespread utilization of this deflator can present problems. First, Pamuk's index belongs to Istanbul, the capital city.

Nevertheless, available evidence suggests that prices moved together in the Ottoman realm, except for short-term fluctuations that were particular to a town or a region. So, this first point is probably unimportant in the middle and long term. More seriously, however, the deflator is based on a commodity basket dominated by agricultural goods (80 percent) rather than manufactured goods (20 percent). This might be deceptive when applied to deflate the value of consumer and capital goods, real estate and cash, rather than agricultural goods. The distortion would be even greater if the relative prices changed substantially over the period under study.

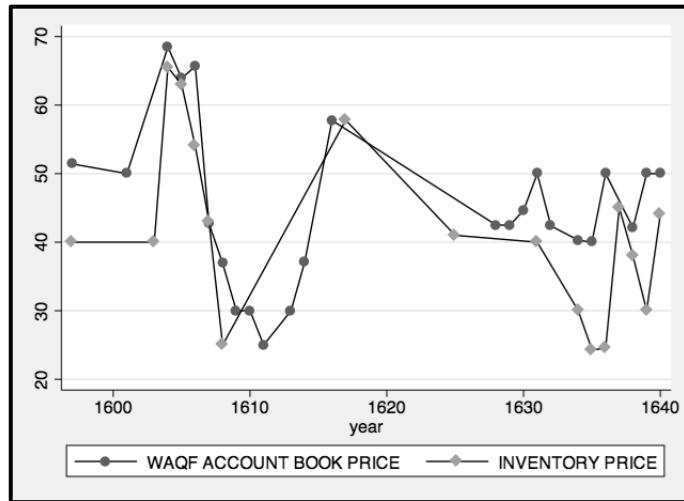
4. Testing inventory valuations

The best method of evaluating the accuracy of inventory valuations is to compare them with prices from independently created sources. This methodology has been extensively applied to British inventories. For example, Cox and Cox (1985) and Overton (2000) compare unit valuations in British inventories for wheat, barley, pewter and horses with historical price data from other sources. They demonstrate that in all cases, prices and valuations fluctuated in concert, even though they did not perfectly overlap. In this paper, I explore four versions of this type of consistency test. I first evaluate Ottoman inventories by carrying out a series of comparisons with several independent price series for wheat and copper, drawn from other sources. I then examine the internal consistency of prices for linked goods, in this case two textile products. I also look at whether inventory valuations reflected quality differences. In the final section, I apply a separate method, developed by Overton, to test the internal consistency of inventory prices by using the status of the deceased, for goods where external series are not available.

4.1. Comparing inventory price series and independent series: Wheat

I begin with a comparison of wheat prices from Barkan's (1966) sample of inheritance inventories in the Ottoman town of Edirne and from waqf account books gathered by Orbay (2012). Edirne, located in the European portion of the empire, was a medium-sized town with a population of around 30,000 inhabitants in the late sixteenth century (Gökbilgin 1994). Barkan (1966) uses inheritance inventories belonging to the Ottoman state elite in Edirne between 1545 and 1659, whilst Orbay (2012) extracts his data from the account books of the Beyazid II waqf for the period 1597-1640.

Figure 1- Edirne wheat prices from inheritance inventories and waqf account books (per *kile*²⁸ in akçe)



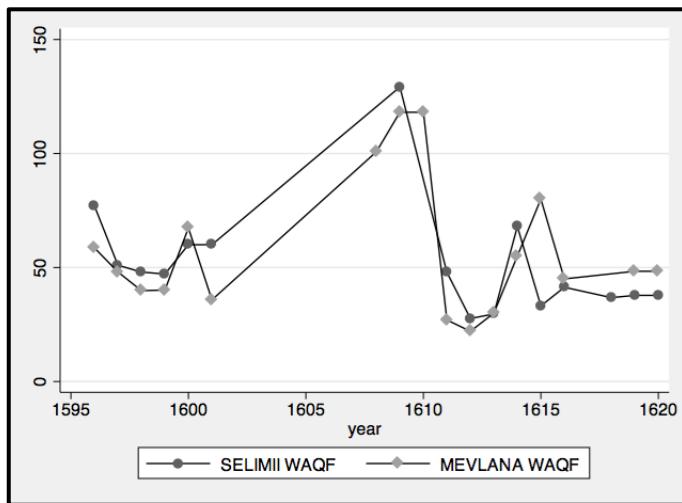
Sources: Waqf account book prices: Orbay (2012)
 Inventory prices: Barkan (1966)

As can be seen in Figure 1, although waqf account book prices were, in general, slightly higher than inventory prices, they were quite close in absolute terms. The product moment correlation coefficient between inventory valuations and waqf account book prices is +0.90, which suggests that they moved in concert – that is, relative changes in inventory valuations followed relative changes in waqf prices. Another way to analyse the closeness between two series is to look at the yearly price differentials as a percentage of the average price. The average price difference for the period 1597-1640 was 21 percent of the mean price, which remains within a reasonable margin of error in any study on historical prices.

To offer a guide to what this level of variance means, we can compare two wheat price series (1596-1620) based on the account books of different waqfs established in the city of Konya (see Figure 2). The first series comes from the Selim II waqf (Orbay 2007a) and the second from the Mevlana Celaleddin-i Rumi waqf (Orbay 2007a).

28 A *kile* is a local unit of volume used in measuring grains. One *kile* of Istanbul and Edirne wheat were equal to, respectively, 35 L (Pamuk 2000a) and 28.8 L (Barkan 1964) of wheat.

Figure 2- Edirne wheat prices from the account books of the Selim II Waqf and the Mevlana Celaleddin-i Rumi waqf (per *kile* in akçe)

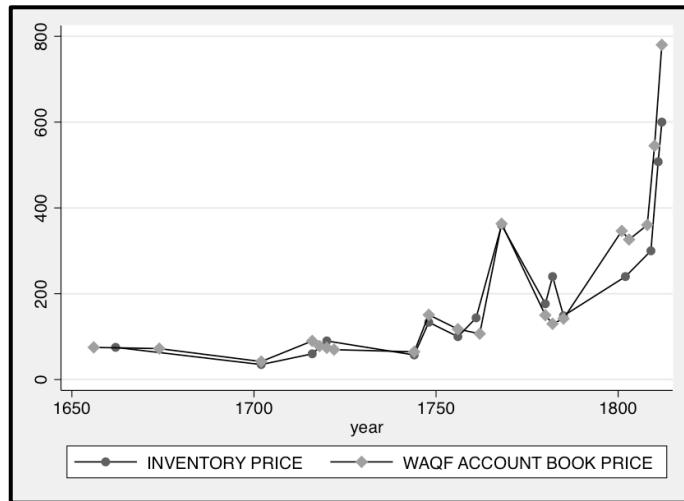


Sources: Orbay (2007a)

Despite originating from identical types of sources, the two series produce a lower correlation coefficient (+0.58), and the average yearly price difference between them is higher in terms of the average wheat price (0.32 percent). This comparison points to two conclusions. First, it can be assumed that wheat prices in inheritance inventories reflected market prices, at least as much as waqf account books do. Second, the account book prices and inventory prices are comparable.

The same exercise can be conducted for Istanbul wheat prices over a longer period (Figure 3). The inventory prices come from Üsküdar court registers belonging to the period 1656-1812, whereas the waqf prices are drawn from Pamuk's study (2000a), which incorporates data from more than 6,000 account books belonging to several waqfs in the capital.

**Figure 3- Istanbul wheat prices from waqf account books and inventories
(per *kile* in akçe)**



Sources: Waqf account book prices: Pamuk (2000a)

Inventory prices: Data collected by the author. See Primary Sources section for details.

In the case of Istanbul, the correlation between the two series is stronger, with a correlation coefficient of +0.96. On average, the yearly differences equalled 21 percent of the mean wheat price. The absolute values overlapped closely until the beginning of the nineteenth century. From this date until the end of the period, the waqf account book prices were largely higher than the inventory valuations. The gap might be a consequence of the fact that the grain prices in Üsküdar, located on the Anatolian side of the capital city, were slightly different to those on the European side.

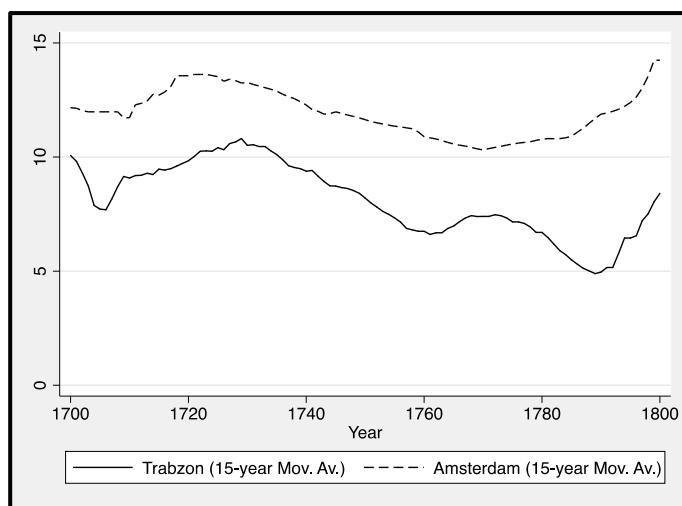
4.2. Comparing inventory price series and independent series: Copper

Figure 4 depicts the varying average price of copper for Trabzon, a port town in the Black Sea region, and Amsterdam over a period of 15 years²⁹. The Trabzon copper price series is collected from inventories and computed based on the valuations of copper kitchenware

29 Amsterdam is chosen for comparison due to practical reasons. To the best of the author's knowledge, Amsterdam copper price series are the only continuous and long-term series available. A wide market for copper existed between European states as early as the late Middle Ages. This essential war material was also a long-established item of European trade with the Levant (Ayduz 2006). Prior to the sixteenth century, copper came largely overland from Central Europe and was exported in Venetian ships (Ayduz 2006). During the eighteenth century, Ottomans imported copper from Europe (Zorlu 2008).

reported in weight units (*okka*) in the inventories. These valuations reflect the second-hand prices of manufactured copper products. Still, it can be safely assumed that these prices were linked to the contemporaneous price of processed copper in the market. The Amsterdam copper prices are obtained from van Zanden and van Tielhof (2009)³⁰, who acquired them from Amsterdam exchange records. Despite the fact that these mirror the prices of processed copper, and not that of manufactured products, the co-movement between two series is evident with a correlation coefficient of +0.68.

**Figure 4- Trabzon and Amsterdam copper prices
(silver gr/kg for 15-year moving averages)**



Sources: Amsterdam: van Zanden and van Tielhof (2009)

Trabzon: Data collected by the author. See Primary Sources section for details.

This co-movement in prices might derive from a number of reasons. Shared improvements in copper mining and processing technology, or simultaneously changing demand conditions in both markets, might explain the situation. Such co-movement has also been posited as an indicator of market integration by several historians. Regardless of the reason, the simultaneous ups and downs in copper prices in both markets indicate the credibility of the copper price series extracted from the inventories.

³⁰ Amsterdam copper prices are reported in guilders per pounds in van Zanden and van Tielhof (2009). For conversion into silver grams, I used data supplied by de Vries, Smiths, and van Riel (see <http://www.iisg.nl/hpw/>).

The close relation between inventory prices and the price of copper in the market is also attested by the match between the price series and the reported consequences of political intervention in the Ottoman market. In a letter to the central government dated 1793, a revenue farmer at the Tokat smelter complains that the copper prices dramatically dropped for that year due to the state's refusal to purchase the yearly expected amount (Beşirli 2004). As this would suggest, the copper price that year, which is computed from inventory valuations, was the lowest (4.76 silver gr/kg) observed from 1700 to 1840.

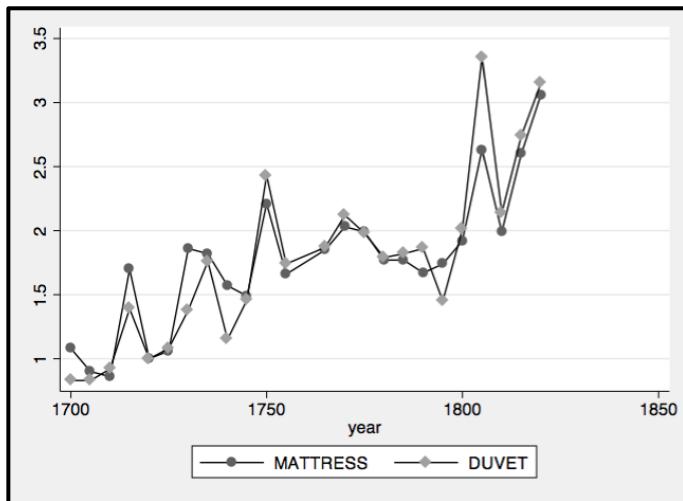
4.3. Testing the internal consistency of inventory prices for cognate goods

One of the advantages of inventories as a source – their inclusion of products for which we have few other records of prices – has the unfortunate effect that we cannot conduct comparisons with independent sources for many of the commodities we wish to analyse. We can still test the reliability of inventory prices for consumer and manufactured goods in other ways, however. Here, I compare the evolution of the prices of two distinct goods which both utilise the same raw material. If inventory prices are close to market prices, we would expect to see the prices of these goods move in correlation.

Figure 5 displays the index constructed based on valuations of *beledi*³¹ mattresses and duvets in Manisa inventories. The index reflects the average unit valuations of these items, collected from inventories at five-year intervals from 1700 to 1820. 1720 is used as the base period. The co-movement of the two series is confirmed by the high correlation coefficient (+0.95).

31 *Beledi* is a local cotton textile which occasionally included silk. Since the early sixteenth century, textiles were produced in Urla and Tire on the Aegean coast of Anatolia. Until the late eighteenth century, individuals from all segments of society used mattresses and duvets covered with *beledi*.

Figure 5- *Beledi* mattress and *beledi* duvet index (in silver gr)



Sources: Data collected by the author. See Primary Sources section for details.

Notes: Base period is 1720

Although we lack detailed price data for *beledi* in particular, and for cotton textiles in general, we can compare these general trends with some observations in the existing literature. For instance, we know that the raw cotton prices doubled in the course of the eighteenth century, whilst the price of yarn more than tripled (Faroqhi 2011). This is also the case depicted by inventory valuations. In 1805, the average of two indices (mattresses and duvets) was 2.99, 3.46 times the average figure from 1700 (0.87). Historical sources (Faroqhi 2011) also suggest that from the late eighteenth century onwards, cotton textile prices skyrocketed, which would confirm the trends demonstrated by the index.

4.4. Testing the internal consistency of inventory prices with quality differences and the wealth of the testator

But even the method just outlined for comparing connected goods is only viable in a few cases. As such, Overton (2000) proposes a further alternative method: determining whether inventory valuations are consistent with respect to the quality of the items being valued. This can be achieved either by exploring whether they reflected the adjective used to describe them and whether the value of goods in the inventories was correlated with wealth.

Initially, I compare the unit valuations of cotton and silk sheets in Üsküdar inventories. It is a well-known fact that silk was an expensive cloth, associated with luxury and reserved for

the affluent, whereas cotton was a more affordable and ordinary textile, accessible by Ottoman individuals with limited means. Table 4, which looks at the mean unit valuations of sheets, demonstrates that both in the early and the late eighteenth centuries, sheets made of cotton as recorded by the appraiser were substantially cheaper than those made of silk. As such, we can assume that the higher the quality, the higher the valuation.

Table 4- Mean unit valuations of silk and cotton sheets in Üsküdar (in silver gr)

	1700	1790
Silk	35.64	67.59
Cotton	8.84	12.63

Sources: Data collected by the author. See Primary Sources section for details.

Second, I test the inventory valuations against the wealth of the testator. Individuals of higher economic status were expected to own goods of better quality, and thus of higher value, than poorer individuals. A positive correlation between wealth and the average value of specific goods is thus evidence of the dependability of inventory valuations³². To look at this relation, I examined Üsküdar inventories from the early (1695-1705) and late eighteenth century (1785-1795). I identified several categories of basic household goods that frequently appeared in the estates of all wealth groups: cushions, sheets, duvets, mattresses, and rugs.

For each period, the unit valuations of these household goods are separately regressed against the wealth of the estate owner.

$$Valuation_{cushion} = \alpha + \beta CPI + \delta LNWEALTH + u \quad (1)$$

Unit valuations are expressed in silver grams. I controlled for changes in the general level of prices using Pamuk's (2000a) consumer price index. This was required because each period covered a 10-year interval. *LNWEALTH* is the natural logarithm of wealth in constant

³² It might be suggested that total estate value and item valuations are endogenous, as estates involving more highly valued items would be of higher value themselves. However, as shown by several studies on the composition of wealth, real estate and debts possess the greatest share within the estate, and the weight of consumer or agricultural goods is too small to affect the total estate value.

akçe, obtained by deflating the nominal total estate value by the CPI.

Table 5- Inventory valuations and wealth in Üsküdar – OLS regression results

1695-1705	CUSHION	SHEET	DUVET	MATTRES S	RUG
CONSTANT	-14.89 (17.08)	-63.71 (28.72)	-55.96*** (14.91)	-89.35 (43.14)	-34.09* (18.67)
CPI	-9.99 (13.28)	-2.35 (19.95)	31.90*** (11.92)	63.5 (30.92)	22.22* (13.08)
LNWEALTH	6.80*** (1.35)	10.83*** (2.86)	6.72*** (1.18)	4.93** (2.78)	5.15*** (1.41)
N	71	43	91	43	41
R2	0.25	0.23	0.3	0.18	0.23

1785-1795	CUSHION	SHEET	DUVET	MATTRES S	RUG
CONSTANT	-22.5 (36.42)	-17.5 (24.78)	-62.56 (41.56)	-89.35** (43.14)	-10.83 (58.44)
CPI	5.91 (28.45)	-3.62 (15.41)	28.92 (28.86)	63.50** (30.92)	-12.99 (35.16)
LNWEALTH	5.28*** (2.4)	5.03*** (1.22)	6.30*** (1.65)	4.93* (2.78)	7.88*** (2.8)
N	48	29	47	43	20
R2	0.1	0.35	0.25	0.18	0.11

Sources: Analysis is based on data collected by the author. See Primary Sources section for details.

*Notes: *, **, *** indicates significance at the 10 percent, 5 percent and 1 percent levels respectively.*

As shown in Table 5, the results again accord neatly with our expectations about consumption and wealth. Household items owned by wealthier individuals were generally valued more highly than those owned by less wealthy people. In all cases, the value of the household goods was positively associated with the total wealth. The coefficient of LNWEALTH is positive and significant at the 1 percent level, except in the case of mattresses.

**Table 6- Mean valuations of copper kitchenware (in silver gr/kg)
by quartiles of total wealth in Manisa, Trabzon and Istanbul**

	Manisa			Trabzon			Istanbul		
	1700-20	1740-60	1760-80	1700-20	1740-60	1760-80	1700-20	1740-60	1760-80
Min-LQ	117.98	124.07	164.21	79.19	93.41	148.12	98.24	121.44	156.33
LQ-Median	121.60	126.86	160.66	79.71	94.52	146.15	101.00	120.00	159.04
Median-UQ	121.31	125.17	163.52	79.40	91.65	148.54	99.38	118.63	160.03
UQ-Max	118.54	123.33	167.58	77.68	90.98	150.00	97.05	124.95	159.40
N	42	52	49	41	45	55	48	51	55

Sources: Analysis is based on data collected by the author. See Primary Sources section for details.

Notes: LQ: Lower quartile UQ: Upper quartile

**Table 7- Mean valuations of wheat (in silver gr/HL)
by quartiles of total wealth in Manisa and Ayntab**

	Ayntab		Manisa		
	1680-1700	1700-1720	1720-1740	1700-1720	1720-1740
Min-LQ	205.05	227.91	477.165	223.56	548.22
LQ-Median	194.51	220.25	520.52	227.45	533.235
Median-UQ	217.11	300.82	529.13	205.085	501.28
UQ-Max	269.62	320.86	482.2	202.735	496.145
N	54	58	56	43	47

Sources: Analysis is based on data collected by the author. See Primary Sources section for details.

Notes: LQ: Lower quartile UQ: Upper quartile

We can take further reassurance about the credibility of inventory prices from the finding that for wheat and copper, no such association between unit price and wealth is observed in inheritance inventories from Manisa, Trabzon, Istanbul and Ayntab (See Table 6 and 7). This reflects the fact that these are more or less standard goods, for which the variations in the quality are limited. Furthermore, the agricultural goods we encounter in the inventories were not primarily food stored for consumption purposes, but mainly commercial goods

owned by individuals of various occupations related to agriculture or trade³³. Therefore, quality variances were more or less equally distributed within the whole sample. It is also likely that in valuing copper kitchenware reported in weight units, a standard price reflecting the market value was applied.

In addition to providing evidence of the accuracy of the valuations in the inventories, these results also imply that the total estate values recorded in the inventories were likely a true reflection of the deceased's wealth. Of course, these results do not rule out the possibility of omissions in the inventories. But the positive correlation between consumer good prices and estate values suggests that these provide us with a valid proxy for distinguishing the wealthy from the poor. The results of studies demonstrating an association between total estate values and official and social titles (status) also support this argument³⁴.

Furthermore, given that the quality of goods varies with wealth, it is necessary to take the distribution of wealth groups into account when constructing price series and making comparisons across regions and over time (Overton 2000). A possible and easy way to control for sample bias and to minimize the variance of quality of goods is to exclude outliers and include goods only from middling group's estates, which are assumed to be of 'average' quality. The middling group can be defined on the basis of wealth brackets previously established³⁵ or can be identified as a cross-section of the distribution of the whole sample.

5. Problems and limitations

An important challenge that any price historian interested in pre-modern prices must confront is a method of determining local units and converting them into grams of silver per metric unit. This conversion process requires two sets of information: the silver content of moneys in circulation and the metric equivalents of local weights and measures. Silver content

33 The fact that grains were rarely observable in Trabzon and Istanbul inventories also confirms this point. These two cities were not producers but consumers of grain.

34 This does not imply that the distribution of the estates is representative of the whole population.

35 For an example, see Todorov (1983). The author divides the populations of eighteenth-century Vidin, Sofia and Ruse into groups of 'property owners.' Those who had assets of 500 qurush and below belonged to the lower stratum.

and exchange rates of various currencies in circulation in the Ottoman realm from the early fourteenth century to the early twentieth century are provided in detail by Pamuk (1994, 2000a, 2001).

However, converting local measurement units into metric units is often a complex and tedious task, since local units showed a great variety, and varied not only from region to region but also from date to date and according to the commodity measured. Whenever available, information from secondary sources can be used³⁶ or the conversion rates can be derived directly from the document because, for their own accounting purposes, Ottoman officials sometimes made a note of the equivalent of the local measurement unit in Istanbul units, which can be converted into metric units with ease. In a case where no information on the local units is accessible, Coşgel (2006) computed his own methods to compute the conversion rates³⁷.

Periodicals, dictionaries, encyclopaedias, guides and travel books that are available in European archives are also beneficial sources for Ottoman metrology. These publications aimed at providing information to European merchants traveling and trading all around the world and embraced a wide range of local knowledge from climate to language or customs in a particular country. Local units of measurement and exchange rates of local currencies were often included. This notwithstanding, the information available in these sources merely concerns port cities, trade centres or towns that were integrated into the world economy through commercial agriculture.

Another problem in calculating agricultural prices –particularly grain prices – derives

36 For conversion rates for some local Ottoman measurement units, see Hinz (1955); İnalçık (1983); Kürkman (1991); Kürkman and İşin (2003).

37 Coşgel (2006: 12) compares local prices of a particular commodity with the known standard price, in order to calculate a conversion rate: "For proportionally taxed products like grains, enumerators had to specify a price to convert physical quantities to nominal values in order to calculate the total tax revenue in each village. In cases of unknown conversion rates for a district, (the enumerators) compared the price of wheat specified in the registers of this district with the (standard) prices used in the registers of other districts for the same time period to determine whether the enumerators were likely to have used a standard *kile* for measurement. If the price appeared too low or too high compared to known standard prices, I relied on comparable prices and conversion rates observed in the region to specify a rate of conversion for this district."

from agricultural price movements. In the early-modern period, food prices fluctuated substantially even within periods as short as a couple of months. These fluctuations occurred in parallel with those of supply, which were due to harvest conditions, wars and other causes that could affect the agricultural production and transportation of products from the countryside to urban areas (Orbay 2008). As Orbay's (2008) observations of prices from waqf account books in the early seventeenth century suggested, grain prices might vary by up to 70 percent within a period as short as six months (Orbay 2008).

Hence, to be able to arrive at accurate yearly prices for cereals, we need a large number of observations that are more or less continuously available for the period under study. Also, these observations need to be distributed equally among the months to reflect the seasonal ups and downs of the prices, which is quite difficult to achieve when working with inheritance inventories. Although the month of death can be established in some regional traditions of records keeping, in several cases this valuable information is missing in the inventories. Although this might affect the accuracy of short-term data, it can be argued that this is trivial for medium- and long-term analysis. It is reasonable to assume that the distribution of inventories according to the months is random, meaning there is no introduction of systematic biases that might substantially distort the price levels of trends in the long run and at an aggregate level.

It should be also recalled that valuations in the inventories for consumer and capital goods reflect the prices of second-hand goods and hence are lower than the market prices of their unused equivalents. For Overton (2000: 141) this is a benefit of these sources rather than a weakness: "... the Rogers and Beveridge series are for new goods, whereas most transactions in early modern England probably involved the sale of second-hand goods, which the inventory prices represent." As evidence of the commonality of the use of second-hand goods in the early-modern Ottoman Empire, Bozkurt (2011) shows the frequency of deeds of sale among court records. These documents feature information about transactions of a range of second-hand items among people of different social status, including the elites in a significant number of cases. Moreover, it was again a common practice to confiscate valuable items from among the estates of the Ottoman state elite for rendering to the sultan himself or for use in the imperial palace.

As we have seen, care needs to be taken when using inventory prices to ensure that the characteristics of each type of good are recognised and addressed. By shaping the quality of commodities that individuals possessed, the wealth of the deceased had different effects on the reported prices of different groups of possessions. In the case of agricultural goods, quality variation (and with it price variation) is a negligible problem. At the very least, this problem does not affect inheritance inventories more than it concerns other types of historical sources. However, for consumer and capital goods, quality variation is a serious issue. Most of the goods that were included in the estates were final goods whose quality varied substantially. Goods reported in the inventories were of differing sizes, were made of various materials and possessed varying degrees of obsolescence. This imposes a serious limitation on the utility of valuations of most goods included in the inventories. These valuations cannot be posited to reflect absolute price levels, although they remain useful for following price trends if approached with caution.

There are a number of solutions that can be suggested for controlling for the differences in quality of these goods. First, a selection criterion can be imposed. Some types of consumer and capital goods show greater heterogeneity. For instance, most clothing items are less suitable for inclusion in a price study than some household goods, such as sheets, which are relatively more homogenous. This second type of goods can be allowed to stand for all of a particular type. In a similar vein, goods that were described as 'old,' 'torn,' and the like can be excluded, whilst consumer and capital goods can be categorized into groups according to the terms describing the material they consist of and their size. Second, the value of these goods is highly correlated with wealth, indicating a quality differentiation of the goods based on the economic status of their owner. Therefore, including goods merely from middling group's inventories will significantly decrease the variations in quality. Last but not least, utilizing a large sample size will help to eliminate the unsystematic biases in the sample.

6. Conclusion

The accuracy of the relationship between the valuations in Ottoman inheritance inventories and market prices has long been a source of uncertainty for historians, both in terms of the reliability of the quantitative analysis based on these sources, and in terms of the potential they possess for expanding the field of Ottoman price history. Two arguments have

generally been advanced to support the argument that these valuations reflect the market prices of the time: first, the appraisal process was strictly regulated by Islamic law and conducted in the presence of witnesses; and second, in most cases, inventory valuations represented the sale prices for the goods constituting a portion of the estate. However, the accuracy of the prices themselves has never been examined directly.

As we have seen, a detailed examination of the quality of inventory prices suggests strongly that they were based on market prices. When comparing inventory valuations with independent sources of prices, we find that the price series were closely related. For products where no external source of prices is available, the prices of cognate goods were closely connected, as we would anticipate if they were driven by market prices, and inventory valuations are consistent with our expectations of the quality of the items being valued, based on the wealth of their owners. Based on these results, it can now safely be assumed that the prices contained in Ottoman inheritance inventories can be reliably employed for historical research.

SECTION 2
MARKETS

CHAPTER 3

MEASURING MARKET INTEGRATION IN THE EASTERN MEDITERRANEAN (1660-1840)

"The profoundest distances are never geographical"
The Magus, John Fowles

This paper investigates, the trends in the regional, national, and inter-national integration across the wheat markets of the Eastern Mediterranean from 1660 to 1840, a region that stood at the centre of the pre-Colombian world economy.

Regional patterns of specialisation facilitated by integrating commodity markets are often associated with the growth path of pre-industrial Europe. Alongside rising agricultural productivity, urbanization, and the shift in consumption patterns, the emergence and development of trading networks and the rise in domestic and international trade are cited among the structural changes that paved the way for the Industrial Revolution (De Vries and van der Woude 1997; Epstein 2000; Persson 1988, 1999; Studer 2008; Pamuk and Özmucur 2007).

The empirical research that has been carried out on early-modern European markets reveals contradictory findings in regards to a long-term and continent-wide integration prior to the nineteenth century³⁸. Still, most economic historians agree that parts of Europe gradually – despite the occasional setback – became more integrated within themselves and with other parts of the continent during this period, and that this allowed the establishment of a geographical division of labour, and a more efficient organization of production (Özmucur

38 Özmucur and Pamuk (2007), Bateman (2011), and Federico (2008) found no evidence of a permanent trend of market integration across Europe prior to the nineteenth century. However, relying on the most extensive price data employed until now, Chilosi et al. (2011) detected widespread European integration between 1620 and 1789, although they recognised that a European grain market did not truly emerge before the nineteenth century. According to Gonzales, and Garcia-Hiernaux, and Guerrero (2012) too, from the early eighteenth century onwards, price dispersion in wheat gradually decreased within Europe.

and Pamuk 2007; Chilosi et al. 2011; Studer 2008). There was a particular trend towards greater integration between the sixteenth and nineteenth centuries in Northern and Northwestern Europe (Granger and Elliot 1967; Jacks 2004; van Tielhof 2002; van Bochove 2008; Gonzales, Garcia-Hiernaux, and Guerrero 2012)– a tendency that has also been confirmed by studies on urban trading networks. These suggest that a number of regionally based urban networks emerged during the sixteenth century without a continent-wide structure and were integrated into a single European network and hierarchy during the course of the seventeenth century, in parallel with the rise of the Dutch trading system (Ringrose 1998). Did Eastern Mediterranean commodity markets experience a similar trend towards integration during the same period, or was this a cause and a sign of the rise of Northwestern European?

A zone of intensified commercial and cultural exchange, this part of the Mediterranean was shared by the Ottoman Empire and the Venetian Republic until the fall of the latter at the end of the eighteenth century. The pair were the two most important protagonists in long-distance trade between East and West before they lost ground following the great discoveries culminating in Columbus' voyage to America and the new route to Asia. During the seventeenth and eighteenth centuries, the emergence of the Atlantic powers (the Netherlands, France, and England) gradually pushed them into a peripheral position (Pezzolo 2013).

Recent research has highlighted that this was far from a dramatic and irreversible crisis that emerged immediately. Rather, the "waning" of the Ottomans and the Venetians was gradual, slow and with reversals, occurring only from the late sixteenth century onwards (Tabak 2010). Indeed, Venice, thanks to foreign shipping, remained a very busy port, perhaps the busiest in the whole Mediterranean even as late as the seventeenth century (Pezzolo 2013). According to Braunstein (1971), the Adriatic ports, despite their discords, were very closely bound by the extant business, navigation, and monetary networks in the eighteenth century. Similarly, ample evidence from the sixteenth century points to the existence of a relatively well-developed urban network, encompassing the coastal regions of the Ottoman Mediterranean and their hinterlands (Panzac 1992). In the seventeenth and eighteenth centuries, the liveliness of the Ottoman maritime world was maintained, as indicated by the rise of two important port cities, Izmir and Salonika (Eldem, Goffman, and Masters 1999).

At the outset, this study poses once more, in the context of the Eastern Mediterranean, a central question that has occupied economic historians in the last few decades: did pre-modern commodity markets witness a long-term trend towards integration in spite of stagnant transportation technology? This paper adopts a nuanced view by hypothesizing a possible regional differentiation in terms of market expansion. In the light of previous research, one would expect that early-modern integration processes fostered by institutional change primarily concerned short-distance markets and coastal regions, whereas long-term markets and landlocked regions witnessed little impact from this trend (Studer 2008). This hypothesis will be tested here.

A second question concerns the relative "decline" of the Mediterranean powers. Although by the last quarter of the seventeenth century, this part of the Mediterranean had lost its centrality in world economic flows (Tabak 2010), international and regional trade continued to be a major source of revenue for both the Venetians and the Ottomans (Pezzolo 2013). Merchant ships were still operating intensely in the Adriatic, Ionian, and Aegean seas. I inquire as to whether the initial resistance and subsequent decline of the two protagonists in the Oriental commerce was accompanied by the emergence of a regional economy in the waters of the Eastern Mediterranean during the early-modern era. Putting it differently, I aim to understand whether the Eastern Mediterranean gained a regional existence as the Venetian Republic and the Ottoman Empire were downgraded to regional powers.

The empirical findings of this study demonstrate that Eastern Mediterranean did not move towards an integrated regional market system during this period, a strong trend of integration in the Adriatic basin notwithstanding. On the eve of the first wave of globalization, domestic wheat markets in the Ottoman Empire were no better integrated than they had been two centuries previously. Neither the extended sample that incorporates coastal and landlocked regions and short-distance and long-distance markets, nor the one restricted to the littorals of the Ottoman Mediterranean, produce evidence to support a continuous and sustainable declining trend in trading costs prior to the nineteenth century. The results also reveal that at equal distances, the cost of trading wheat within the Adriatic market was smaller than that of trading within the Ottoman Mediterranean market, suggesting that this region was better integrated compared to the latter in 1720-1840.

Finally, a multivariate regression analysis on price differentials across the Ottoman grain-trading network centred on the capital posited wars, occupations, and plagues as causes of fragmentation in the wheat markets and shows that, following controls for asymmetrical shocks, there were no significant differences in the extent of market integration between 1748 and 1774, a period of intense regulation and state interference, and the post-1774 period, which, according to the revisionist scholarship (Ağır 2013) witnessed the liberalisation of Ottoman grain policy.

Although the Adriatic region also falls within the scope of this study, the primary focus is on the Ottoman Empire. In what follows, I first briefly outline the trade environment in the pre-nineteenth-century Ottoman realm, focusing on transportation infrastructure, economic policy, wars, and asymmetrical shocks engendered by droughts and plague epidemics. Subsequently, I introduce and discuss the data and the methodology employed in measuring market integration in the Eastern Mediterranean. Finally, I present the results and the robustness checks.

1. Trade environment in the Ottoman Empire

This section surveys the general trade conditions in the Ottoman Empire between mid-seventeenth to mid-nineteenth centuries, focusing upon the central factors: political structure, transportation network, economic policy, wars, droughts, and plague.

At its apogee, the Ottoman realm as a "vast domestic economic entity," represented one of the world economies as defined by Braudel (Panzac 1992: 202). The economic interdependence of provinces was seen as essential not only for the welfare of the subjects but also for the political cohesion of the empire (Panzac 1992). Therefore, the state played a crucial role in the establishment and promotion of the complex network of production and consumption that encompassed the empire's territories on three continents.

Farqhi (1979) speaks of a relatively well-developed Ottoman trading network supported by 'precocious imperial centralisation' in the fifteenth and sixteenth centuries. The proliferation of fairs and local markets in the second half of the sixteenth century, particularly in settlements located on trade routes, indicates a lively internal trade in manufactured as well as agricultural goods. However, the general trade environment in the empire substantially

changed with the turn of the seventeenth century, with political instability, rising insecurity, falling agricultural output, and declining population. As a result, the first decades of the century witnessed a sharp drop in the volume of domestic trade, the disappearance of local markets, and a significant level of market fragmentation. Our account of Ottoman commodity markets starts in the 1660s, following an era of recovery from this crisis in production and trade (Faroqhi 1994).

As McGowan (1994) states, trade within and between Ottoman provinces in the seventeenth and eighteenth centuries has been far less well documented and understood compared to foreign trade during the same period. Still, some general traits can be highlighted. First, from 1700 to 1850, in volume and value, domestic trade vastly exceeded international trade, despite the expansion of the latter, especially after 1750 (Quataert 2005; McGowan 1994; Panzac 1992). According to Panzac's (1992: 202) estimates, at the end of the eighteenth century, the total value of the transactions between Europe and the Ottoman Empire was 110 million to 120 million *livres tournois*, whereas the estimated value of maritime trade between Ottoman provinces was almost twice this figure, at 180 million to 200 million *livres tournois*.

Second, the provisioning network established by the state in the fifteenth century, and encompassing the Ottoman territories with the capital at its centre, was successfully maintained until territorial disintegration occurred in the nineteenth century (Yıldırım 2003). As far as grain policy was concerned, a shift in the traditional supply patterns occurred only after the loss of Ottoman dominance over the seaborne traffic in the Black Sea in the late eighteenth century. The effective loss of the Romanian principalities, the main source of grain for Istanbul, imposed the need to develop greater self-sufficiency based on domestic Anatolian grain production (Panzac 1992; Yıldırım 2003). Before this date, however, the "imperial division of labour," (Yıldırım 2003: 266) as more or less defined during the apogee of the empire, continued to function.

Third, maritime transportation remained essential to the domestic relations of the empire. The Mediterranean not only brought the Ottomans into direct contact with Venice and Western Europe, but also connected the empire's lands on three continents. The maritime

route was "the most direct, the quickest, and the cheapest route for the capital and for a good number of Ottoman provinces," (Panzac 1992: 195). To a large extent, geographical position, and access to the sea accounted for regional differences in terms of participation in inter-regional trade. In fact, close commercial relations and economic interdependence mostly concerned the coastal regions (the Black Sea coast of Bulgaria, the Romanian principalities, Thrace, Macedonia, Thessaly, Morea, Western Anatolia, the Egyptian delta, and the Arabian coasts of the Red Sea), whereas landlocked areas of Anatolia were dependent on their close vicinity or even forced to rely on self-sufficiency and isolation until well into the nineteenth century.

1.1 Political structure

In his monumental work, *Freedom and Growth*, Epstein (2000) stresses the political conditions of pre-industrial economic growth, and posits jurisdictional centralisation under the late Medieval and early-modern rulers as the ultimate source of the rise of more efficient and better-integrated markets in Europe. In new institutionalist economics, political regimes are defined as ways to facilitate cooperation for mutual advantage. In line with this literature, Epstein suggests that pre-modern centralised states were more efficient than decentralised ones because they suffered from fewer multiple coordination failures (Epstein 2000). Although decentralisation, centralisation, and the changing relationship between the imperial centre and the periphery in 1700-1850 have been subject to ample research in Ottoman historiography (Inalcik 1977; Piterberg 1990; Salzmann 1999, 2004; Hathaway 2002; Khoury 1990, 2002; Smiley 2008), these processes have rarely been addressed in relation to the evolution of the overall economy, and more particularly, the trade environment.

The institutional centralism of the Ottoman state in the classical period was gradually succeeded by a fragmented political structure over the course of the seventeenth and eighteenth centuries. These two centuries witnessed fiscal and administrative decentralization and the rise of provincial elites who held local power and who operated autonomously from the capital. In almost all parts of the empire, the central state became visibly less important (Khoury 2006).

The prosperity brought about by the expansion of regional economies during the first half of the eighteenth century allowed for the development of a modus vivendi between local elites in the provinces and the Ottoman government. However, by the second half of the century these relationships, which depended on mutual recognition and common interests between the centre and the provincial elite, began to be undermined. In the power vacuum engendered by the Russo-Ottoman war of 1768-1774, the centre found itself fighting a number of rebellions by semi-autonomous provincial power-holders in the Balkans and the Middle East (McGowan 1994).

Following an era of political crisis and of rising insecurity in the countryside in the late-eighteenth century, the central Ottoman state began to transform itself into a more powerful, more rational, and more specialized structure, with the modernization and centralization efforts of the nineteenth century. The capital employed its expanding bureaucracy and military to weaken and destroy its domestic rivals, and battled against diverse groups such as the Janissaries, guilds, tribes, religious authorities, and provincial notables to gain political control. The imperial reform edicts of 1839 and 1856 finally ended the political fragmentation and rivalry of the last two centuries and ushered a centralized bureaucracy into power (Quataert 1994).

Recent scholarship stresses that the seventeenth- and eighteenth-century process of Ottoman decentralization should be considered as a viable political strategy developed in response to the changing circumstances of the early modern world rather than as institutional decay (Barkey 1994; Salzmann 1993; Khoury 2006). From the perspective of trade however, the fragmented polity of multiple provincial dynasts and notables should have made commerce more difficult during the eighteenth century. Particularly, the power struggles between the centre and the periphery, and among rival local notables in the second half of the eighteenth century are likely to have acted as a factor that multiplied coordination failures, and hence, increased the transaction costs of trade.

Despite their interest in trade, it was tax-farming and usury that remained the most lucrative enterprises for the local power holders (Pamuk 2000b). Prior to the nineteenth century, the fiscal regime and the decentralized Ottoman political structure did not create an

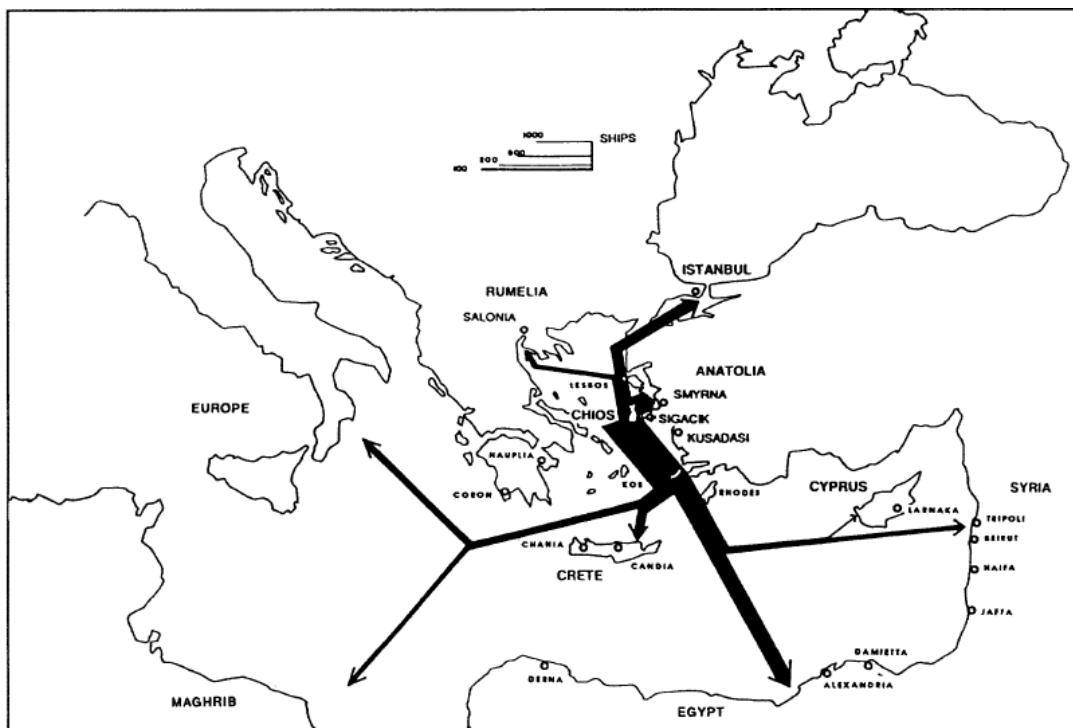
impetus for improvements to the institutional environment to foster trade, as merchants and domestic producers never became powerful enough to exert sufficient pressure on the central government to change or even modify its policies, as was the case in Europe (Pamuk 2000b). Measures to promote domestic and international trade, such as attempts to standardize local measures, weights and legal codes, and the establishment of gendarmerie units to provide safety on trade routes were only implemented around the mid-nineteenth century under the impact of Western influence.

1.2. Transportation network

A large portion of the regional and inter-regional trade in Ottoman Anatolia took place via land routes, as most cities – including manufacturing towns such as Kayseri, Tokat, Ankara, and Aleppo – were inland centres, while waterways, except for the Euphrates-Tigris system, were not navigable on a regular basis. Transportation by camel caravans remained a dominant feature in Anatolia even after the introduction of railways (Faroqhi 1982, 1994). Three major caravan routes connected Istanbul to Damascus and Aleppo, as well as to Iran (see Map 1). The most famous one was the diagonal route passing through Akşehir, Konya, Tarsus and Adana, and from there to Damascus. Iranian trade followed the Tokat-Erzincan-Erzurum itinerary. Diyarbekir, a major entrepôt for Iranian goods located at the south of this route, was linked to the major itinerary by circuitous routes. Two alternative caravan routes existed between Istanbul and Tokat. The first passed through Eskişehir and Ankara, while the second traversed the hill chains of Northern Anatolia, with Amasya being an important stop (Faroqhi 1994).

While sea transportation remained of limited importance with respect to Anatolia, it played a major role in connecting the Balkans, Western Anatolia, the western shores of the Black Sea, the Egyptian delta, and the Arabian coasts of the Red Sea. As Map 1 shows, the Istanbul-Smyrna-Alexandria route was the main axis of the network that intersected with the other routes to Macedonia, Crete, Syria, and the Maghreb. Beyond Chios and the Aegean Sea, an east-west route that linked the Maghribian ports to those of Syria ran along the African coast and crossed the north-south axis at Alexandria (Panzac 1992).

Map 1- Ottoman maritime network



Source: Panzac (1992: 136)

Seaborne traffic was particularly important for food supply. Due to the high costs of overland transportation, long travel periods, and inadequate food preservation techniques, only durable and high-cost low-bulk goods, such as textiles and other manufactured wares, were traded inter-regionally. The transportation of foodstuffs over long distances was quite rare (Quataert 2005). The price of wheat almost doubled over 100 kilometres (Grehan 2007). Nevertheless, relatively lower costs in maritime transportation and shorter journey times allowed several foodstuffs, particularly grains, to be exchanged between coastal areas (Farroghi 1994). In this respect, it would be reasonable to expect a higher degree of integration in markets with easy access to sea.

We can obtain an indication of the much lower burden of transport costs from data given by Aynurul (2001: 25-26), which details the freight costs between Istanbul and several Ottoman ports in the early nineteenth century. Based on this information, the transportation cost of a hectolitre of wheat is estimated per 100 nautical miles with an OLS regression,

employing transportation cost in silver grams (TC) and sea distance in nautical miles (DISTANCE) between indicated ports. The results are presented in Table 1.

Table 1- OLS regression results- Transportation costs and distance

Dependent variable	TC
CONSTANT	1.953*** (-0.355)
DISTANCE	0.994*** (-0.078)
N	28
Adjusted R2	0.86

Source: Freight costs are taken from Aynurul (2001).

*Notes: *, **, *** indicates significance at the 10 percent, 5 percent, and 1 percent levels respectively.*

The estimated transportation costs are calculated with the following formula:

$$TC = 1.953 + 0.994 * DISTANCE$$

The scale of the difference between sea and land travel becomes visible when we compare the cost of transportation. The estimated cost of transporting by sea, a hectolitre of wheat from, for instance, Galatz port (located at a distance of 320 miles from Istanbul) in the initial decades of the nineteenth century was 5.13 silver grams, a figure equalling 10 percent of the market price of wheat in Istanbul and 21 percent of the price gap between the two locations.³⁹

As in other parts of the world, the Ottoman Empire did not experience any significant improvements in transportation and communication technologies in the early-modern period. Still, even in the absence of technological innovation, improvements in transportation

³⁹ It should be noted that grain was transported from other Ottoman provinces to the imperial capital by a combination of state-owned and leased ships (Murphey 1987). In the latter case, the state played a dominant role in price arbitration and in determining a fair freight charge. For this reason, evidence of freight charges in shipments to the capital might be a misleading indicator of charges elsewhere, as these were probably higher in shipments between other parts of the empire.

conditions could occur due to changes in the institutional framework supporting the transportation system (state attempts to maintain road paving, blaze new trails, construct bridges and channels, etc.). Public works could help reduce costs by shortening the average journey times between two locations. Despite the importance that the Ottoman state gave to facilitating the transportation of both pilgrims and merchants (Halaçoğlu 2002), guard station registers demonstrate that such attempts had little impact on the duration times of journeys. Three guard station registers dating to around the mid-seventeenth, mid-eighteenth and mid-nineteenth centuries show that journey durations by horse for the three main itineraries in Anatolia were only slightly shorter at the end of the period (see Table 2).

Table 2- Journey durations by horse

	1643	1766	1843
Istanbul-Aleppo (Right branch)	257h	253h	248h
Istanbul-Mosul (Middle branch)	372h	369h	349h
Istanbul-Erzurum (Left branch)	276h	276h	266h

Source: Halaçoğlu 2002; Çetin 2013; Bozkurt 1966

Thus, it would be reasonable to conclude that before the introduction of steamships (1828) and railways (1858), there was little or no change in overland transportation costs, while only limited improvements were recorded in sea transport (Faroqhi 1994).

1.3. Provisionalism, interventionism, and trade policy

Besides high transportation costs, the most substantial impediments to the rise of efficient and integrated markets in the pre-modern world were state monopolies, internal tariffs, export/import prohibitions, and price control mechanisms (Özmucur and Pamuk 2007). The market for grain was particularly heavily regulated, and was the last to be liberalized due

to its strategic importance in the Ottoman realm, as was the case elsewhere in the pre-modern world (Chilosi et al. 2011).

Throughout the period under study, grain was subject to close state monitoring and control because of its status as the essential foodstuff for the Ottoman population. The Ottoman state regulated and was involved in several phases of the production, procurement, transportation, storage, and distribution of grain in order to provide an adequate and continuous supply of grain to the capital and other major urban centres, to provision the army during times of fighting, and to transfer grain to regions struggling with shortages that occurred due to climatic factors and other external shocks (Yıldırım 2003).

The principal grain-growing regions for the imperial centre included the plains of Thrace; the Danubian basin; the steppe region from the Dobruja to the Don river; Macedonia; the plain of Thessaly; Western Anatolia; and the Egyptian delta (İnalcık 1994). The western Black Sea coasts (Romanian and Bulgarian lands) were traditionally the most important grain supplier for Istanbul (İnalcık 1994).

The organisation of this network included many institutions, policies, and local and central actors. Export bans, price controls, licence requirements to purchase, transport, and sell grains, as well as forced purchases, were the main tools of the Ottomans' grain policy during this period (Güçer 1949). The form, tools, and the degree of state intervention in grain markets varied throughout time in response to several factors affecting demand and supply conditions, and reflected the evolution of the political, administrative, and financial structure of the Ottoman state.

Until the beginning of the eighteenth century, exporting grain was prohibited in principle, although smuggling could never be totally suppressed (Yıldırım 2003). During the eighteenth century, the Ottoman state adopted a more tolerant attitude towards wheat exports (and the export of several other agricultural goods), and export inhibitions began to be temporary and exceptional. Yet, under the unfavourable conditions of the second half of the eighteenth century, export inhibitions again multiplied (Pamuk 2004).

In the course of the eighteenth and nineteenth centuries, two major changes occurred in supply patterns. With the expansion of the Russian presence following the Treaty of Küçük

Kaynarca in 1774, the Black Sea was opened to foreign trade, and the Romanian provinces gradually escaped from direct Ottoman control. As an increasing share of the grain produced in the region was oriented towards western Mediterranean markets, the Western Anatolia and Mediterranean coasts became more important for provisioning Istanbul in the last quarter of the eighteenth century. Still, the region continued to supply grain for the capital, albeit at lower volumes than previously (Güran 1986). The second shift in provisioning patterns took place in the second half of the nineteenth century with the introduction of railways. Within a short period of time, Anatolia became an important factor in Istanbul's grain supply. Istanbul millers began buying rail-shipped wheat from inner Anatolia instead of waterborne grain from Russia, Bulgaria and Romania. Thereafter, under more favourable circumstances, the Anatolian railway provided over 90 percent of all wheat delivered to the capital for local consumption (Quataert 2005).

Changes in the patterns of supply were one aspect of the transformations that Ottoman grain policy underwent during the eighteenth and nineteenth centuries. Questions as to when Ottoman trade and grain policy began to liberalise, and whether there was any radical change in the provisionist policy prior to the nineteenth century remain crucial, yet contentious, issues (Ağır 2013; Yıldırım 2003; Quataert 1994; Güran 1986).

In traditional accounts of Ottoman economic policy, the 1838 Anglo-Ottoman convention imposing the elimination of state monopolies and barriers to domestic and foreign trade marked a radical change, and the government's efforts to direct the economy diminished gradually after this date (Toprak 1992; Owen 1992; Özveren 2001). However, revisionist scholars have rejected 1838 as a break point, claiming that the convention did not radically change the state's existing approach to the economy, but continued the government's earlier commitment to liberalise grain and trade policies, which had appeared at the end of the eighteenth century (Quataert 1994, 2005; Ağır 2013).

As for grain policy, two opposing views exist. The traditional view holds that the state's role in provisioning Istanbul with grain did not show any sign of significant deviation from traditional patterns until well into the nineteenth century (Yıldırım 2003; Güran 1986), while the revisionist approach suggests that starting with the 1780s, Ottoman policy-makers

adopted a more liberal attitude towards price-formation in grain markets and deliberated on removing pre-emptive privileges (Ağır 2013). According to Ağır (2013), the relaxation of price controls on wholesale grain and the consideration of a system based on a network of private merchants as a new alternative signalled a shift in grain policy that was rooted in a new concern for the state of agricultural production.

The establishment of the Grain Administration (*Zahire Nezaret*) in 1793 is interpreted in two different ways in these opposing analyses. For Yıldırım (2003: 253), by establishing a central institution to control and finance a greater share of the grain trade in the empire, governors aimed at "bringing the commodity chain of grain under the full sway of the state," with this testifying that the realm of grain provisioning remained "the most tightly regulated aspect of the Ottoman economy until the dawn of modern times." However, Ağır (2011: 3) sees the new institution as a reflection of the "policy shift towards a more-centralized-yet-flexible use of regulatory tools in the Ottoman grain trade." She highlights that an imperial decree in the same year ordered the purchase of grain for the capital to be set at the market price. By terminating price controls and the quota system, this decision was an indicator of the liberalisation of Ottoman grain policy in the late eighteenth century.

The issue of the transformation in grain policy has not been discussed with reference to quantitative evidence until now. Most of the evidence that both sides cite is qualitative in nature and does not allow us to grasp how the grain policy (and its change) impacted on the Ottoman markets for grain. Without a shift in focus from the economic mindset of the government and state policy to the question of what occurred in grain markets in actuality, it is difficult to comment on the degree of state interference, its effectiveness, as well as the real impact of changes over time.

In terms of internal tariffs and other taxes on domestic grain trade, 1760 appears to be a turning point. In this year, in addition to regular internal tariffs, a new tax on the domestic trade of grains (3 percent ad valorem) was introduced. Furthermore, between 1760 and 1821, the state increasingly expanded internal tariff zones and established new ones (Genç 2000).⁴⁰

40 The internal Ottoman customs system was not a network that covered all Ottoman territory but was rather organised in the form of circular areas around certain big trade nodes, such as Istanbul, Izmir, and Salonika.

The number of internal tariff zones exceeded 100 by 1801. Reaching its zenith in 1821, the internal customs regime gradually shrank in the following period. In 1843, newly established internal custom zones were abolished, although older ones continued to exist (Genç 2000; Kütükoğlu 1996). Last but not least, the government implemented several trade regulations for the provisioning of the capital and other big cities during the war years of the late eighteenth century (Quataert 2005). All these factors can be considered as institutional barriers to trade that considerably increased trade costs.

1.4. Wars

Several studies on domestic and international market integration in the early-modern period have emphasised the negative impact of wars (Federico 208; Chilosi et al. 2011; Jacks 2006; Bateman 2011). Wars were disruptive to commerce, making it dangerous to move goods across and sometimes within borders. It should be noted that in the Ottoman case, wars had a number of other direct and indirect impacts on commodity markets. On the one hand, Ottoman soldiers marching to and returning from the fronts were a source of insecurity for the villages close to the campaign area. Furthermore, the vacuum of authority due to warfare led to a significant increase in bandit activity in the provinces (Quataert 2005).

Warfare also counteracted the forces of market integration indirectly through government policies. The requirements of warfare were an important motive for state intervention in markets. By putting immense pressure on state finances and seriously disturbing productive activities, wars forced the Ottoman government to give weight to the priorities of the state over those of the society and economy (Genç 1984). It can be assumed that state purchases at official and/or market prices (*mübaya*), the imposition of extraordinary taxes in kind or in cash, the inhibition of trade in strategic goods and regulations for provisioning the big cities such as price ceilings (*narh*) – all of which were implemented more frequently during times of war – had important effects on Ottoman interregional markets (Genç 2000). Given the direct and indirect effects of the wars, one would expect prices to have diverged across markets during times of conflict.

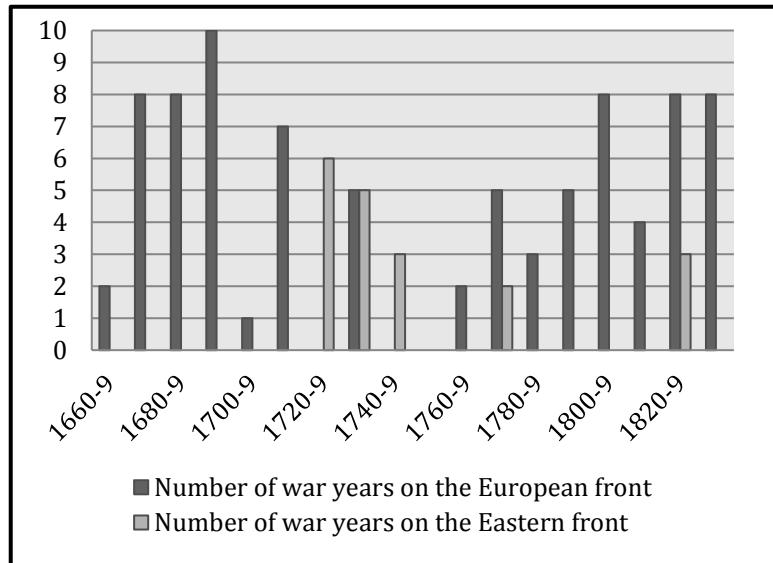
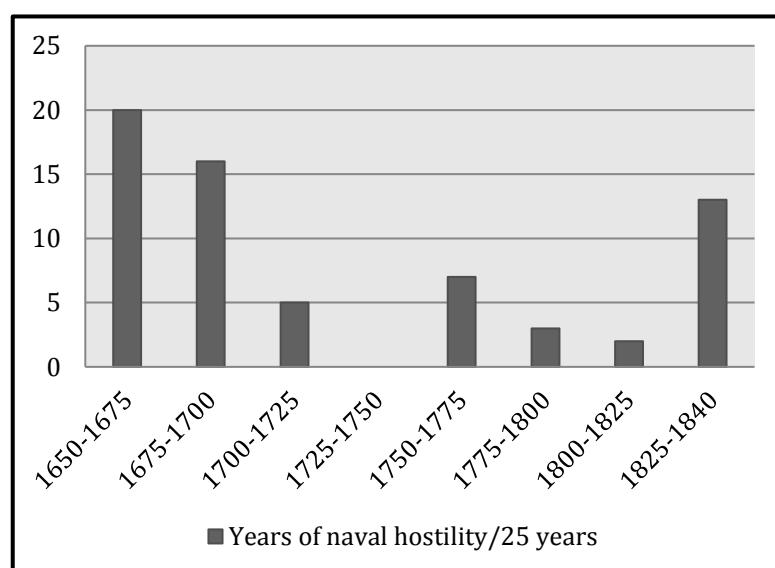
Figure 1- Number of war years per decade, 1660-1840 (European and Eastern fronts)

Figure 1 depicts the number of years per decade from 1660 to 1840 in which the Ottoman state fought on the European and Eastern fronts. As can be seen from the figure, the long conflicts of the late seventeenth and early eighteenth century were followed by a period of relative peace. The approximate quarter century between 1746 and 1768 – between the end of the Ottoman-Iranian war and the outbreak of the Russo-Ottoman war of 1768-1774 – is generally accepted as both an era of peace and order and a period of rising agricultural and industrial output, urban wealth, and population growth. The outbreak of the Russo-Ottoman war, however, ushered in a new era of long and exhausting armed clashes. The early century also witnessed the Serbian and Bosnian Revolts and the Greek Independence War.

Given the primacy of maritime links in long-distance trade, naval conflicts that threatened the security and continuity of commerce in the Eastern Mediterranean had a particularly decisive effect on commodity market integration in the region, both at national and international levels. In order to understand the general trade environment, it is useful to identify the periods of peace and hostility in these waters specifically, and they are summarized in Figure 2. It appears that from the last quarter of the sixteenth century to the mid-seventeenth century, peaceful relations between Venice and the Ottoman Empire provided a favourable ground for the development of trade within the Eastern Mediterranean. According

to several diplomatic sources, the coexistence between the two polities that began in 1573 allowed closer collaboration between authorities and merchants from both sides, particularly in the frontier areas such as Dalmatia (Fusaro 2015). It seems likely that higher levels of security in the Eastern Mediterranean and lower transaction costs contributed to market extension at domestic and international levels. In 1646, the outbreak of the Cretan War terminated the era of peace. The war turned the Eastern Mediterranean, particularly the Adriatic, Ionian, and Aegean Seas into a theatre of battle. The Cretan war lasted almost a quarter century, and included numerous naval engagements and raids around the Aegean Sea, with Dalmatia also becoming the scene of sporadic naval operations. This war was followed by the Morean War (1684-1699), and the Ottoman-Venetian War of 1714-1718.

Figure 2- Number of years of naval hostility per 25 years in the Eastern Mediterranean



The 1714-1718 war was not only the last conflict between the Ottoman State and the Venetian Republic, but also the beginning of a second period of peace in the Eastern Mediterranean that would last until the infiltration of the Russian navy into the Aegean in 1768. Within this period, the Aegean, Ionian, and Adriatic Seas witnessed no naval hostility of significant scale involving either regional or external powers. Even in the last quarter of the nineteenth century, which was marked by intensified fighting for the Ottoman Empire, the Eastern Mediterranean was largely spared from naval clashes, as most of the Ottomans' wars

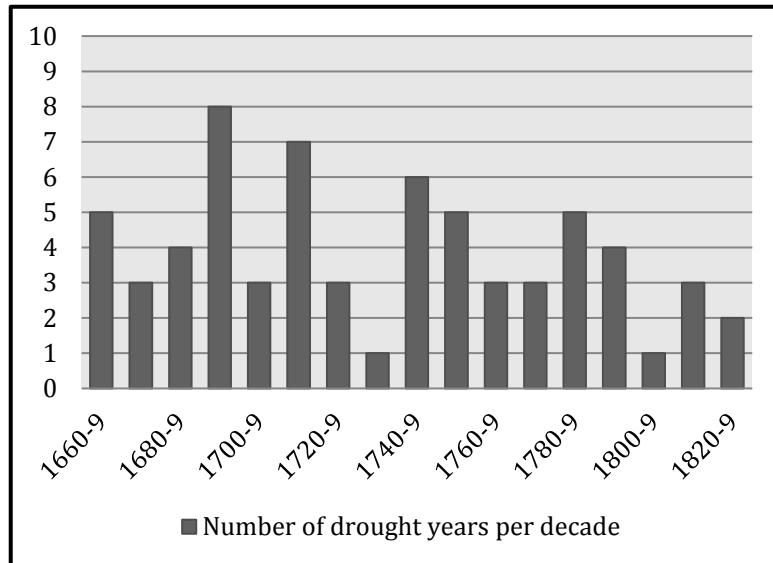
were fought in the European lands of the empire and the Black Sea. But the Ottoman Mediterranean once again became a zone of military clashes at the turn of the nineteenth century when Napoleon's fleet entered the area and the Greek War of Independence erupted. In the first four decades of the century, the Ottoman armada fought several naval wars against British, French, and Russian vessels in its domestic waters.

1.5. Drought

It is often assumed that under the conditions of pre-modern agricultural technology, harvests were strongly affected by extreme weather conditions (Orbay 2008). While not always resulting in crop failures, droughts led to bad harvests and, thus, higher agricultural prices. Even when several markets were simultaneously hit by the same climatic shock, droughts tended to produce a divergence in prices, while the level of price rises depended on several factors related to conditions of supply and demand.

Drought and famine appear in several Ottoman narrative sources and are addressed in numerous urban historical studies (Kılıç 2002; Aydiner 2006; Baer 1977). However, these studies examine individual incidents in particular towns and regions, and no scholar has produced a study of drought and famine from a broad temporal and spatial perspective. Though limited in number, recent studies on the climatic history of the Eastern Mediterranean provide a more comprehensive understanding of the linkages between non-human and human histories.

Figure 3-Number of drought years per decade



Sources: Akkemik et al. (2006) (*Anatolia*); Xoplaki, Maheras, and Lutherbacher (2001), Gounaris (2009) (*South-eastern Europe*); Grehan (2007) (*Damascus*); Baer (1977) (*Egypt*)

Figure 3 depicts the number of years per decade in which severe drought occurred in one or more regions included in this study (Anatolia, Ottoman Europe, Egypt, and Damascus). During the eighteenth century, droughts occurred in one or more of these regions on an average of 3.4 years every decade. The 1690s and 1710s particularly witnessed severe episodes of drought, while the figure was also above average for the 1740s, 1750s, and 1780s.

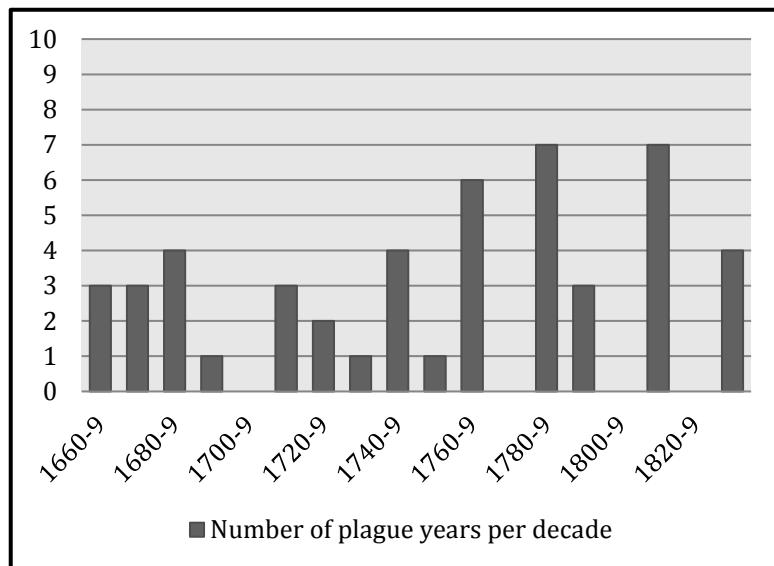
1.6. Plague

The Black Death, a common cause of mass deaths in Europe for centuries, disappeared at the end of the seventeenth century in the west of the continent before soon also disappearing from Central Europe. Nevertheless, it remained a major scourge in the Balkans, Anatolia and the Middle East until the late nineteenth century (Panzac 1985). In the seventeenth and eighteenth centuries, it continued to be one of the most frequent and most serious natural calamities to affect the Ottoman Empire. The port cities of Istanbul, Salonika, Izmir, and Alexandria, as well as big trade centres such as Aleppo and Cairo, were among the towns that were repeatedly and severely affected by the epidemic (Quataert 2005). Studying waves of plague in the six Ottoman cities mentioned above, Panzac (1985) suggests that the

cities witnessed a severe plague epidemic on an average of every 23 years from 1700 to 1850. Panzac estimates that each serious wave caused a death toll of about 20 percent of the population in each town it affected (Panzac 1985).

Plague epidemics were important factors behind the interruption of intercity relations. Recognising that human interaction was responsible for the spread of plague, European polities took measures from the late fourteenth century on to prevent the disease by isolating infected individuals and limiting the mobility of people, animals and goods across regions (Boerner and Severgnini 2011). It is highly likely that the efforts to restrict the spread of plague through the interruption of trade and travel and the suspension of intercity relations had resulted in the disintegration of the European markets. Studying the case of the port of Izmir, the major export centre of the empire during the eighteenth century, Panzac (1985) argues that the city experienced economic difficulties due to the cessation of foreign trade during times of serious plague epidemics. European merchant ships avoided the port, and the city significantly suffered from the suspension of relations with the wider world. Still, the degree to which plague isolated Ottoman towns from each other and led to the disintegration of domestic markets remains unclear. Did plague epidemics exert a similar impact on domestic trade? Did seasonal caravans continue to operate across Anatolia? How was sea-based trade in the Mediterranean affected?

Plague should have caused a disintegration in commodity markets not only when it led to the suspension of interregional relations, but also when it created asymmetrical shocks in local markets which influenced local supply and demand conditions and, thus, prices. The decline in population or the deceleration of population growth rates due to rising mortality can be identified as the main source of plummeting prices in European markets in the late fourteenth century. On the supply side, however, plague generated a counteracting force precipitating labour scarcity and higher wages. The total impact of plague on prices can be said to be an outcome of the interaction between the demographic impact of the disease and local conditions.

Figure 4-Number of epidemic years per decade

Sources: Ayalon (2008); Panzac (1985); Varlik (2011); Kostis (1995); Grehan (2007)

Figure 4 depicts per decade, the number of years in which plague was seen in 10 or more Ottoman cities, from 1660 to 1840. Throughout the period, plague was seen in 10 or more Ottoman cities at least one year in every decade, and geographically widespread plague epidemics occurred most frequently in the late seventeenth and late eighteenth centuries.

This section has overviewed the general trade environment in the Ottoman Empire with reference to the political structure, transportation costs, state policy, wars, climatic conditions, and plague epidemics. Like elsewhere in the world, substantial reductions in transportation costs were not observable in the Ottoman realm prior to the introduction of steamships and railroads. In the first decades of the nineteenth century, transporting grain between Ottoman ports was still tremendously expensive. As for the political conditions, from 1660 to 1800, the empire experienced decentralisation and political fragmentation and diverged from the political trajectory of its European counterparts, which were evolving towards centralised states. Political rivalry between the centre and local elites and the rising insecurity in the countryside in the late eighteenth century, should have led to increased transaction costs in regional and inter-regional wheat trade.

On the other hand, in the absence of a powerful merchant class, the institutional improvements and policy-promoted changes that undergirded the rise of efficient and

integrated markets in pre-modern Europe did not appear in the Ottoman realm before the political and economic reforms of the mid-nineteenth century, as impediments such as internal tariffs and state interference in commodity markets persisted throughout the era. As for asymmetrical shocks that might have affected price divergence, severe and frequent droughts marked the late seventeenth and early eighteenth centuries, while plague epidemics affected vast swathes of the empire in the late eighteenth century.

Overall, the picture of trade conditions depicted here is in accordance with the previous accounts of the overall Ottoman economy from the mid-seventeenth to the mid-nineteenth centuries. Although it is difficult to detect the direction of the causality, a positive association is visible between economic expansion and a favourable trade environment. The second third of the eighteenth century, an era of relative peace, stability, and economic growth for the empire, featured conditions favourable to market development. In contrast, the late seventeenth and early eighteenth centuries were marked by frequent wars, while the late eighteenth century was an era of economic retraction and frequent state intervention in markets; both periods were highly likely to have witnessed market fragmentation.

2. Data

Before assessing the levels and processes of market integration, we first need to look at the price data at hand, which forms the quantitative base for the analyses in the following section. As Studer (2008) has shown, in Europe, short-distance and long-distance markets and coastal and landlocked regions followed a different trajectory in terms of market integration. Therefore, at a first instance, I look at the geographical coverage of the price series, and briefly present each of the markets with their basic geographical and commercial characteristics.

2.1. Geographical coverage

The price data employed to measure market integration in the Eastern Mediterranean embraces Ottoman and Adriatic wheat markets.

The Ottoman Empire

Wheat prices used for the analysis come from 11 Ottoman towns (Manisa, Istanbul, Bursa, Edirne, Cairo, Salonika, Patmos, Candia, Konya, Ayntab, and Damascus), and from three

regions in the Ottoman Europe, Wallachia, as well as the Eastern and Western Balkans. During this period, the Ottomans reigned over a vast area stretching from the Balkans to Yemen, from Crimea to the Mediterranean coasts of Africa. As can be seen in Map 2, the data provides a good representation of the realm under Ottoman rule in the eighteenth century. The sample includes small, medium-sized and big towns, coastal and landlocked regions, agricultural and urban areas, self-sufficient towns and those that were dependent on their hinterland for a supply of grain.

Map 2- The Eastern Mediterranean



The regions covered by the data can be divided into two groups. The first group includes Istanbul, Manisa, Bursa, Edirne, Patmos, Candia, Wallachia, Salonika, the Eastern and Western Balkans, and Cairo. All these locations were part of the trading network centred on the capital, which connected the coastal regions of the Mediterranean, Aegean, and Black seas. They had easy access by sea to the imperial capital and to other markets in the network. In addition, these areas played a role in the grain provisioning for Istanbul, while they generally

also engaged in the trading of grain among themselves. The second group consists of Damascus, Ayntab, and Konya, which are located in landlocked regions, and which had no direct ties with the trading network incorporating the coastal areas and the capital city⁴¹.

Group 1: Centres in the Maritime Trading Network

Manisa, the central town of the province of Saruhan, was located in the Gediz river valley in the hinterland of İzmir, which developed into the primary port for Ottoman agricultural exports from the seventeenth century. Since its conquest, the town was part of the core provinces of the empire, and as such, it was integrated into the larger Ottoman system of taxation, provisioning, and trade (Emecen 1989). Barkey and Rossem (1997) state that as early as the fourteenth and fifteenth centuries, the Ottoman state had furthered the development of a coherent trading network between Istanbul and Manisa. The town supplied the capital with grain, and several other foodstuffs, shipped from Foçalar and İzmir. In parallel to its incorporation into the world economy in the seventeenth and eighteenth centuries, Manisa became one of the first Ottoman towns to engage in commercial agriculture, with the rise of big farms oriented towards export products. How this affected the town's crucial role within the provisioning system is not certain. Goffman (2002) argues that as Europe made forays along the Western Anatolian coast for grains, Istanbul increasingly struggled to control its own delivery routes.

The first capital of the Ottoman Empire (1326-1402), and the most prominent commercial centre in Western Anatolia, Bursa, was among the largest Ottoman cities, boasting a population that varied between c. 30,000-75,000 from the late fifteenth century until the middle of the nineteenth century (Canbakal 2012). It was a major centre of silk trade and manufacturing and the last entrepôt on the Silk Road, where an interchange of commodities from the East and the West took place (Inalcık 1994). The town's position on the southern coast of the Marmara Sea made it a keystone in the trading network that linked the southern

41 Unfortunately, our knowledge of the Ottoman internal tariff system is extremely limited. No information available as to which of the markets included in this study were located in the same customs region, and how the geographical coverage of these latter changed over time. Therefore, it was not possible to group the markets according to their customs regions.

Marmara region and Istanbul. Bursa was easily accessible by sea from the imperial capital. From its numerous docks, wheat, barley, rice, fruits, and vegetables produced in the region were transported to the capital (Çiftçi 2004).

Candia was the capital city of Crete, the biggest Aegean island. Crete was conquered by the Ottomans in 1669 after a long period of clashes, and was the last Ottoman conquest. Balta (1997) defines Candia, the biggest town on the island, as one "that verged on self-sufficiency, at least until the middle of the eighteenth century." Combined with its hinterland, the town supplied the western part of Crete and in good years it exported small amounts.

Patmos is a small island positioned very close to mainland Anatolia. The island was controlled by the Ottoman Empire for many years, but it enjoyed certain privileges, mostly related to tax-free trade by the monastery.

Located in the heart of Thrace on a fertile plain, Edirne, another ancient capital of the Ottoman state, was an actor not only in the provisioning of Istanbul with grains, but also in the provisioning of Ottoman troops during expeditions to Europe (Aksan 2013). Positioned on Via Egnatia, the major trade route that linked the capital to the European lands of the empire, the town was a densely populated central market by the standards of the day, and according to several accounts, the city enjoyed a lively commercial life (Gökbilgin 1994). Grain from the Edirne region was transported to Istanbul from the closest ports, Enez, Tekirdağ, and Ereğli (Gökbilgin 1994; inalcik 1994).

Istanbul received the largest portion of its provisions and raw materials from the western Black Sea region (Wallachia, Moldavia, and Bulgarian coasts). This region remained the major grain supplier of the capital until the nineteenth century. The Principality of Wallachia, located to the north of the Danube and south of the Southern Carpathians, was a tributary state of the Ottoman Empire. The voivodes of Wallachia and Moldavia had to provide a predetermined amount of grain for the Istanbul market on an annual basis (inalcik 1994). In the Danubian delta, Braila, Issacea, and Constanta developed as the main transit ports between the Romanian lands and Istanbul. With the opening of the Black Sea to international trade and shipping in the last quarter of the eighteenth century, the principality gradually escaped from the Porte's monopoly over its foreign trade, and oriented itself towards world markets.

Likewise, after the Treaty of Adrianople (1829), Wallachia and Moldavia gained “the full liberty of trade for all the productions of their soil and of their industry.” This also led to a shift in the grain policy of the Ottoman government, which turned towards its core lands out of provisionist concerns.

In the Balkan peninsula, two price series are included in the database, from the east and west of the Vidin-Matapan⁴² line. To the east of this line are Bulgarian lands. Grain and other manufactured and agricultural goods from Bulgaria were shipped to the capital from the ports of Varna and Burgas on the Western Black sea coasts. The region to the west of the line encompasses Macedonia, Thessaly, and Illyria, which were connected to Western Anatolia and Istanbul by the Aegean Sea. While the Black Sea was closed to non-Ottoman traders, and legitimate or contraband trade with Europe was scarce until the late eighteenth century, agricultural exports to Europe through smuggling in the western part of the peninsula could never be fully inhibited by the government. As a result, the region established a commercial relationship with Europe as early as the seventeenth century (Faroqhi 1994). Large commercial farms emerged in the western Black Sea coast in the early seventeenth century, but it was only in the later seventeenth and eighteenth centuries that they became visible in Macedonia and Thessaly (Faroqhi 1994).

Salonika was one of the flourishing Ottoman port towns of the seventeenth and eighteenth century, which according to Faroqhi (2001: 99), were “privileged points of entry into the Ottoman commercial system.” Salonika’s hinterland produced grain, dried fruit and some cotton, all of which were traded inter-regionally. Furthermore, Istanbul relied heavily on Macedonia for grain supply, and one would have expected that most of these supplies were shipped through Salonika (Faroqhi 2001). As its industries declined in the second half of the seventeenth century onwards, domestic and foreign trade became increasingly important to the economy of the town (Svoronos 1956). Faroqhi (2001) highlights a difference between the Ottoman officials’ attitude towards eastern and western shores of the Aegean. She argues that the trade in foodstuffs on the Balkan coast of the Aegean was somewhat less strictly controlled by Ottoman officialdom than its Anatolian counterpart.

42 Cape Matapan is the southernmost point of the Peloponnese peninsula.

Soon after its conquest (1517), Cairo was organized into a regional centre for grain supply, as an integral part of the Ottoman trading network. During the seventeenth century, Cairo's commerce with Anatolia, the Balkans and the Maghreb far outweighed its trade with Europe, although the town remained a centre for international trade (particularly the transit trade in coffee) even after the Portuguese opened up the ocean route to India (Faroqhi 1994). Egypt's supply radius stretched eastwards to the holy cities of the Hedjaz and northward to the Anatolian ports of the Mediterranean coast and Istanbul. Egypt sent wheat and rice to the Ottoman capital, thanks to the Nile and the Mediterranean, which facilitated the transport of Egyptian grain and rice, which were exported from Damietta and Alexandria (Inalcik 1994). According to figures cited by Murphey (1987), in the course of the seventeenth and eighteenth centuries, annual grain shipments of 48,000 *ardabs* (3,341 tons) were sent to Mecca and Medina and 20,000 *ardabs* (1,392 tons) to Istanbul for the Imperial Household. In later periods, Egypt functioned as an emergency source of grains when the flow from Macedonia and the Danubian region was interrupted, either due to natural causes or as the result of wartime blockade (Murphey 1987).

Group 2: Landlocked Centres

Unlike the towns in the Balkans, the Danubian region, Western Anatolia, and the Egyptian delta; Damascus, Ayntab, and Konya had no direct economic ties with the capital and the trading network incorporating the coastal areas. The most important characteristic of these three towns was their limited market access due to their geographical position in somewhat landlocked regions. To access the wider world, they overwhelmingly relied on overland transportation. The high cost of overland transportation dictated by the conditions of early-modern technologies restricted the tradability of wheat – a bulky, low-value product – and isolated these towns to a serious extent from other Ottoman grain markets.

Damascus was located in a large oasis fed by the Barada River in the Arab lands of the Ottoman Empire. Despite the short distance to the Mediterranean shore, the town could not easily reach the sea. Grehan (2007: 43-44) writes,

"The main roads fanned out along a north-south axis, threading between the desert to the east and the Lebanese highlands to the west. Though the sea was in reality less

than fifty miles away, it seemed far more distant – about three to four days on the road through difficult and hostile terrain where the authority of Ottoman governors was no more than nominal...Communications with the coast did not begin to improve until the mid-nineteenth century, as Syria was progressively pulled into the European world economy. In the meantime, Damascus seldom looked towards the sea. Operating within its network of overland routes, Damascus made contact with the wider world primarily through its numerous caravans, which carried people, products, supplies, and that most precious commodity – news – into and out of the region."

The grain output of the Damascene oasis itself, which was perceived as inferior, was not sufficient in quantity to feed the town's population. Damascus was dependent on its hinterland for agricultural products. The town received a good portion of its grain supplies from the Biqa' Valley, east of Mount Lebanon, and the Hawran plain to the south. Difficulties in supplying grain due to the isolated position of Damascus and the general limits on overland transportation were combined with unfavourable climatic conditions during most of the eighteenth century, which resulted in grain shortages, high prices, and, in several instances, "bread riots" in the city (Grehan 2007).

Ayntab was a medium-sized town in Southeastern Anatolia that was home to approximately 14,000 inhabitants in the late seventeenth century (Canbakal 2007). Some 50 kilometres to the west of the Euphrates and surrounded by extensions of the Taurus Mountains in the west and the north, Ayntab was positioned on a fertile plain with abundant water supplies. The town was self-sufficient in terms of agricultural products, and most of the grain output of the region was consumed locally.

The town was not on any of the long-distance trade routes although it stood very close to them. The journey from Aleppo, the main entrepôt for Indian trade during sixteenth and seventeenth centuries, to Anatolia followed a route closer to the Mediterranean, bypassing Ayntab (Canbakal 2007). Canbakal (2007: 4) defines Ayntab, as a town of "no particular importance" to the imperial centre: "Ayntab did not stand out from a strategic point of view or in terms of the resources it contributed to the well-being of the 'well-protected domains'; geographically, it stood outside the core lands of the empire. Therefore, the imperial centre

had no reason to pay special attention to the control or well-being of the city; nor did it have the means to be part of the day-to-day business of the town due to the distance involved."

Konya, located in the south of the dry Central Anatolian plateau, was a sizeable Ottoman town in the sixteenth century that was severely hit by the seventeenth century crisis. In the first decades of the century, Konya experienced depopulation on a large scale and a significant decline in agricultural output. Although the town was a major stop on the diagonal route traversing Anatolia and connecting Istanbul and Aleppo, Konya did not become a strategic grain producer for the imperial centre and other Ottoman markets until the late nineteenth century. Pamuk (1984: 112) states that "potentially the most important wheat-growing areas of the Empire, Konya and Ankara provinces of Central Anatolia, continued to remain outside the reach of Istanbul and other domestic and export markets until after the arrival of the Anatolian Railway in the early 1890s."

The Adriatic region

Despite sharing a weakening position in the world economy, the two adjacent sub-regions of the Eastern Mediterranean, the Adriatic region under Venetian influence and the Aegean, Ionian, and Levantine basins controlled by the Ottoman Empire, were different from each other in several aspects. Most importantly, the Adriatic region was characterized by political fragmentation, although it was embedded in the Venetian economic space until the late eighteenth century. Venetian Dalmatia was a narrow and long strip of land along the western coast of the Adriatic Sea. It was interrupted only by the Republic of Ragusa, which was under Ottoman influence. In the southern part, there were the Ottoman *eyalets* of Albania, Bosna, and Rumeli. On the western shores lay the Papal States under Venetian influence and the Kingdom of Napoli, another rival of the Serenissima. The Venetian Republic, the dominant force in the Adriatic region as late as the seventeenth century, experienced a political decline in the second half of the eighteenth century, which culminated in its invasion and fall in 1797. By contrast, the Aegean and the Ionian Sea basins were unified under Ottoman rule until the end of the period under study.

Eight Adriatic markets are included in the sample: Ljubljana, Udine, Padua, Rovigo, Ferrara, Ancona, and Senigallia. During the period under study, Udine, Padua, and Rovigo were

under the rule of the Venetian Republic; Ferrara, Ancona, and Senigallia were under the control of the Papal States; and Ljubljana was controlled by the Habsburg Empire. After the establishment of the free ports of Trieste (1719), Fiume (1723), and Ancona (1732), Venice faced new challenges to its Adriatic commerce, which began to be diverted towards the free ports (Arbel 2013). Accordingly, Venetian dominance in regional trade gradually declined. First, Ancona became the port of attraction for raw materials from the Balkans and the Levant. From the second quarter of the eighteenth century onwards, the Austrian port of Trieste began to rise. From 1770, the Trieste port sidelined the port of Venice (Arbel 2013).

2.2. Sources

The sources for the Ottoman and Adriatic price series used in this paper are reported in Tables 3 and 4. Annual wheat price series for Manisa and Ayntab (1660 to 1840) are new series using data extracted from inheritance inventories.⁴³ For other Ottoman towns, wheat prices are taken from secondary sources, which report waqf account book prices (Pamuk 2000a), inventory prices (Öztürk 1992; Sahillioğlu 1999), and prices in other court registers (Balta 1992; Raymond 1974; Svoronos 1956). In the previous chapter, I demonstrated that inventory prices reflect the conventional prices of the time and are comparable with prices from other primary sources.

The Ottoman database includes three regional series (Wallachia, Eastern and Western Balkans). Berov (1976) states that the series are collected from towns to the east and west of the Vidin-Matapan line, dividing the peninsula into two sub-regions. The origin of his regional series and how prices from different towns were weighted to construct regional averages are, however, unknown. In the paper in which Berov presents the wheat series for the first time, he mentions that the data was "found and systematized from several hundred Turkish, Bulgarian, Yugoslavian and Greek historical sources," (1974: 170). In his extended work on price movements in the Balkans, he states that 5,371 references to 114 commodities in various years were taken from hundreds of historical publications and archives related to the Balkan countries (1976: 317). Similarly, Jacks (2004, 2005) reports a Wallachia series from Popa (1978)

43 For each calendar year, two to three observations are collected from inventories. The annual price given is the average of all observations recorded for the particular year.

without mentioning the primary sources used to extract prices.

The Adriatic series are taken from Jacks (2004, 2005) at <http://www.sfu.ca/~djacks/data/prices/prices.html> and the Allen-Unger Global Commodity Prices Dataset at <http://www.gcpdb.info/>. Except for the Ljubljana series, these rely on statistical data published by governmental bodies.

Table 3- Price data: Sources (Ottoman Empire)

Location	Source	Primary source
Manisa	Collected by the author ⁴⁴	Inheritance inventories
Istanbul	Pamuk (2000a)	Waqf account books
Edirne	Pamuk (2000a); Sahillioğlu (1999)	Waqf account books (Pamuk 2000a); inheritance inventories (Sahillioğlu 1999)
Cairo	Raymond (1974)	Court registers
Bursa	Pamuk (2000a); Öztürk (1992)	Waqf account books (Pamuk 2000a); inheritance inventories (Öztürk 1992)
Salonika	Svoronos (1956); Balta (1992) (taken from Vasdeavellis 1952)	Court registers
Patmos	Asdrachas (1972)	?
Candia	Balta (1992) (taken from Stavrinidis 1975; 1976; 1978; 1984; 1985)	Court registers
Wallachia	Jacks (2004; 2005) (taken from Popa 1978)	?
Balkans (East)	Berov (1976)	?
Balkans (West)	Berov (1976)	?
Ayntab	Collected by the author ⁴⁵	Inheritance inventories
Konya	Pamuk (2000a)	Waqf account books
Damascus	Grehan (2007)	Court registers

44 See Primary Sources section for details.

45 See Primary Sources section for details.

Table 4- Price data: Sources (Adriatic)

Ljubljana	Jacks (2004; 2005)	Valenčič (1977);
Ferrara	Jacks (2004; 2005)	Ministero di Agricoltura, Industria e Commercio (1886)
Udine	Jacks (2004; 2005)	Ministero di Agricoltura, Industria e Commercio (1886)
Padua	Jacks (2004; 2005)	Ministero di Agricoltura, Industria e Commercio (1886)
Rovigo	Jacks (2004; 2005)	Ministero di Agricoltura, Industria e Commercio (1886)
Pesaro	Allen-Unger Database	Government of the United Kingdom (1826-1827)
Ancona	Allen-Unger Database	Government of the United Kingdom (1826-1827)
Senigallia	Allen-Unger Database	Government of the United Kingdom (1826-1827)

2.3. Conversion to metric units and silver grams

The prices employed for the analysis are annual silver prices per hectolitre of wheat. To obtain these prices (1) all currencies are converted to akçe; (2) unit prices in akçe are calculated by dividing the total price by the quantity reported in local unit (*kile*, *ölçek*, *ardab*, *kıyye*); (3) average prices per local unit are multiplied by a conversion rate to calculate prices per metric unit; and finally (4) nominal prices per metric unit are converted to silver grams.

Different currencies are converted to akçe in accordance with exchange rates calculated by Pamuk (1994) (1 *qurush* = 150 akçe in the period 1660-1680; 1 *qurush* = 120 akçe in 1680-1840; 1 *qurush* = 40 *para* in 1660-1840; 1 *sülüs* = 80 to 90 akçe in 1660-1840). Nominal prices calculated on a yearly basis are fixed in silver grams to remove monetary effects and to permit across-space comparisons. The silver content of akçe and para is taken from Pamuk (2000a: 36-41).

In measuring grain, a variety of local units (*kile*, *ölçek*, *ardab*, *muzur*, *ghirara*) were used in the Ottoman realm. Among these, the *kile* was the most common measure of volume. However, it was not identical in all parts of the empire and for all kinds of goods. Its metric equivalent could vary even in the same area according to the commodity measured (e.g. The *kile* for rice was half the *kile* used for wheat) or could change over time in the same region

(Inalcik 1983). The data collected for this study mentions five different *kile*: the *kile* of Istanbul, the *kile* of Edirne, the *kile* of Salonika, the *kile* of Konya, and the *kile* of Romania. The *kile* of Istanbul was the standard *kile*, which was equal to 37 litres or 0.97 Winchester bushels (Pamuk 2000a). The conversion rates for other local units have been taken from a number of sources. (For metric equivalents and sources, see Table 5). These are first converted to the weight measure of *okka*, which was standard across the Ottoman lands. It equalled 1.283 grams and 1.805 litres of wheat.

Table 5- Metric equivalents of local measurement units (Ottoman Empire)

Location	Local unit	Standard equivalent	Metric equivalent	Source
Manisa	<i>ölcek</i>	15 okka	27.07L	Eldem (1970)
Ayntab	<i>kile</i>	80 okka	144.39L	Öztürk (1989)
Istanbul	<i>kile</i> of Istanbul	20 okka	35.27L	Pamuk (2000a)
Edirne	<i>kile</i> of Edirne		28.79L	Barkan (1964) French merchant magazines
Kahire	<i>ardab</i> ⁴⁶		175.55L	
Konya	<i>kile</i> of Konya	24 okka	43.32L	Inalcik (1994)
Bursa	<i>kile</i> of Bursa	12 okka	21.66L	Inalcik (1994)
Salonika	<i>kile</i> of Salonika	84 okka	151.61L	Svoronos (1956)
Patmos	<i>kile</i> of Istanbul	20 okka	151.61L	Svoronos (1956)
Candia	<i>muzur</i>	15 okka	27.07L	Balta 1992
Wallachia	<i>kile roumaine</i>	10 <i>kile</i> of Istanbul	352.7L	Jacks 2004; 2005
Balkan (East)	<i>*Reported in silver gr/kg (Berov 1976)</i>			
Balkan (West)	<i>*Reported in silver gr/kg in (Berov 1976)</i>			
Damascus	<i>ghirara</i>	265L		Hinz 1955

⁴⁶ *Ardab* is a unit of volume for grains often used in Egypt. There are different estimates of its metric equivalent which vary between 75lt and 184lt (Pamuk 2000a). Yet, the variance of equivalents of "ardab for wheat" given by a number of guides and magazines for French merchants (Voyage de la Turquie d'Europe, La Decade Egyptienne Journal Literaire et d'Economie Politique 1798-9, Correspondance de Napoleon 1er, etc.) is quite narrow (between 172 and 182lt). Here, an average equivalent is taken.

For the Adriatic region, in converting local monetary units to silver grams, Jack's (2004; 2005) table of "Silver content of currencies 1258-1979" available at <http://www.sfu.ca/~djacks/data/prices/Metals/prices.html> was utilised. Table 6 reports the moneys and measurement units in which the prices are reported.

Table 6- Moneys and local measurement units (Adriatic)

	Money	Measure	Measure
Ljubljana	Krajcarjih	Mernik; vagan	1 mernik=26.5L, 1 vagan=61.49L
Ferrara	Italian Lira	Hectolitre	
Udine	Italian Lira	Hectolitre	
Padua	Italian Lira	Hectolitre	
Rovigo	Italian Lira	Hectolitre	
Pesaro	English Pence	English Grain Quarter	285.79L
Ancona	English Pence	English Grain Quarter	285.79L
Senigallia	English Pence	English Grain Quarter	285.79L

Tables 7 presents the descriptive statistics of the price series for each location. The unit of observation is a series of annual wheat prices in a specific market. While some authors prefer interpolation/extrapolation techniques to obtain complete price series (Özmucur and Pamuk 2007; Federico 2012), most avoid doing so because this may distort the results. In this study, the price series are not interpolated/extrapolated. Instead, the database features a high proportion of missing observations particularly in the Ottoman series. In only three of the series in this sample are annual prices available for more than half of the 180 years under study.

Table 7- Descriptive statistics of the price series

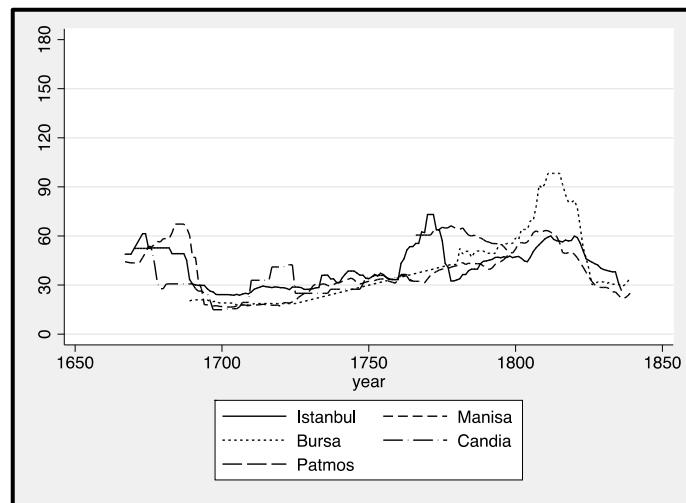
	N	Coverage as %	Mean	S.D.	Min.	Max
OTTOMAN EMPIRE						
Manisa	129	0.72	37.66	17.29	9.5	111.6
Istanbul	93	0.52	40.34	17.46	15.7	98.4
Edirne	81	0.45	31.66	16.57	7.5	97.2
Cairo	45	0.25	36.93	21.34	9.7	100.9
Bursa	42	0.23	46.8	30.13	14.6	132.7
Salonika	49	0.27	78.05	83.44	20.3	426.8
Patmos	23	0.13	59.05	9.7	39.6	76.9
Candia	21	0.12	32.44	12.97	13.3	62.6
Wallachia	44	0.24	36.28	25	10	116.8
Eastern Balkans	56	0.31	82.67	88.15	10.8	395.2
Western Balkans	51	0.28	32.55	27.41	13	167.9
Ayntab	93	0.52	29.63	13.52	8.4	60.2
Konya	22	0.12	72.01	42.85	18.7	137.2
Damascus	58	0.32	146.19	110.45	44.8	650.9
ADRIATIC						
Ljubljana	131	0.73	69.95	22.68	37.7	160.4
Ferrera	54	0.3	73.85	25.31	34.7	153.7
Udine	180	1	58.86	26.96	23.9	189
Padua	40	0.22	74.32	30.4	37	179.6
Rovigo	67	0.37	63.65	22.04	37.6	159.8
Pesaro	118	0.66	53.86	25.53	19	166.9
Ancona	117	0.65	48.2	20.52	17.9	132.1
Senigallia	95	0.53	57.98	23.33	26.7	148.6

As has been discussed in the previous chapter, the availability and quality of primary sources from which historical prices can be compiled pose a serious limit to the study of price-related subjects. Prior to this research, the only study on long-term commodity price movements (Pamuk 2000a) concerned the imperial capital, and used a series that only possessed a coverage of 52 percent. Despite the serious number of missing observations,

considering the state of research in the field of Ottoman price history, I contend that the present study presents a valuable contribution, bringing together the available local series published in various sources and adding two new series constructed based on inheritance inventories. To check its robustness, the findings based on the complete sample with its high numbers of missing observations are compared with results using a restricted yet more complete sample. The consistency of results between the extended and restricted samples suggests that despite the missing observations, general trends in price differentials can be safely drawn from this data set.

Before moving on to present the methodology used to measure trading costs, I briefly discuss some basic characteristics of the wheat price series included in the study. As can be seen in Figures 5 to 8, while wheat prices in other towns moved together and the mean values were close to each other in Damascus, Konya, and the Balkans, the average prices were remarkably high compared to the rest of the sample, and experienced sharp fluctuations, particularly during periods of shortage such as the 1720s or 1740s. Trends differed. In Konya and Damascus, the silver price of wheat continuously and dramatically rose throughout the period. In the Eastern and Western Balkans, it declined around the mid-eighteenth century, approaching the level of other Ottoman towns. Price volatility was lowest in Western Anatolia, Cairo, Ayntab, and Istanbul. In general, wheat prices in the Adriatic region were higher than prices in the Ottoman realm. The price of wheat in silver grams in the Adriatic shows a pattern similar to that in Western Anatolia, steadily rising in the nineteenth century and peaking in the early nineteenth century before declining towards the mid-century.

**Figure 5- Wheat prices (silver gr/HL) - 15-year moving averages
Istanbul and Western Anatolia**



**Figure 6- Wheat prices (silver gr/HL) – 15-year moving averages
Balkans**

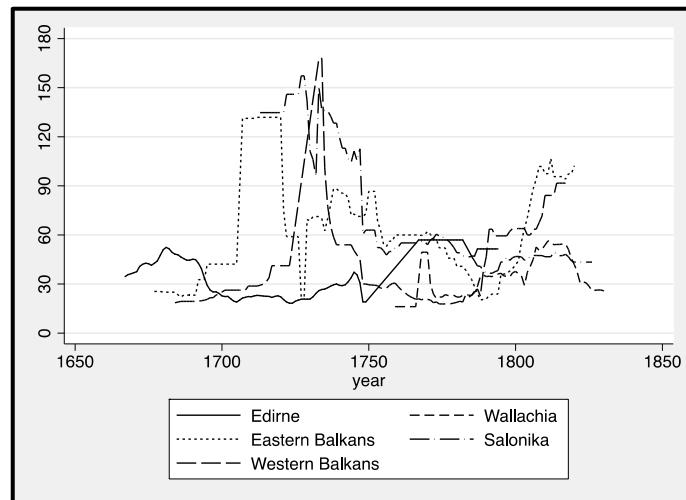


Figure 7- Wheat prices (silver gr/HL) - 15-year moving averages
Damascus, Ayntab, Konya, Cairo

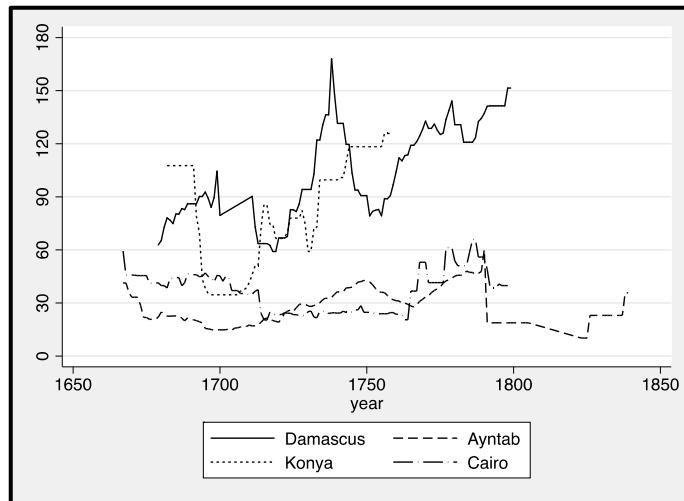
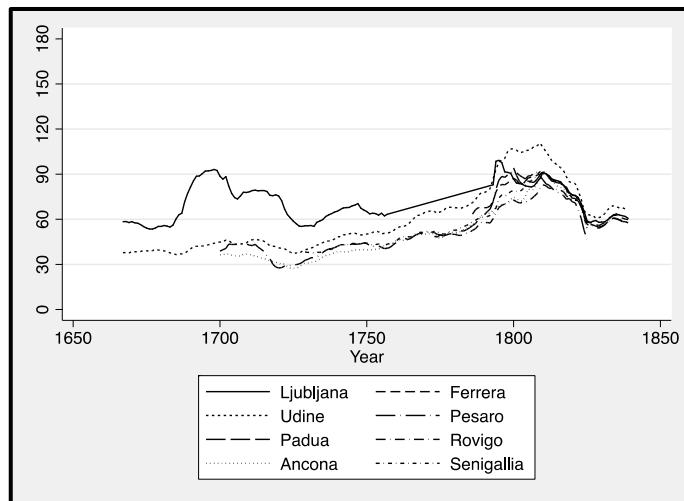


Figure 8- Wheat prices (silver gr/HL) - 15-year moving averages
Adriatic



3. Methodology

Market integration is divided into two sub-processes: price convergence (the diminution of price differentials over time) and price adjustment (the speed at which profitable price differential are arbitrated away) (Jacks 2005). In measuring the degree of market integration, historians employ a variety of methodologies, testing either of the following two

complementary, yet distinct, conditions: the equilibrium level of prices being equal (or the law of one price); and prices returning to this level with ease and rapidity after any shock (Federico 2012).

The law of one price implies that in a competitive equilibrium, price differences are equal to trading costs between trading markets. The difference in autarky prices between two locations are compared with the total costs for shipping the product from the lower-priced market to the higher-priced one. Whenever the former exceeds the latter, there is an opportunity for profitable arbitrage, which profit-seeking traders can exploit. If, however, the shipping costs are greater than the difference in autarky prices, traders incur a loss that encourages them not to trade (Federico 2012).

Here, converging prices rather than measures of market efficiency are taken as the most crucial indicator of integrating commodity markets. Federico (2011, 2012) argues that although market efficiency, the second of these conditions, is important in terms of market integration, mildly inefficient markets may experience market integration, making, in practice, converging prices a more robust indicator of integrating markets. Similarly to Federico, Findlay and O'Rourke (2003: 15) also suggest that price convergence is the best measure: "Price gaps reflect all relevant costs of doing trade between markets: not just transport costs, but also trade barriers, and those costs associated with wars, monopolies, pirates, and so on." Since the law of one price is almost never met due to transaction costs, and estimating these latter factors in an effort to gauge their relation to the price differentials between different locations is difficult, Federico recommends the examination of price trends rather than price levels, and a measurement of the extent to which prices of the same commodities converged over time in different locations (Federico 2012: 477). To test for price convergence (divergence), I look at two alternative indicators: aggregated relative prices and yearly coefficients of variation.

Scholars have frequently noted that Istanbul's grain prices were held artificially low by provisionist practices. Berov (1974: 168-9) writes, "A comparison of the data found about the market price of wheat in Istanbul and in other towns in the Balkans for separate years in the sixteenth-eighteenth century showed that in about 65 percent of the cases, prices in Istanbul were up to twice lower, and in 35 percent of the cases – equal or a little higher than those in

the provincial towns in the Balkans."

A crucial question here is whether viable market integration analysis can be conducted under these circumstances based on price data. It could be argued that artificially low prices in Istanbul markets could cause us to underestimate the actual price gaps. Bateman (2010: 28) for instance, states, "in terms of the analysis, it must be remembered that Ottoman authorities were not afraid of interfering with the market, setting and adjusting prices where they wished. Hence, any examination of price data must be treated with some caution." Having said that, the alternative sample excluding Istanbul, and used for robustness check produced the same trends with the original sample incorporating the city, suggesting that inclusion of the capital city into the sample did not alter the general trends.

Relative prices

The first indicator of market integration that I use in looking at convergence in prices is relative prices. Convergence (or divergence) in prices between two locations can be estimated with a log-linear regression of trends in relative prices or price gaps. However, as the number of possible pairs increases, interpreting results for a large number of markets can be difficult (Federico 2012). For these reasons, individual relative prices between each of the city-pairs are calculated and compiled into a panel data set, where the cross-sectional component is the city pair and the time series is years. Price relatives are aggregated through a city pairs fixed effects panel regression model. A non-interpolated price series is used for this analysis.

In panel data, each entity (in our case, each city pair) has its own individual characteristics that may influence the predictor variables, like the size of the markets under comparison, the distance between city pairs, whether or not the cities are connected by sea, and the like. The fixed effects model allows us to control for variables that account for individual heterogeneity. It removes the effect of time-invariant characteristics, so that we can assess the net effect of the predictors on the outcome variable. It also has the advantage of avoiding some of the problems that arise from missing data.

In the first regression, the time effect (TIME) is employed as the explanatory variable for the whole period and separately for sub-periods. A second fixed-effects panel regression

incorporating a series of dummies for each decade between 1680 and 1835 is applied to the data in order to extract the average relative price at different points in time, using the estimated coefficients in the time dummies. The dummy for the initial period (1675-1685 for the complete Ottoman sample, and 1660-1675 for the rest), is omitted as the reference period.

(1)

$$| \ln \left(\frac{P_{1t}}{P_{2t}} \right) | = \alpha + \beta TIME + u$$

(2)

$$| \ln \left(\frac{P_{1t}}{P_{2t}} \right) | = \alpha + \sum \beta_k DECADE_k + u$$

As bilateral price differences decline, relative prices move towards 1. P_{it} is the wheat price in city i in year t , P_{jt} is the wheat price in city j in year t . Since $\ln(P_{it}/P_{jt}) = \ln P_{it} - \ln P_{jt}$ for all $i \neq j$; if $P_{it}/P_{jt} = 1$ then $\ln(P_{it}/P_{jt}) = 0$. Thus, as markets integrate $|\ln(P_{it}/P_{jt})|$ moves towards 0, and as markets disintegrate the price relatives move away from 1. If markets were integrating, we would expect the coefficient of TIME to be negative and significant.

However, a significant time trend in the aggregated price gaps might not always mean that the price differentials at the end of our period were different than those in the initial period. Cycles of divergence and integration can produce an impression of change, even while the long-run trend remains static. A statistically significant negative trend in price dispersion might be observed, for instance, due to a sharp price divergence in the early eighteenth century, which had been compensated for in the following period even though the relative prices in the nineteenth century were no higher than those in the late seventeenth century. For this reason, the presence/absence of a long-term integration trend is evaluated by first looking at the coefficient of the TIME variable in equation (1) before an examination of the coefficients of the last two period dummies (1825-1834, 1835-1840) in equation (2). Only if *both* the coefficient of the time trend variable and the period dummies for the last two decades are statistically significant and negative can we conclude that the prices converged.

An insignificant coefficient for a time dummy may reflect a lack of changes across all sub-regions, but could also be due to opposite and offsetting trends between sub-regions, which imply integration in some areas and disintegration in others (Federico 2012). For this reason, the analysis is conducted separately on five different samples (entire Eastern Mediterranean, entire Ottoman Empire, Ottoman Mediterranean, Adriatic, and Ottoman Mediterranean-Adriatic samples) that cover geographical areas with distinctive features.

Coefficient of variation

When markets that are not in a direct exchange relation are considered, price differences might not be equal to the trading costs. In such cases, estimates of trading costs based on price differentials/relative prices are negatively biased (Chilosi et al. 2011). As has been discussed above, most of the markets included in the study are connected to each other and the imperial capital, although we do not have direct evidence of on-going trade in each case. In such cases, coefficient of variation analysis gives us more reliable results. Therefore, the robustness of the fixed effects results is also checked against the results from the coefficient of variation analysis.

The second measure of market integration that I use is the coefficient of variation. First, I look at the dispersion of all markets together by imputing the coefficient of variation (the standard deviation normalized by the mean) in each period of time. Sigma-convergence – a statistically significant decrease in the standard deviation of prices over the period – is considered to indicate convergence in prices. On the advantages of looking at sigma-convergence, Federico (2011: 95) states, "It needs no *a priori* assumptions about the process of adjustment of prices; it is more robust to errors in data; it is highly flexible; and, above all, it focuses on changes in prices which oriented the decisions of millions of producers and consumers rather than on gains and losses for a few specialized traders."

As a first step, I use the Augmented-Dickey Fuller (ADF) test to determine whether the time series of the coefficient of variation of prices is stationary.⁴⁷ The null-hypothesis of ADF

47 A constant is used in the test regression. The results from two different forms – with no lagged difference terms, and one lagged difference term – are reported.

is non-stationary. Therefore, if the null can be rejected at 10 percent, the series is taken to be stationary. In other words, if the series has a constant variance over time – signifying the lack of any trend – then the hypothesis of convergence (divergence) can be ruled out. When the results are in favour of a non-stationary hypothesis, I estimate the rate of convergence (divergence) using the following regression:

(3)

$$\ln(COV_t) = \alpha + \beta TIME + u$$

If the prices converge, a negative and significant coefficient of TIME is expected. Since the coefficient of variation for each commodity is based on the number of cities for which data is available, the missing annual observation may create difficulties in interpreting the results. Therefore, I constructed a second series by weighting the coefficient of variation by the number of cities for which data is available.

4. Results

Here, the integration and disintegration in the wheat markets are evaluated by looking at the changes in the aggregated relative prices. The findings from the coefficient of variation analyses given in section 6 are used for robustness checks. As will be discussed in more detail subsequently in this study, both methods employed to measure the extent of market integration produce consistent results.

For each sample, results from the fixed effects regression analysis are presented in two separate tables. In each case, the first table reports the results of the fixed effects regression (1) employing the time trend as the explanatory variable, while the second table displays results from the regression (2) employing period dummies. The figure showing the estimated average relative prices uses the coefficients on the period dummies from regression (2), regardless of whether or not they are significant.

Three criteria need to be met to conclude that wheat markets experienced long-term integration/disintegration: A statistically significant time trend should be detected in the regression (1); the coefficient of the last period dummy in regression (2) should be significantly

different than that of the initial period; and the sign of the TIME and the last two period dummies should be the same.

4.1. Long-term trends

Initially, I examine the complete set of Ottoman markets covering Anatolia and Syria in the east, the Balkans in the west, and the Egyptian delta in the south. This complete set incorporating 14 markets (Istanbul, Cairo, Manisa, Bursa, Candia, Patmos, Edirne, Wallachia, Eastern and Western Balkans, Salonika, Ayntab, Konya, and Damascus) provides a representation of the wider Ottoman region during the period under study. By looking at this extended sample of markets separated by large distances, I trace the trends of market integration across long-distance Ottoman markets. Since this data is most complete for the 1675-1800 period, the analysis is restricted to these years.

Alongside the markets incorporated into the imperial grain-trading network, this complete sample includes three landlocked and isolated markets -Damascus, Ayntab, and Konya-, which had no direct ties with this network, and presumably with each other. In the light of the previous empirical findings, and considering that the restricted tradability of wheat overland prior to the introduction of railroads, a long-term integration trend is not expected in this complete sample.

The results presented in Tables 8 and 9 are in accordance with our expectations. At the beginning of the nineteenth century, the wider Ottoman region, encompassing the Arab lands, the Egyptian delta, Anatolia, the Balkans, and Istanbul, was no more integrated than it was in the last quarter of the seventeenth century. At the 10 percent level, the regression (2) detects no time trend in the aggregated relative prices for the whole period, and in regression (3), the estimated relative price for 1795-1804 is not significantly different from that for 1675-1685.

Table 8- Fixed Effects Results -Time trend
Ottoman Empire (Complete sample), 1675-1804

Dependent variable	Ln(Pi/Pj)	
	Coef.	Std.Err.
CONSTANT	0.821***	-0.041
TIME	-0.002	-0.001
N	1412	
ADJUSTED-R2	0.32	

Notes: *, **, *** indicates significance at the 10 percent, 5 percent, and 1 percent levels respectively.

Table 9- Fixed Effects Results - Aggregated price relatives
Ottoman Empire (Complete sample), 1675-1804

Dependent variable	Ln(Pi/Pj)	
	Coef.	Std.Err.
CONSTANT	0.674**	-0.081
1685-1694	0.053	-0.098
1695-1704	0.064	-0.097
1705-1714	0.282***	-0.098
1715-1724	0.339***	-0.093
1725-1734	0.094	-0.101
1735-1744	0.241***	-0.095
1745-1754	-0.089	-0.096
1755-1764	-0.096	-0.100
1765-1774	0.136	-0.098
1775-1784	0.064	-0.095
1785-1794	0.097	-0.097
1795-1804	0.048	-0.099
N	1412	
ADJUSTED-R2	0.35	

Notes: *, **, *** indicates significance at the 10 percent, 5 percent, and 1 percent levels respectively. The period 1675-1684 is the omitted category.

It is often stressed that in the pre-modern world, economic activities were regionally rather than nationally organised. Accordingly, I take as a second step, the Eastern Mediterranean region (the Levant, the North African shore, the Aegean and Ionian basins, and the Adriatic) as an economic entity that brings together different political units. The sample incorporates the eight wheat price series from the Adriatic (Ljubljana, Udine, Padua, Rovigo, Ferrara, Pesaro, Senigallia, and Ancona) and nine series from the Aegean and the Ionian area (the Western Balkans, Salonika, Edirne, Istanbul, Bursa, Manisa, Candia, Patmos, and Cairo), all of which are situated at most at 100 kilometres from the Mediterranean coast.

As shown in Table 10, from around the mid-seventeenth to the mid-nineteenth century, the fixed effects regression detected a trend of decline in the aggregated price differentials in the entire Eastern Mediterranean region. However, the coefficients of the last two period dummies are *positive* and significant at the 1 percent level (see Table 11), implying that the estimated price relatives for 1825-1834 and 1834-1840 were significantly higher than the estimated price relatives for the initial period of 1660-1675. This implies that in the early nineteenth century, trading costs in the Eastern Mediterranean as a whole were higher than they had been in the last quarter of the seventeenth century and that the trend of decline detected derives from the high values in the early eighteenth century.

**Table 10- Fixed Effects Results, 1660-1840 - Time trend
Entire Eastern Mediterranean, Ottoman Mediterranean, and Adriatic regions, and
Ottoman Mediterranean-Adriatic market pairs**

Dependent variable	Ln(Pi/Pj)			
	EASTERN MED. (ENTIRE)	OTTOMAN MED.	ADRIATIC	OTT. MED-ADR.
CONSTANT	1.997*** (-0.264)	0.58*** (-0.045)	0.442*** (-0.016)	0.575*** (-0.028)
TIME	-0.001*** (0.000)	-0.001** (0.000)	-0.002*** (0.000)	0.000 (0.000)
N	4759	624	1683	2452
ADJUSTED-R2	0.29	0.22	0.39	0.12

*Notes: *, **, *** indicates significance at the 10 percent, 5 percent, and 1 percent levels respectively.*

**Table 11- Fixed Effects Results - Aggregated price relatives
Entire Eastern Mediterranean, Ottoman Mediterranean, and Adriatic regions, and
Ottoman Mediterranean-Adriatic market pairs**

Dependent variable	Ln(Pi/Pj)			
	EASTERN MED. (ENTIRE)	OTTOMAN MED.	ADRIATIC	OTT. MED- ADRIATIC
CONSTANT	0.191*** (-0.037)	0.406*** (-0.099)	0.341*** (-0.041)	0.164*** (-0.053)
1675-1684	0.06 (-0.051)	0.229* (-0.127)	-0.194*** (-0.061)	0.037 (-0.075)
1685-1694	0.265*** (-0.048)	0.221* (-0.117)	0.218*** (-0.061)	0.273*** (-0.07)
1695-1704	0.447*** (-0.043)	0.056 (-0.111)	0.078 (-0.048)	0.689*** (-0.063)
1705-1714	0.419*** (-0.042)	0.086 (-0.111)	0.038 (-0.047)	0.635*** (-0.062)
1715-1724	0.432*** (-0.042)	0.236** (-0.111)	0.094** (-0.046)	0.582*** (-0.061)
1725-1734	0.231*** (-0.042)	0.098 (-0.119)	-0.076* (-0.044)	0.348*** (-0.062)
1735-1744	0.254*** (-0.041)	-0.019 (-0.115)	-0.073* (-0.044)	0.414*** (-0.06)
1745-1754	0.124*** (-0.041)	-0.035 (-0.121)	-0.129*** (-0.045)	0.218*** (-0.063)
1755-1764	0.096** (-0.045)	-0.104 (-0.127)	-0.125*** (-0.047)	0.169*** (-0.067)
1765-1774	0.328*** (-0.043)	0.338*** (-0.122)	-0.076* (-0.046)	0.471*** (-0.064)
1775-1784	0.225*** (-0.042)	0.197* (-0.116)	-0.135*** (-0.045)	0.346*** (-0.062)
1785-1794	0.158*** (-0.041)	-0.03 (-0.113)	-0.151*** (-0.044)	0.293*** (-0.06)
1795-1804	0.296*** (-0.041)	-0.004 (-0.115)	-0.120*** (-0.043)	0.529*** (-0.06)
1805-1814	0.142*** (-0.04)	-0.051 (-0.125)	-0.163*** (-0.043)	0.249*** (-0.06)
1815-1824	0.108*** (-0.04)	-0.036 (-0.127)	-0.215*** (-0.043)	0.228*** (-0.06)

1825-1834	0.274*** (-0.042)	0.028 (-0.129)	-0.246*** (-0.044)	0.573*** (-0.063)
1834-1840	0.237*** (-0.049)	0.069 (-0.173)	-0.227*** (-0.047)	0.491*** (-0.076)
N	4759	624	1683	2452
ADJUSTED-R2	0.36	0.26	0.43	0.56

*Notes: *, **, *** indicates significance at the 10 percent, 5 percent, and 1 percent levels respectively. The period 1660-1674 is the omitted category.*

As the third step in this analysis, I compare trends across the two main sub-regions within the Eastern Mediterranean economic zone: the Adriatic and the Ottoman Mediterranean. In doing so, I investigate whether Ottoman Mediterranean markets followed a trajectory that diverged from those of the wheat markets in other proximate Mediterranean regions. This comparative approach will allow us to differentiate between trends in market integration that were experienced by the Mediterranean world as a whole (or commonly by adjacent sub-regions) and those that were specific to the Ottoman realm. Furthermore, comparing the trends in market integration in the Northwestern part of the Ottoman Mediterranean against trends in the Adriatic region will help us to understand how factors that cut across both areas – such as wars, climatic fluctuations, and epidemics – affected the market development in different institutional settings and policy environments.

As can be observed in Table 10 and 11, in the long term, wheat market integration only appears to have occurred in the Adriatic region. Both the coefficient of the time trend variable and the coefficient of the last two period dummies are negative significant at the 1 percent level in the Adriatic sample. In the Ottoman Mediterranean, although a negative time trend is observed, this appears to reflect the region's recovery from the early eighteenth-century growth in price dispersion, rather than a long-term integration trend, as shown by the statistically insignificant and positive period dummies for 1825-1834 and 1834-1840.

Finally, I look at the evolution of estimated price relatives in the Ottoman Mediterranean-Adriatic market pairs, which indicate the price differentials in foreign trade. The findings show no long-term trend of decline/increase in the costs of international trade within the Eastern Mediterranean region. It can be concluded that as with region as a whole,

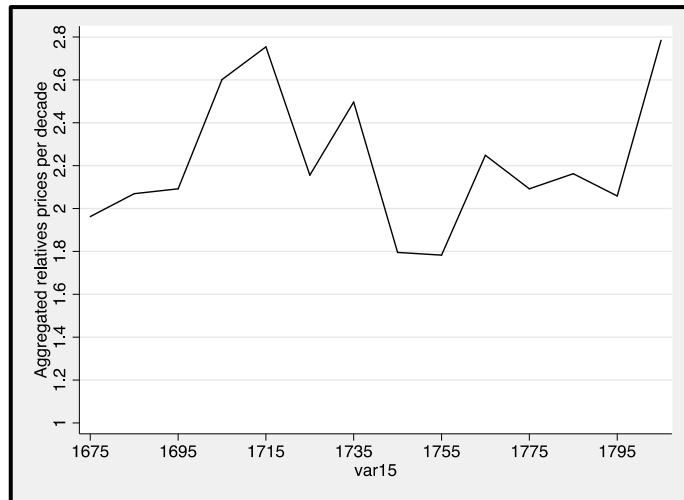
international markets in the region did not experience long-term integration/disintegration. Having said that, it should also be noted that the coefficients of the last two period dummies are positive and highly significant, showing that estimated relative prices were higher at the end of the period under study in comparison to the initial period.

4.2. Levels

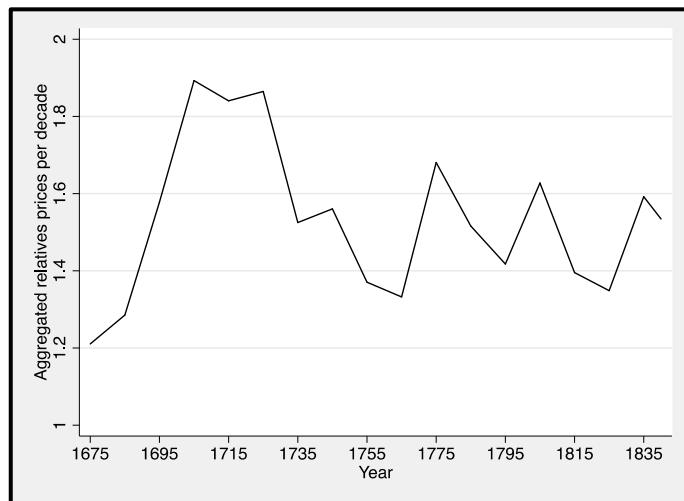
What did market conditions within these different trading regions look like? Did the lack of integration in Ottoman markets reflect a relatively well-integrated market system, or did it occur against the backdrop of a fragmented and costly exchange network? We can shed some light on this by looking at aggregated relative prices, estimated by the fixed effects regressions. These capture the level of price difference within each trading area. Figures 9 to 12 depict the evolution of aggregated relative prices within the Ottoman Empire, the Eastern Mediterranean, the Ottoman Mediterranean, the Adriatic region, and in the Ottoman Mediterranean-Adriatic market pairs. Among the five different samples, the first sample incorporating the landlocked and coastal, as well as short-distance and long-distance Ottoman wheat markets, produced the highest estimated price relatives. Throughout the period, these ranged between 1.8 and 2.8. It should be underlined that even under the favourable conditions of the mid-eighteenth century, the aggregated relative prices in the Ottoman markets was 1.8, while this figure was 1.4 for the Ottoman Mediterranean, and just 1.2 for the Adriatic.

The wide price gaps across the wheat markets suggest that prior to the introduction of steamships and railroads, landlocked markets in the wider Ottoman region remained largely fragmented, meaning a 'national wheat market' did not emerge. These results are hardly surprising, since under the conditions of pre-modern transportation and communication technologies, an empire extending to three continents could not be expected to operate as a single economic entity.

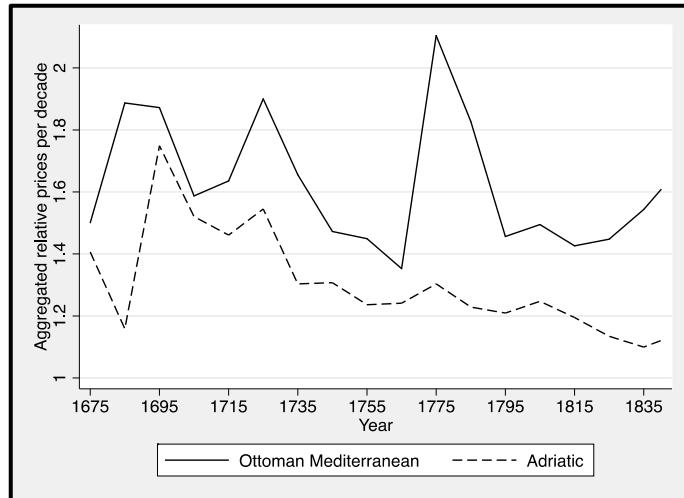
**Figure 9- Aggregated relative prices
Ottoman Empire (complete sample)**



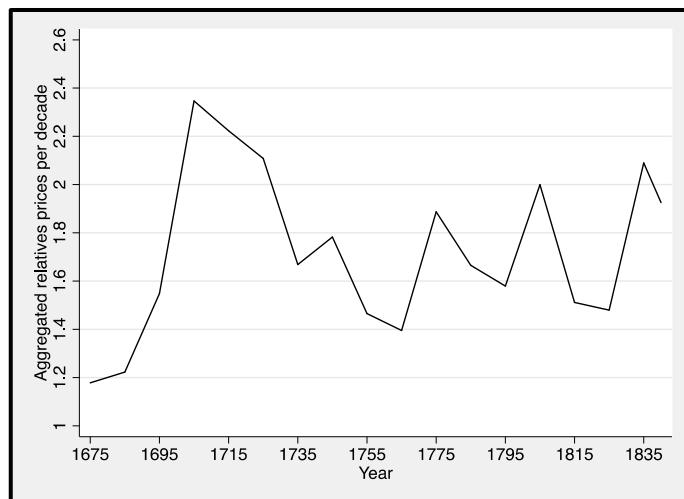
**Figure 10-Aggregated relative prices
Entire Eastern Mediterranean**



**Figure 11- Aggregated relative prices
Adriatic and Ottoman Mediterranean**



**Figure 12- Aggregated relative prices
Ottoman Mediterranean-Adriatic market pairs**



Given the high costs of transportation prior to the nineteenth century, it is crucial to take distance into account when comparing different samples in terms of trading costs. Here, I compare trading costs in the Ottoman Mediterranean and Adriatic regions, controlling for distance between market pairs, in order to understand whether the difference in the level of price gaps across the two regions was merely the result of the longer distances separating

Ottoman wheat markets, or whether it indicates a discrepancy in terms of the extent of market integration.

The logged relative prices in Adriatic and Ottoman Mediterranean market pairs are regressed against LNDISTANCE and OTTOMANMED, using the OLS model. LNDISTANCE is the logged flight distance (in 100 km) between markets in each pair. OTTOMANMED is a dummy variable indicating the market pairs from the Ottoman Mediterranean. The reference category is the Adriatic market pairs. If there was a significant difference in trading costs per 100km between the two regions of the Eastern Mediterranean, we would expect the coefficient of OTTOMANMED to be significant.

(4)

$$|\ln\left(\frac{P1_i}{P2_i}\right)| = \beta_0 + \beta_1 LNDISTANCE_i + \beta_2 OTTOMANMED_i + u$$

Table 12 reports the descriptive statistics of the regression variables.

Table 12-Descriptive statistics of the regression variables

	N	Mean	S. D.
 \ln(P1/P2) 	2322	0.294	0.343
LNDISTANCE	2322	0.624	0.946
OTTOMANMED	2322	0.275	0.447

The regression results are given in Table 13. As expected, price gaps across market pairs are strongly and positively associated with distance between the markets, throughout the 1660-1840 period. The coefficient of LNDISTANCE is positive and significant at the 1 percent level in all three regressions. In every additional 100 km, the relative prices increased by 12, 8, and 4 percent, respectively, in the 1660-1720, 1720-1780, and 1780-1840 periods.

Table 13-OLS regression results
Bilateral relative prices and distance between markets

Dependent variable	Ln(P1/P2)		
	1660-1720	1720-1780	1780-1840
CONSTANT	0.416*** -0.039	0.240*** -0.018	0.141*** -0.006
LNDISTANCE	0.117*** -0.035	0.080*** -0.017	0.036*** -0.007
OTTOMANMED	-0.043 -0.062	0.282*** -0.041	0.198*** -0.014
N	326	676	1320
ADJUSTED-R2	0.04	0.2	0.21

*Notes: *, **, *** indicates significance at the 10 percent, 5 percent, and 1 percent levels respectively. Adriatic market pairs are the omitted category.*

Once controlled for distance, no significant difference is detected between trading costs in the Ottoman Mediterranean and Adriatic regions prior to 1720. This shows us that in the late seventeenth and early eighteenth centuries, the extent of wheat market integration in both regions was comparable. However, in the following two periods, the level of price gaps in the Ottoman Mediterranean was significantly higher than the price gaps in the Adriatic region. The coefficient of the OTTOMANMED is positive and significant at the 1 percent level. In 1720-1780, the price gap between Ottoman Mediterranean wheat markets was 28 percent higher than the price gap between Adriatic markets separated by equal distance. In 1780-1840, this figure was 20 percent. These results suggest that from the second quarter of the eighteenth century, Adriatic wheat markets became better integrated than Ottoman Mediterranean markets.

4.3. Short-term trends

One of the stylised facts that can be derived from previous research is that market integration was not a linear process. Despite the absence of consensus on the early roots of commodity market integration, most studies reveal that the late Middle Ages and the early-modern period featured a succession of waves of integration and disintegration within Europe.

The findings of Chilosi et al. (2011) for instance, show that following the Thirty Years' War, Europe-wide price dispersion decreased until the mid-eighteenth century, remained stationary from this date onwards until the French Revolution, and increased during the Napoleonic Wars. This leads them to conclude that European market integration occurred in a step-by-step fashion with occasional periods of regression.

In order to identify short-term integration and fragmentation episodes, I conducted fixed effects regressions separately for each 30-year interval between 1660 and 1840, employing TIME as the explanatory variable. While in Table 11, the estimated coefficients of the decade dummies estimate the difference in aggregated relative prices between the omitted (initial) decade and the decade represented by the particular period dummy; the coefficients of TIME variable presented in Table 14 tell us whether there was a positive or negative time trend in bilateral relative prices within each of the sub-periods.

Table 14- Fixed Effects Results for 30- year intervals (Time trend)

Dependent variable	Ln(Pi/Pj)					
OTTOMAN EMPIRE						
	1675-1690	1690-1720	1720-1750	1750-1780	1780-1800	
CONSTANT	0.537*** (-0.125)	0.391*** (-0.113)	1.874*** (-0.246)	-0.536* (-0.311)	1.927*** (-0.588)	
TIME	0.020* (-0.011)	0.011*** (-0.003)	-0.017*** (-0.004)	0.014*** (-0.003)	-0.010** (-0.005)	
N	126	292	332	312	343	
ADJUSTED-R2	0.38	0.69	0.31	0.54	0.5	
EASTERN MEDITERRANEAN (ENTIRE)						
	1660-1690	1690-1720	1720-1750	1750-1780	1780-1810	1810-1840
CONSTANT	-4.615*** (4.037)	0.436 (3.232)	15.342*** (2.859)	-15.414 (2.676)	-4.429** (1.897)	-11.164*** (2.131)
TIME	0.003 (0.002)	0.001 (0.002)	-0.009*** (0.002)	0.009*** (0.002)	0.003*** (0.001)	0.006*** (0.001)
N	239	545	540	651	1336	959
ADJUSTED-R2	0.31	0.55	0.32	0.49	0.31	0.37

OTTOMAN MEDITERRANEAN

Ottoman Med.	1660-1690	1690-1720	1720-1750	1750-1780	1780-1810	1810-1840
CONSTANT	0.384*** (0.131)	0.301* (0.183)	1.471*** (0.419)	-1.297** (0.605)	1.235*** (0.458)	-0.549 (0.586)
TIME	0.01 (0.007)	0.004 (0.004)	-0.013** (0.006)	0.019*** (0.006)	-0.006* (0.004)	0.005 (0.004)
N	64	124	93	94	166	76
ADJUSTED-R2	0.33	0.41	0.35	0.3	0.24	0.01

ADRIATIC

	1660-1690	1690-1720	1720-1750	1750-1780	1780-1810	1810-1840
CONSTANT	0.349*** (0.081)	0.562*** (0.144)	0.836*** (0.114)	-0.037 (0.133)	-0.007 (0.111)	0.665*** (0.11)
TIME	0.004 (0.004)	-0.002 (0.003)	-0.007*** (0.001)	0.002* (0.001)	0.001* (0.001)	-0.003*** (0.001)
N	31	105	268	202	483	560
ADJUSTED-R2	0.01	0.51	0.44	0.17	0.17	0.15

OTTOMAN MEDITERRANEAN-ADRIATIC

	1660-1690	1690-1720	1720-1750	1750-1780	1780-1810	1810-1840
CONSTANT	0.392*** (0.059)	1.007*** (0.137)	1.212*** (0.207)	-0.648*** (0.244)	-0.178 (0.241)	-2.102*** (0.38)
TIME	0.001 (0.003)	-0.003 (0.003)	-0.009*** (0.003)	0.011*** (0.002)	0.005*** (0.002)	0.016*** (0.002)
N	144	304	400	355	680	509
ADJUSTED-R2	0.26	0.5	0.2	0.43	0.14	18

Notes: *, **, *** indicates significance at the 10 percent, 5 percent, and 1 percent levels respectively.

To facilitate the interpretation of findings, Table 15 summarises the results by showing the sign of the coefficient of the time trend variable and whether it is significant at the 10 percent level.

**Table 15- Fixed Effects Results for 30 year intervals (Time trend)
Summary**

	1660-1690	1690-1720	1720-1750	1750-1780	1780-1810	1810-1840
Ottoman Empire	+*	+	-*	+	-*	N/A
Eastern Med. (Entire)	+	+	-*	+	+	+
Ottoman Med.	+	+	-*	+	-*	+
Adriatic	+	-	-*	+	+	-*
Ott. Med.-Adriatic	+	-	-*	+	+	+

Although for the late seventeenth century, the coefficient of TIME is positive in all the samples – except in the regression based on the extended Ottoman sample – none of the coefficients are significant at the 10 percent level. Thus, it can be concluded that the Ottoman Empire as a whole suffered fragmentation from 1660 to 1690, while trading costs remained stable in the other four samples. Within the Ottoman realm, market deterioration on an inter-regional level continued between 1690 and 1720.

Between 1720 and 1750, following the end of the long Venetian-Ottoman naval wars in the region, a period of integration in domestic and international markets emerged in the Eastern Mediterranean. We can see a strong declining trend in trade costs within the Ottoman Mediterranean, the Adriatic, and across Ottoman Mediterranean-Adriatic wheat markets during this period of peace in the Eastern Mediterranean waters. Similarly, the entire Eastern Mediterranean region, as well as the wider Ottoman geography, became more integrated during this period. In all the five samples, the coefficient of TIME is negative and significant at the 1 percent level. The coefficients of the explanatory variable, signifying the magnitude of the annual change in the aggregated price relatives are, respectively, -0.017, -0.009, -0.013, -0.007, and -0.009, for the Ottoman Empire, Eastern Mediterranean, Ottoman Mediterranean, Adriatic, and the Ottoman Mediterranean-Adriatic wheat markets. Thus, the decline in the price gaps was largest in the entire Ottoman sample, and the Ottoman Mediterranean.

However, in the absence of adequate price data for the period prior to the 1660s, we cannot be sure what peace-time levels were during the periods of long maritime peace that occurred during the Ottoman-Venetian coexistence between the last quarter of the sixteenth

century and the mid-seventeenth century. Therefore, it is impossible to ascertain whether wheat markets across the Eastern Mediterranean around the mid-eighteenth century attained higher levels of integration than they had 150 years previously.

The 1750-1780 period, was marked by a general trend of disintegration. Regional and inter-regional wheat markets in the Ottoman Empire, as well as international markets in the Eastern Mediterranean, became significantly fragmented, as is demonstrated by the positive coefficients, all significant at the 1 percent level. Adriatic regional markets also experienced disintegration during the same period, yet the magnitude and the statistical significance of the coefficient of the time trend variable in this sample was lower.

Particularly during the Russo-Ottoman war of 1768-1774, price dispersion reached high levels in Ottoman wheat markets. Several historical sources report unprecedentedly high grain prices, shortages and famine in the capital during the war years, a phenomenon that is indicative of the dissolution of the provisioning network centred on Istanbul. The ground battles between the two powers were fought on the Danubian front, inflicting heavy damage on the region's production and markets. The Russian occupation of the Romanian provinces during the war years severed the already weak ties between the Balkans and Central Europe. In the Romanian provinces, occupation and fear of servitude drove many peasants into Habsburg territory.

A series of naval battles in the Aegean and the presence of Russian ships that had sailed from the Baltic Sea, through Gibraltar, and across the Western Mediterranean to the Ottoman Mediterranean appears to have affected trade in the Eastern Mediterranean and to have precipitated the fragmentation of inter-regional markets in the Eastern Mediterranean and regional markets in the Ottoman Mediterranean.

By roughly 1780, Adriatic and the Ottoman domestic markets began to follow diverging trajectories. While Ottoman wheat markets experienced a relative recovery in the 30 years following this date, Adriatic regional markets were impacted by the political decline of the Venetian Republic and experienced fragmentation.

At the same time, the trend towards recovery is not visible in international wheat markets. After 1750, international trading costs continuously rose until the mid-nineteenth

century. Multiplication of export bans on essential foodstuff, grains being in the first place, is a commonly accepted fact that explains this episode of price dispersion on the international scene during this period.

It should also be noted that the extent of the recovery in Ottoman regional and interregional markets was more restricted compared to the extent of the fragmentation in the previous period. While between 1750 and 1780, the annual rates of increase in the price gaps in the Ottoman Empire and the Ottoman Mediterranean were 1.4 and 1.9 percent, respectively, the annual rates of decrease in the following period were 1 and 0.6 percent.

Adriatic regional markets became more integrated in the early nineteenth century. Venice's occupation at the hands of the Napoleonic armies, before the city's fall in 1797, ushered in a new era in the Adriatic. Austria seized Venetian possessions in the Balkans and to the east of the Adige rivers in accordance with the peace with France, while France annexed the Lombard part of the state. In the Adriatic, the rise of the Austrian port of Trieste had already begun in the 1760s. With the fall of Venice, Adriatic markets began to move towards further cohesion under Austrian influence. During the same period, price gaps in the Ottoman Mediterranean remained stable, yet the region was cut off from Adriatic markets.

5. Impact of grain policy on market integration

In this section, I estimate the difference in the level of price gaps across four sub-periods, separated by benchmarks in terms of Ottoman grain policy, in order to understand whether the extent of integration varied in compliance with the degree and method of regulation in the grain markets. To do this, I examine the Ottoman grain-trading network that covers 11 markets (the Eastern Western Balkans, Wallachia, Salonika, Edirne, Istanbul, Bursa, Manisa, Candia, Patmos, and Cairo) in the database during the 1675-1815 period, for which the price series are most complete.

The 1675-1815 period can be divided into four sub-periods according to the grain policy tools applied and the degree of regulation in the grain markets.

Our first benchmark year is 1711. In 1711 and 1714, the Moldavian and Wallachian princes elected by the boyars were replaced by the Phanar-dependent Greeks of the Porte.

The establishment of the Turkish-Phanariot regime represented a milestone in terms of the Ottoman control over the two Danubian principalities. With the incorporation of the principalities into the empire's political and economic system, the Ottoman centre reinforced its monopoly over the main products of the principalities (Alexandrescu-Dersca Bulgaru 1992). This political dominance over the region allowed a substantial portion of its grain surplus to be transferred to the capital via non-market extraction methods. In the following years, the Danubian provinces and the Eastern Balkans turned into the empire's "cellar," satisfying the predominant share of the capital's need for grains, while the role of the Mediterranean shores in the provisioning system became increasingly marginalised (Alexandrescu-Dersca Bulgaru 1992).

As such, our first period, 1675-1711, signifies an era preceding the full incorporation of the Danubian Principalities into the Ottoman political and economic orbit, during which Western Anatolia, the Western Balkans, and Egypt played a relatively more important role in the provisioning of Istanbul with grain. As Ağır (2013) highlights, due to geographical factors, the state's capacity to enforce export bans and internal barriers on grain trade on the Mediterranean coasts was limited. Since smuggling grain from the Mediterranean coasts through the archipelago was easy, the central government had to take market forces into account in order to procure necessary quantities. Therefore, it can be claimed that before the eighteenth century, the central government's efforts to supply the capital was not "conducted according to very strict regulations (Salakides 2002: 131)," and a less coercive price policy was applied.

This situation, however, began to change when the quantities of grain brought to Istanbul failed to satiate the capital's rising demand for grain (Salakides 2002). At the turn of the seventeenth century, Istanbul faced a wave of immigration with the abandonment of land in the neighbouring *vilayets* of Anatolia and Roumelia. The population of the capital rapidly grew, and as the difficulties in provisioning the capital's inhabitants increased, political tensions surfaced and several bread riots erupted. The pressure of meeting the needs of the city's inhabitants led the Ottoman state to apply a more coercive grain policy (Aktepe 1958; Alexandrescu-Dersca Bulgaru 1958).

As revealed by several imperial decrees imposing measures to control Istanbul's population and ordering grain and other essential foodstuffs to be transferred from the European provinces to the city, the problem became exacerbated during the initial decades of the eighteenth century. In parallel to the rising pressure, forced purchases at fixed prices, which were implemented in previous centuries only during times of war, began to be applied for the purpose of provisioning Istanbul with essential foodstuffs, particularly grain (Aktepe 1958; Alexandrescu-Dersca Bulgaru 1958). The practice was known as the *miri mübaya* regime, which imposed a tax-like levy to facilitate the provision of goods and services for the state at a price significantly lower than the market price. The policy particularly concerned the European provinces (Ağır 2011). Hence, our second period, 1711-1748, witnessed the stiffening of the Ottoman grain policy, which was imposed by the growing problems of the capital and facilitated by the direct control over the Danubian provinces.

Our third period is 1748-1773. In 1748, a new system of grain deliveries, known as a comparative quota system (*mukayese nizamı*), was introduced in the zones traditionally designated as the hinterland of the capital, more particularly in Ottoman Europe. With this compulsory system of deliveries of wheat, the transfer of grain surpluses from the hinterland to Istanbul was systematised. Through an investigation of Istanbul's central grain market registers, which featured data about the amount of grain sent to the capital in previous years, the authorities determined how much surplus each district could produce in normal years. According to these estimates, each district was assigned a quantity to be delivered to Istanbul (Ağır 2013).

In this system, differing amounts of grain were purchased at the *miri* (pre-determined fixed price, which was substantially lower than the market price), and *rayiç* prices (determined through negotiations between state agents and producers and set at a level lower than the market price but higher than the fixed price), depending on conditions of supply and demand (Ağır 2011).

From an early date onwards, the obligation to obtain state permission to purchase, transport, and sell grain was always a key component of the provisioning policy. Until roughly the mid-eighteenth century, such permission was granted to merchants by the central

government on a case-by-case basis following the application of the concerned merchant via local authorities of the region where the grain was to be sold (Güçer 1952). Such a practice accorded considerable power to these authorities and prominent members of the local community, particularly the judge who was responsible for regulating grain prices and exports.

Concurrently with the introduction of the quota system, the state permission system was transformed into a licence requirement, restricting the privilege to provision Istanbul with grain to a group of officially authorised private merchants and government agents (Ağır 2011). According to Alexandrescu-Dresca Bulgaru (1992), this new regulation was a response by the central state to numerous complaints from inhabitants of the rural Eastern Balkans regarding abuses by the merchants and state officials that ultimately resulted in several limitations to their conduct.

Our last period is 1774-1815. 1774 marks the end of the Russo-Ottoman war of 1768. With the Treaty of Küçük Kaynarca terminating the conflict, the Black Sea was opened to foreign trade, and the Romanian provinces, the traditional zone of grain supply for Istanbul, gradually escaped from direct Ottoman control. As an increasingly greater share of the grain produced in the region was oriented towards the Western Mediterranean markets, Western Anatolia and the Mediterranean coasts became more important for provisioning Istanbul in the last quarter of the eighteenth century. Still, the region continued to supply grain for the capital, albeit at lower volumes than previously (Güran 1986).

According to Ağır (2011), this shift in the geographical patterns of supply came together with a liberalisation in the Ottoman grain policy in the last quarter of the eighteenth century. In 1783, the comparative quota system and the practice of purchase at controlled prices were terminated. In 1793, the Ottoman Grain Administration – considered by Ağır (2011: 3) as the sign of a “policy shift towards a more-centralised-yet-flexible use of regulatory tools” – was established, and the licence requirement to sell grain in Istanbul was lifted.

The fixed effects regression (5) estimates the level of aggregated price relatives for these four sub-periods. The period 1748-1774, considered an era of intense regulation in the Ottoman grain markets and characterised by the practice of a comparative quota system and licence requirements, functions as the reference category and has been omitted from the

regression. In order to distinguish the alterations in trading costs due to institutional/structural factors from aleatory and temporary shifts caused by external shocks, control variables (wars, debasements, droughts, and plague years) have been incorporated.

(5)

$$\left| \ln \left(\frac{P1_t}{P2_t} \right) \right| = \beta_0 + \beta_1 WAR_NAVAL + \beta_2 WAR_INTENSITY + \beta_3 DROUGHT + \beta_4 PLAGUE_LAG \\ + \beta_5 OCCUPATION + \beta_6 DEBASEMENT + \beta_7 1660 - 1710 + \beta_8 1711 - 1747 \\ + \beta_9 1774 - 1815 + u$$

Two separate variables are constructed for Ottoman wars. *WAR_NAVAL* is a dummy variable assuming 1 for the years during which the Ottoman state fought in Mediterranean or Black Sea waters. Given the centrality of sea transportation within the grain-trading network, naval wars in the Mediterranean and Black Sea, which led to an interruption of maritime trade, are expected to have a significant impact on the trading costs. Our second control variable, *WAR_INTENSITY*, is the number of years per decade during which the Ottoman state was at war on the European or eastern front. This variable is employed as a measure of intensity of wars.

DROUGHT is a dummy variable for years in which extreme aridity occurred in the Balkans or Anatolia according to climatological studies (Akkemik et al. 2007; Xoplaki, Maher, and Lutherbacher 2001). It assumes 1 if the year was a drought year, and 0 otherwise.

In constructing a dummy variable in order to assess the impact of local sporadic shocks generated by plague, the ideal situation would be to detect the years in which the epidemic was seen in each of the towns in the sample. However, determining when and to what degree individual towns were affected is not possible due to the lack of detailed historical information.

Here, I take years in which plague was observed in at least 10 towns in the Ottoman Empire, according to the data compiled by Panzac (1985). In that sense, the variable constructed here is a measure of the geographical spread of the epidemic, rather than the

severity or appearance in the towns in the sample. For the period 1700-1840, the dummy assumes 1 if plague was detected in more than 10 cities in the Ottoman Empire in the particular year, and 0 otherwise. For the period 1675-1700, which is not covered by Panzac's (1985) study, I included three episodes of the epidemic, 1677-80, 1687-90, and 1697-99. Even though it is unknown how many Ottoman towns were hit by the disease during these years, it is known that it occurred in Southeastern Europe, Anatolia, and Damascus concurrently (Ayalon 2008; Kostis 1995; Varlik 1991). Thus, it is assumed that these three episodes affected large areas around the Eastern Mediterranean.

It behoves us to note, however, that the geographical spread of the epidemic, which the variable proxies for, risks reflecting intensified interregional trade since the plague spread more rapidly across space during periods of lively commercial activity. Cipolla (1974) identified travelling merchants and population density as the main transmitters of the disease among cities. Boerner and Severgnini (2011), for instance, use the spread of the Black Death from 1347-1351 as a proxy to study trade among different cities. If plague spread during periods in which trade intensified, the plague variable could emerge to be negatively correlated with price differentials. Assuming that the interruption of trade due to plague took place sometime after the appearance of the disease in a particular locality, I constructed *PLAGUELAG* by delaying the *PLAGUE* variable by one year so as to avoid this problem.

Debasement was another instrument of the state to extract resources and finance warfare. The late eighteenth and early nineteenth centuries were marked by frequent debasements and high inflation. How quickly local markets responded to the changes in the silver or gold content of the money is unclear in the absence of relevant research. However, we can assume that under the conditions of limited communication technology in the early-modern period, the adjustment procedure was not immediate despite the monetary unification in the late seventeenth century. This likely resulted in discrepancies at the local money markets, which in turn were reflected in profitable price differentials across regional commodity markets. DEBASEMENT is a dummy variable assuming 1 for debasement years, as indicated in Pamuk (2000a).

The provisioning system broke down when the flow of deliveries was interrupted in

periods of territorial occupations in the regions supplying Istanbul. We know that during the Austrian occupation of Western Wallachia (1718-1739), the Russian occupations of Moldavia and Wallachia (1711, 1768-1774; 1787-1792; 1828-1834), and Napoleon's occupation of Egypt (1798-1801), inhabitants of the capital were affected by grain shortages and high grain prices. Therefore, a dummy variable has been introduced for occupations. OCCUPATION assumes 1 for years in which one or more regions within the grain supplying network were under foreign occupation, and 0 otherwise.

Table 16 reports the descriptive statistics of the regression variables.

Table 16- Descriptive statistics of the regression variables

Variable	N	Mean	S.D.
 Ln(P1/P2) 	992	0.602	0.548
WAR_NAVAL	992	0.264	0.441
WAR_INTENSITY	992	4.513	2.836
DROUGHT	992	0.339	0.474
PLAGUELAG	992	0.396	0.489
DEBASEMENT	992	0.130	0.337
OCCUPATION	992	0.398	0.490
1660-1710	992	0.162	0.369
1710-1748	992	0.192	0.394
1774-1815	992	0.539	0.499

The fixed effects regression results are presented in Table 17. At the 10 percent level, the coefficients of NAVALWAR, WARINTENSITY, DROUGHT, PLAGUELAG, and OCCUPATION are statistically significant.

Table 17- Fixed Effects Regression Results
Grain-trading network, 1675-1815

Dependent variable	 Ln(P1/P2) 	
	Coef.	Std.Err.
CONSTANT	0.405***	0.056
NAVAL_WAR	0.108**	0.052
WAR_INTENSITY	0.017**	0.008
DROUGHT	-0.072**	0.037
PLAGUELAG	0.075**	0.037
OCCUPATION	0.131***	0.039
DEBASEMENT	0.081	0.054
1675-1710	0.146*	0.078
1711-1747	0.301***	0.068
1774-1815	-0.065	0.067
N	885	
ADJUSTED-R2	0.26	

*Notes: *, **, *** indicates significance at the 10 percent, 5 percent, and 1 percent levels respectively. The period 1748-1773 is the omitted category.*

As expected, war intensity and naval wars in Ottoman waters were positively associated with price gaps in the Ottoman grain-trading network. During years of Ottoman naval wars, trading costs increased by 11 percent. The results confirm the significance of sea transportation within the Ottoman grain network and the disruptive effect of wars on markets and posit the interruption of maritime trade due to naval clashes on the Mediterranean and Black seas as an important cause of market fragmentation in the region.

Interestingly, droughts exerted a negative impact on the price differentials. DROUGHT is significant at the 5 percent level. During drought years, estimated bilateral price relatives were reduced by about 7 percent. By concurrently affecting local markets and influencing local supply conditions, climatic shocks might have caused grain prices to converge across local markets. On the other hand, provisionist policies that were implemented particularly during times of supply difficulties might also explain this result. Kütükoğlu (1996) suggests that when an essential foodstuff was scarce in a local market to a degree that it negatively impacted everyday life, the import of that good from abroad as well as its internal trade was exempt

from both internal and external customs. These findings support Kütükoğlu's argument relying on narrative sources.

Again in accordance with our expectations, plague epidemics and territorial occupations created an upward shift in trading costs. Following the years of the beginning of plague epidemics and during territorial occupations, trading costs rose respectively, by 7.5 percent and 13 percent, respectively. Finally, although the coefficient of the DEBASEMENT dummy is positive as expected, it is not significant at the 10 percent level, suggesting that debasements did not have a substantial effect on the price gaps. This might be indicative of relative well-integrated monetary markets within the Ottoman trading network centred on Istanbul.

One of the purposes of this exercise was to detect whether wheat markets in the Ottoman grain-trading network became more integrated in the post-1774 era, marked by changes in provisioning policies. After controlling for the impact of wars and external shocks, no statistically significant difference can be detected in the aggregated relative prices between the 1748-1773 period, during which a comparative quota assessment system and licence requirement were in practice, and the post-1774 period, which witnessed a shift in geographical patterns of supply, and arguably, the relaxation of the grain policy. The coefficient of the 1774-1815 dummy is not significant at the 10 percent level. These findings do not provide support to Ağır's (2013) argument that authorities began to liberalise Ottoman grain policy in the late eighteenth century with the lifting of several restrictions to free trade. If policy changes occurred in this direction, they were not sufficient enough, along with several other influences, to lower trading costs and lead to better-integrated wheat markets across the Ottoman grain-trading network centred on Istanbul.

Another striking finding concerns the 1711-1748 period. The coefficient of the dummies for this period is significant at the 1 percent level. For this period, the estimated relative price within the grain-trading network was 30 percent higher than the estimated relative price for the 1748-1774 period. The substantially wide gaps in wheat prices between the Balkans and the Mediterranean coasts in the early eighteenth century appear to be responsible for the difference.

A closer inspection of the price series shows that during this period, wheat prices in the Balkans reached sky-high levels, condemning the masses to famine (see Figure 4). In fact, the subsistence crisis in the Balkans that marked the first half of the eighteenth century has been documented by several studies. While the traditional explanations posit climatic factors and over-exploitation by the Ottoman state as the source of the crisis, Kostis (1993) and Gounaris (2009) claim that the shortage of grain and the high prices were ultimately linked to the inability to attract random imports. This, they argued, was due to the relevant conflicting interests of a network of local actors who played a part in the regulation and operation of the grain trade in a local setting (including the local judge, who was the official regulator of prices and exports; local janissary *aghás*, who controlled local grain trade; local notables, who possessed high quantities of surplus grain; and French consular and captains who performed and organised grain trade operations across the Mediterranean). Given the large price differentials between the Balkans and other parts of the Ottoman grain-trading network during this period, the explanation offered by Kostis (1993) and Gounaris (2009) seems much more plausible than the traditional view.

The involvement of local agents in the administration of grain trade between different parts of the empire should be considered within the overall political and financial context. As Yıldırım (2003) rightfully claims, "the provisioning of grain to Istanbul was not insulated from the official policy of the state to turn its sources of revenue to tax farms during the eighteenth century. Many offices involved with the reception, taxation, redistribution and supervision of the grain supply were farmed out to private entrepreneurs for a short-term or on a life-long basis."

As Gounaris (2009) has presented shown through a detailed account of Salonika, the interplay between conflicts of various local interest groups led to coordination failures and high transaction costs impeding the flow of grain from where it was available to where it was scarce. In this respect, the subsistence crisis in the Balkans in the first half of the eighteenth century is an excellent demonstration of how coordination failures observed in decentralised structures relying on a multiplicity of intermediaries led to inefficient and fragmented markets, as Epstein (2000) argues.

In light of these new findings, the comparative quota system and the licence requirement, the main tools in the Ottomans' mid-eighteenth century grain policy, can be reassessed. Both of these tools can be considered as a step towards a more centralised administration of Ottoman grain trade that culminated in the establishment of the Ottoman grain administration in 1793. The comparative quota system, which implied that the amounts to be sent by each district to the capital were centrally determined, and the licence system, which created a privileged class of "trustworthy" private merchants centrally authorised to provision Istanbul with grain, likely curtailed the power of the local authorities and intermediaries in the provisioning system to some extent, while helping limit their arbitrary conducts. This notwithstanding, local intermediaries continued to play a substantial role in the regulation of the grain trade. As such, these tools likely helped reduce coordination failures and lower transaction costs.

6. Robustness check

In order to check the robustness of the findings presented above, results from the fixed effects regressions are compared with results from an analysis of the coefficient of variation. In a further step, decennial aggregated relative prices are estimated for alternative samples, excluding the capital, and restricted to the markets with the most complete price series in the database to understand whether these produce consistent findings with the larger samples included above.

6.1. Coefficient of variation analysis

Here, I look at the evolution of price dispersions in wheat markets by employing coefficients of variation, an alternative indicator used to measure the extent of integration. Initially, I apply an ADF test to determine whether the coefficient of variation series is stationary. The null-hypothesis of the ADF test is non-stationarity. If the null-hypothesis of non-stationarity cannot be rejected at the 10 percent level, the series is considered stationary, and the logged coefficient of variation is regressed against a time trend variable to deduce whether a statistically significant decreasing/increasing trend in price dispersion is observable and to estimate the rate of convergence/divergence in wheat prices across different markets.

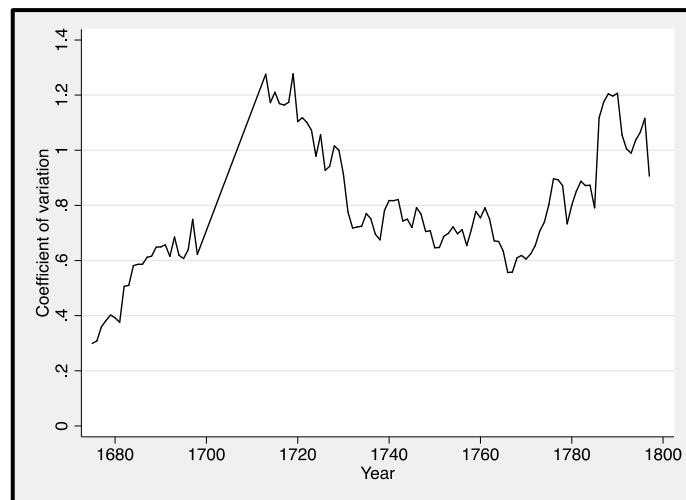
Table 18- ADF test and OLS regression results

	ADF t-value	TIME
Ottoman Emp.	-3.210	Null hypothesis rejected
Ottoman Med.	-2.492	Null hypothesis cannot be rejected
Adriatic	-1.016	Null hypothesis cannot be rejected
Eastern Med.	-1.874	Null hypothesis cannot be rejected

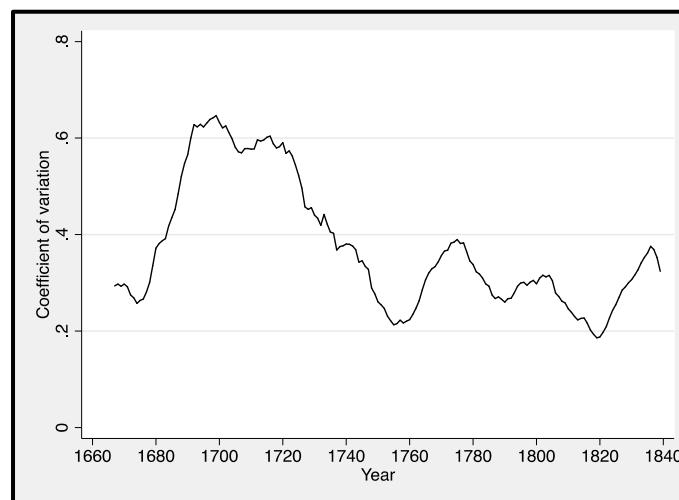
Table 18 reports the ADF test and OLS regression results. Figures 13 to 15 depict 15-year moving averages of yearly coefficients of variation of wheat prices in the Ottoman Empire, Ottoman Mediterranean, Adriatic and entire Eastern Mediterranean regions.⁴⁸ In the complete Ottoman sample, the null-hypothesis of non-stationarity is rejected at the 10 percent level, ruling out a long-term trend of integration/disintegration. In the Adriatic, Ottoman Mediterranean, and the entire Eastern Mediterranean samples, the null hypothesis of non-stationarity is not rejected at the 10 percent level, while the coefficient of the TIME variable is negative and significant. However, as depicted in Figure 15, only in the Adriatic region is the price dispersion in the early nineteenth century below its late-seventeenth century level. In the case of the Ottoman Mediterranean and the Eastern Mediterranean as a whole, the coefficients of variation of wheat prices in the first decades of the nineteenth century are slightly higher than the initial level. The time trend detected in these series apparently stem from episodes of fragmentation and integration in the early eighteenth century which the linear regression model failed to capture. In sum, as in the fixed effects regression employing the bilateral price relatives as the dependent variable, long-term integration in wheat markets is only observable in the Adriatic region.

48 Since a coefficient of variation is a measure of dispersion within a sample, it cannot be separately applied to the Adriatic-Ottoman Mediterranean market pairs.

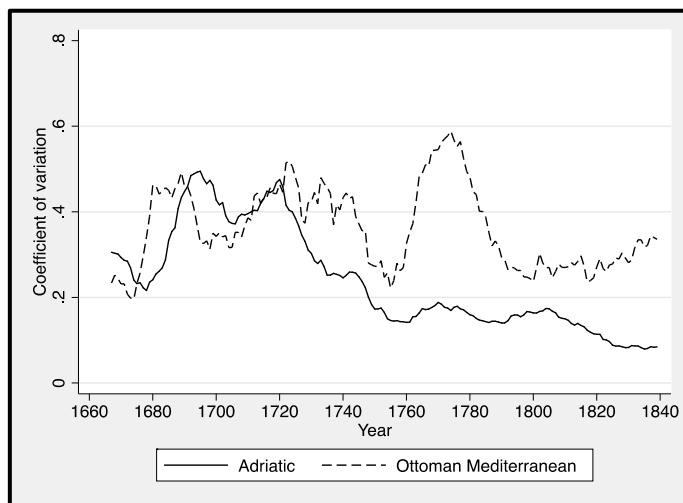
**Figure 13- Coefficient of variation (15-year moving averages)
Ottoman Empire**



**Figure 14- Coefficient of variation (15-year moving averages)
Entire Eastern Mediterranean**



**Figure 15- Coefficient of variation (15-year moving averages)
Ottoman Mediterranean and Adriatic**



The short-term trends identified by employing two different methodologies also overlap. According to the coefficient of variation analysis, the late seventeenth and early eighteenth centuries appear as an era of fragmentation in the Ottoman realm and the Adriatic region, as well as in the Eastern Mediterranean as a whole. From around the 1720s, wheat prices converged until the 1760s. In the Adriatic region, from this date onwards, the price dispersion remained stationary until the early nineteenth century before falling continuously until 1840. The 1760s appear as a break point for Ottoman markets. In the complete Ottoman sample, prices diverged in the last decades of the eighteenth century. In the Ottoman Mediterranean, the impact of the shock caused by the 1768-1774 Russo-Ottoman war was reversed in the following decades, and price dispersion remained stable in the nineteenth century.

6.2. Alternative samples

2.1. Is Istanbul distorting results? Ottoman Empire and Ottoman Mediterranean without Istanbul

The general framework assumes that trade flow runs from low-price to high-price regions. Although this assumption appears valid for trade between most Ottoman towns, Istanbul presents an important exception. Due to state policies aiming to keep the price of grains affordable in the capital, the price of wheat in Istanbul was lower than the hinterland

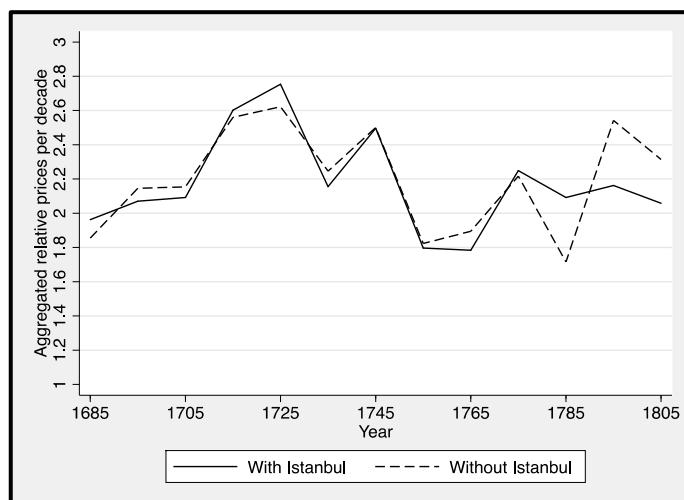
that provisioned the town. Here, I look at the evolution of the price gaps in the Ottoman Empire leaving Istanbul out in order to understand whether the region outside the capital followed a different pattern in terms of market integration trends.

Figure 14 compares aggregated decennial price gaps between the two samples. The findings suggest that market integration/disintegration trends in the Ottoman Empire excluding Istanbul were nearly identical with the sample including the imperial centre. Similarly, as can be seen in Figure 15, the Ottoman Mediterranean sample without Istanbul produced similar results with the sample incorporating the capital.

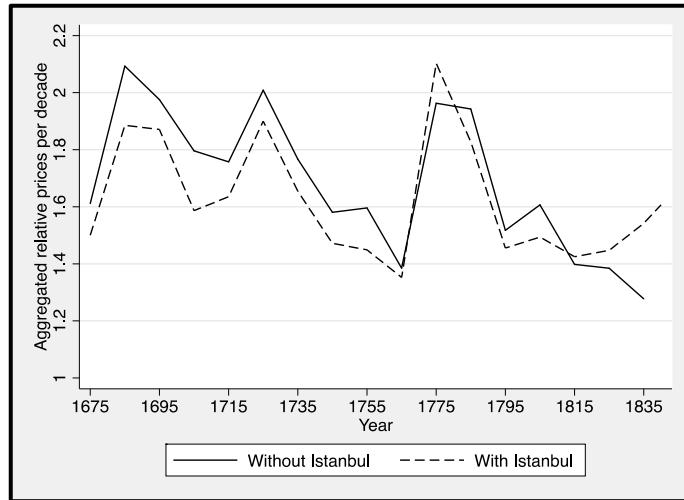
2.2. Are missing observations a source of error? Manisa, Edirne, Istanbul

Finally, considering the high number of missing observations in the database of Ottoman prices, the aggregated price gaps are estimated for a restricted group of markets for which relatively more complete price data is available. The price series from the Manisa, Istanbul, and Edirne markets have respective coverage rates of 72, 52, and 45 percent. As these markets are located in the Ottoman Mediterranean region, we would expect the results based on this restricted sample to be similar to the enlarged Ottoman Mediterranean sample.

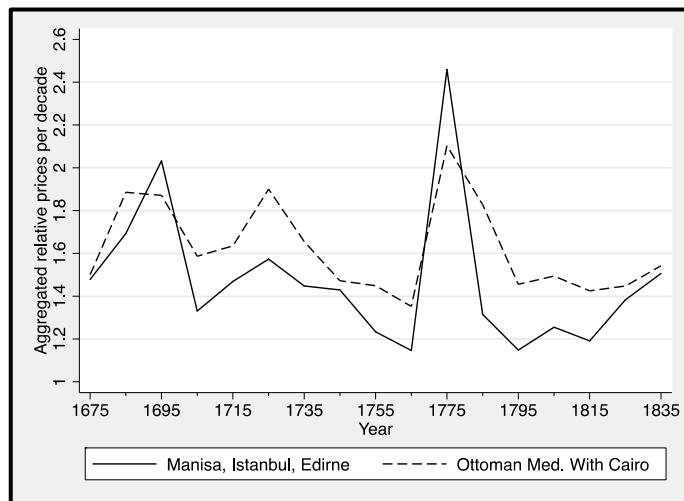
**Figure 16- Aggregated relative prices
Ottoman Empire with and without Istanbul**



**Figure 17- Aggregated relative prices
Ottoman Mediterranean with and without Istanbul**



**Figure 18- Aggregated relative prices
Ottoman Mediterranean and Manisa, Istanbul, Edirne**



The overlap between the short-term trends in the two samples is visible in Figure 16, which compares decennial aggregated relative prices from Manisa, Edirne, and Istanbul with the complete Ottoman Mediterranean sample. Since the average distance in this restricted sample is smaller than the enlarged Ottoman Mediterranean sample, the estimated price gaps are smaller, but the movement over time was very similar, suggesting that the omitted data is not distorting trends in the full sample.

In this section, the robustness of the findings based on the fixed effects regression employing bilateral price relatives as the dependent variable have been checked against the results from a coefficient of variation analysis and fixed effects regressions conducted on alternative samples. The evolution of coefficients of variation of yearly prices revealed no long-term integration trend in wheat markets in the Ottoman Empire, Ottoman Mediterranean, Adriatic and the entire Eastern Mediterranean regions. Like the fixed effects regressions, the coefficient of variation analysis detected integration only in the Adriatic wheat markets. The aggregated bilateral relative prices estimated for the samples (1) excluding the capital, which had a distinctive price pattern, and (2) restricted to three markets which largely had the most complete price series also support the findings in the original samples.

7. Conclusion

This study investigated changes in the extent of integration in regional, national, and international wheat markets in the Eastern Mediterranean from 1660 to 1840. The results revealed that this geographical area hosting the two leading powers of the pre-Columbian world did not move towards a regional existence during this period, a strong trend of integration in the Adriatic basin notwithstanding.

On the eve of the first wave of globalisation, domestic wheat markets in the Ottoman Empire were no better integrated than they were in the second half of the seventeenth century. Neither an extended sample that incorporates coastal and landlocked regions and short-distance and long-distance markets, nor one restricted to the littorals of the Ottoman Mediterranean produced evidence of a continuous and sustainable trend of decline in trading costs prior to the mid-nineteenth century. Likewise, there is no sign of an emerging Anatolian wheat market. As highly fluctuating prices in Konya and Damascus also suggest, before the construction of railways produced a substantial impact, wheat markets in inland Anatolia and Arab territories remained largely disconnected. Studer (2008) has shown that unlike long-distance markets, short-distance European markets experienced long-term and sustainable integration throughout the early-modern era, leading to the emergence of regional economies, even in the absence of technological improvement. The lack of regional integration in the Ottoman Mediterranean suggests that this could be a peculiarity of Europe and that

failed market development in the non-Western world could help to account for diverging growth paths.

Similar results are evident at the international level. Despite the absence of a long-term trend in the costs of international trade within the Eastern Mediterranean region, it should be noted that the average trading costs between 1825 and 1840 were higher than they were in the initial period between 1660 and 1675.

Looking at short-term trends produces other intriguing findings. Until the second half of the eighteenth century, significant parallels were visible between the trends in the Ottoman Mediterranean and in the non-Ottoman Adriatic region. In the late seventeenth/early eighteenth century, regional, inter-regional, and international wheat markets in this part of the Mediterranean were highly fragmented, which can be at least partially explained by the long and consecutive maritime wars between Venice and the Ottoman Empire. The period of non-aggression in the waters of the Eastern Mediterranean that began in the second decade of the eighteenth century facilitated integration in the entire Eastern Mediterranean region, as well as in the wider Ottoman geography.

During the Russo-Ottoman war of 1768-1774, Ottoman regional and inter-regional wheat markets experienced significant market deterioration. The trend of recovery in the following decades brought the Ottoman Mediterranean back to antebellum levels of integration around the turn of the nineteenth century. Despite this recovery, the entire Ottoman region did not return to mid-century levels, and relatively high trading costs marked the second half of the eighteenth century. From 1750 to 1840, international wheat markets and the entire Eastern Mediterranean region continuously fragmented, suggesting that the Ottoman coasts increasingly decoupled from the non-Ottoman Eastern Mediterranean. While trading costs in the Ottoman Mediterranean remained stable in the first half of the nineteenth century, Adriatic wheat markets became increasingly integrated during this period, with the price gaps declining below early eighteenth-century levels.

The estimated long-term and short-term trends in trading costs, and the results from the multivariate regression analysis on the relative prices in the Ottoman grain-trading network tie in well with the relevant literature on trade conditions in the Ottoman realm. Wars,

occupations, and plagues appeared as source of fragmentation in the wheat markets, and once we control for these asymmetrical shocks, no significant difference was detected in the extent of market integration between the 1748-1774 period, which was seen as a period of intense regulation and state interference, and the post-1774 period, which arguably witnessed the liberalisation of Ottoman grain policy. These result provide support Yıldırım's (2003) assertion that the Ottoman economic policy regarding grain markets did not show signs of liberalisation before 1839, when the state adopted a free market strategy under foreign pressure.

Finally, the overlap between the general trends in market integration and the ups and downs of the overall Ottoman economy are noteworthy. As revealed by the findings of this study, the period of expansion in the first half of the eighteenth century was an era of price convergence, while the period of economic turmoil and retraction in the second half of the eighteenth century was marked by price dispersion and high price gaps in the entire Ottoman Empire. It should be recalled that only steady and long-term integration processes can bring about growth, as sufficient time is required for structural changes to occur in the economy. It is difficult to comment as to whether a quarter century is sufficient time for such changes and whether market integration played a role in the episode of expansion.

Indeed, it seems entirely probable that the causality ran from output growth to integration. Brautaset and Gafe (2005) highlights scale economies in market efficiency as an explanation for market integration. That is, price convergence is a function of the volume of trade, since under constant transport technology, the fixed costs –particularly those related to transportation – tend to decline as the latter increases. In line with this thesis, Sharp (2008) claims that the main reason for declining price gaps between the United Kingdom and the United States was the increase of American wheat supply. Similarly, it is quite likely that the rise in agricultural and manufacturing output, the commercialisation of agriculture, urbanisation, and population increase, which triggered an upward shift in aggregate supply and demand and led to higher trade volumes, fostered integration across Ottoman wheat markets between 1735 and 1765, while the reversal of this general economic trend in the later part of the century led to disintegration.

SECTION 3
CONSUMPTION & PRICES

CHAPTER 4

WAS THERE A CONSUMER REVOLUTION IN THE OTTOMAN EMPIRE?

"Rüyası ömrümüzün çünkü eşyaya siner"
 [Cause permeates into things our life's dream]
 Ahmet Hamdi Tanpinar

This paper offers a quantitative assessment of Ottoman consumption in the eighteenth and nineteenth centuries in an attempt to contribute to the debates on early-modern consumerism by exploring whether progress in material culture during this period can be observed outside the Western world.

In the last three decades, a rich body of consumption literature based on probate records has revealed that in the long eighteenth century, the ownership of consumer goods increased substantially among European and North American societies despite the stagnation and decline in real wage rates in the same period ⁴⁹. This literature has posited early-modern consumerism as an indicator of the social and economic transformations and a precursor of the West's modern society and economy. According to some historians, the changing patterns of consumption and growing consumer demand in early-modern Northwestern Europe prepared the ground for industrialisation by generating a strong impetus for the more efficient production and distribution of goods; by leading to increased demand for cash

49 A large degree of inventory-based scholarship has focused on the American colonies and England. For some examples on early-modern colonial America, see Carr and Walsh (1980, 1988); Horn (1988); Lemon (1967); Main (1983a, 1983b, 1988); Main and Main (1988); Perkins (1991); Shammas (1980, 1990, 1997); Sweeney (1984); and Walsh (1983).

For a selection of works on material culture and consumption in early-modern England based on evidence from probate records, see McKendrick, Brewer, and Plumb (1982); Overton et al. (2004); Earle (1989); King (1997); McCants (2006); Pennell (1999); Shammas (1990, 1997); Thirsk (1978); Weatherill, (1986, 1988).

For continental Europe, see De Vries (1975); Garnot (1995); Pardailhe-Galabrun (1991); Ramos (2004); Roche (2000); Schuurman and Woude (1980).

among ordinary people; and by stimulating them to work more (Gilboy 1932; Sombart 1967; De Vries 1994, 2008; Horrell 1996). In several of these accounts, consumerism appeared as a Western creation that was only exported to other regions of the world with the development of modern economies and the export of industrialisation (Braudel 1985; Mukerji 1983; De Vries 1994, 2008).

More recent research, however, has attacked the idea of Western exceptionalism in rising consumerism and pointed to the possibility of a worldwide pattern of increasing consumption in the long eighteenth century. Burke (1993); Belk, Ger and Askegaard (2003); Hanley (1997); Hanley and Yamamura (1977); Karababa (2006); and Pomeranz (2000) have suggested that increasing concern with material culture was not particular to Western societies and that the boundaries of early-modern consumerism can be broadened to include the non-Western world. By showing that multiple consumer cultures began to develop across the globe during the early-modern era, these studies have challenged a euro-centric account of the "consumer revolution."

Still, while the spread of consumer goods throughout Western societies has been well-documented, evidence from other parts of the world is fragmentary and relatively rare. In the absence of Asian counterparts to European probate inventories, the divergence in terms of consumption of durables across different parts of Eurasia prior to the nineteenth century has been primarily discussed on the basis of qualitative and anecdotal evidence (Pomeranz 2000). In this regard, the Ottoman inheritance inventories provides us with a unique opportunity to bring quantitative insights into pre-industrial consumerism in a non-Western context.

Based on quantitative evidence from probate inventories, this paper investigates the evolution of household comfort and conveniences enjoyed by the inhabitants of the Ottoman town of Üsküdar from 1700 to 1850. From the seventeenth century onwards, the Ottoman Empire witnessed major sociopolitical and cultural transformations that many historians argue underpinned the rise of a consumerist society in Europe. As the system of hierarchies that characterized the Ottoman classical order was eroding, greater mobility among social and professional groups led to new social and financial aspirations, and novel recreational and cultural practices (Hamadeh 2004). On the other hand, Westernisation efforts that began in the military and administrative spheres in early eighteenth century went hand in hand with the

deepening of Western economic and cultural influence on urban Ottoman society, which is often associated with the introduction of a new attitude towards home and social life (Göcek 1993). Were these transformations in the sociocultural sphere accompanied by an increased ownership of household goods? Was there a consumer revolution in the Ottoman Empire?

Ottoman historiography generally identifies the eighteenth century as the period when Ottoman consumer culture started to develop. Quataert (2000) suggests that novel consumption patterns were first introduced into the Ottoman Empire in the seventeenth century with mounting coffee and tobacco consumption; continued to broaden and deepen in the eighteenth century as ownership of consumer durables, particularly textiles, became widespread; and developed further in the nineteenth century with the explosion of European imports. Karababa (2006) demonstrates that in the seventeenth century, the Ottoman Empire experienced the trickling down of certain personal goods that were restricted to the ruling class in the mid-sixteenth century⁵⁰. According to Artan (1998), the infamous Tulip Era⁵¹ (1718-1730), which is associated with the extravagant lifestyles of high-state officials, was also a turning point for ordinary Ottomans, who began to be driven by a growing consumerist desire.

By looking at the types and quantity of goods possessed by the deceased, as reported in the inheritance inventories, I ask whether the Ottomans in the mid-nineteenth century were better off in terms of domestic comfort compared to their eighteenth-century counterparts at the same level of wealth.

50 However, two weaknesses of this study should be underlined. First, illustrating the trickling down of certain consumer durables is not enough to support the thesis of an early modern Ottoman consumer revolution, which would require further evidence of an increase in the variety and quantity of the personal and household goods consumed. That ordinary Ottomans in the mid-seventeenth century possessed items that were reserved for the elites does not necessarily mean that there was an increase in the overall number and variety of consumer durables owned by this group. Second, based on Karababa's (2006) findings, it can be suggested that the trickling-down process only concerned personal goods, particularly clothing. As for the household goods, her results do not support the argument.

51 The Tulip Era is a period in Ottoman history that lasted from the Treaty of Passarowitz on 21 July 1718 to the Patrona Halil Revolt on 28 September 1730. It was a relatively peaceful period, during which one could argue that the Ottoman Empire began to orient itself towards Europe.

Evidence from probate inventories provides the empirical basis for the idea of a rise in material consumption in the long eighteenth century. However, these sources have several limitations, which might jeopardize the quantitative analysis. Notably, Clark (2010) suggests that the growth of consumer goods as observed in the inventories in England might be a reflection of the upward bias in the inventory samples, rather than a real indicator of progress. As the frequency of probates declined between 1600 and 1750, he claims the characteristics of the average testator in England were changing markedly in favour of men of higher status and wealth. The average testator in 1750 was much better placed in the distribution of wealth within society than the average testator of 1600. This implies that inventories in this period might have exaggerated the society-wide changes in wealth and consumption.

In order to overcome similar doubts regarding the representativeness of Ottoman inventories, this study pursues a different line of interrogation to those conventionally followed in research on consumption. It investigates whether Ottomans in the mid-nineteenth century who were no wealthier than their ancestors in the early eighteenth century were nonetheless living in a richer domestic environment. By examining the ownership of household durables at constant wealth levels, we can explore the change in the quantity and variety of the household goods in the inventories that is *not* derived from rising wealth.

By comparing the rates of ownership of goods between two counties for individuals in the same wealth categories, Overton et al. (2004) showed that wealth was not the major explanation for the differences in material culture that they observed between Kent and Cornwall. Even when the effect of difference in wealth between the two counties is removed, the adoption of new commodities was still slower in Cornwall. This, they concluded, was due to a "location effect," which captures regional differences in the level of interest and information about commodities, and in participation in an urban commercial culture.

This study applies the intuition underlying the analysis of Overton et al. (2004). However, instead of making an across-space comparison to uncover a "location effect," I conduct an across-period analysis to grasp the "time effect," which cannot be explained by variations over time in wealth – variations in the wealth of the living population, as well as possible variations in the degree of wealth bias in the sample. Put differently, by controlling for the changes in wealth and some other characteristics of testators over time, I attempt to

distinguish the changes in the amount and variety of household durables in inventories that occurred due to rising wealth from that which occurred due to other time-dependent social and economic factors. Price reductions, product innovations, enhanced distribution and retail networks, increased interest in consumer goods and changing consumer behaviour are some of the possible candidates for why an increase in consumption occurred.⁵² All of these processes point to structural changes on the demand and supply sides of the economy and are often closely associated with rising consumerism in the early-modern era.

According to the results obtained here, the growth of consumer goods in the long eighteenth century, which De Vries identifies as a feature of Northwestern Europe, also occurred in the Ottoman realm. The interiors of Ottoman houses grew richer and more varied throughout this period. More importantly, from the second half of the eighteenth century onwards, Ottomans who were not richer than their counterparts in 1700 owned a greater quantity and variety of domestic goods, and thus, enjoyed higher levels of domestic comfort. If increasing acquisition of consumer goods by all segments of the society independently of wealth is considered as the trademark of the early modern consumer revolution, then the Ottoman Empire experienced it in the second half of the eighteenth century.

When evaluating the results of this study, it should be recalled that the acquisition of personal items might have followed a different pattern than the acquisition of domestic goods. Karababa (2006) argues that due to the privacy of the innerhouse, which the Ottomans were keen at protecting, social differentiation was sought through arrangements in clothing, rather than in the household environment. If Karababa (2006) is correct, then it is quite possible that the adoption of new consumer habits occurred in the field of personal goods even earlier.

In the subsequent sections of this paper, I provide a brief overview of the Ottoman town of Üsküdar and its social and economic structure, and introduce the sample and methodology used in the study before presenting the results.

52 Having said that, it should be emphasized that the wealth here is used as a control variable, rather than an explanatory variable. Although the stock of consumer goods possessed on an estate is positively associated with the total estate value, consumption is a ‘flow’ concept that relates to income rather than wealth.

1. Setting the scene: Üsküdar

The interest in consumer durables and the ability to possess them are strongly related to social hierarchy and class structure, urban commercial culture, proximity to networks of trade and the availability of goods, and participation in the market economy, all of which vary across localities and regions. Consumption patterns show significant discrepancies from one town to another. Among others, Overton et al. (2004) detected a striking difference in terms of the adoption of new material goods based on location. According to their results, whereas more and more varied material goods reveal higher standards of comfort, new methods of heating and cooking, and new ways of eating and drinking in Kent, the domestic environment in Cornwall contrastingly became more impoverished between the early sixteenth and mid-seventeenth centuries. Although our study focuses on a single region, we need to briefly look at the socioeconomic landscape of Üsküdar in the interests of acquiring a comprehensive understanding of the evolution of domestic comfort.

Located on the Asian side of the Bosphorus and functioning as a gateway to Istanbul, Üsküdar was one of four official divisions of the capital in the eighteenth and nineteenth centuries, together with Galata, Eyüp, and the city of Istanbul proper. It was a commercial and military hub, and a site for small-scale farming and the agricultural industry. The town was the first link in the relay system on the trade routes connecting Istanbul to Anatolia, the Arab lands and to Iran and, as such, it was the departure point for the pilgrimage to Mecca and the campaigns to the east (Halaçoğlu 2002).

Only rough estimates exist regarding the demographic structure of the town during the period. The conventional view suggests that Üsküdar followed the pattern that is common to most Anatolian towns: urban growth in the sixteenth century, depopulation and recovery in the seventeenth century, and resurgence in the first half of the eighteenth century with an increasing population and new neighbourhoods (Faroqhi 1979). We do not know whether the town lost its significance in the second half of the eighteenth century with the decline of trade to the east and the expansion of the European economy. The Ottoman population census of 1885 records a total population of 95,667 in the town. In light of this figure, Bostan's (2012) estimate of 60,000 in the eighteenth century seems a little high. It is suggested that Muslims constituted about two thirds of the overall population, while the other third consisted of

Greeks, Jews, Armenians and Turkish-speaking non-Muslims settled in specific areas. Half of this population lived in the town centre, and the other half in the villages nearby (Bostan 2012).

It is reasonable to assume that the town's socioeconomic structure was determined by its strategic position for trade and its role in the supply chain around the capital. With numerous caravanserais and inns constructed in the sixteenth century, Üsküdar was a centre of regional trade. Stressing the importance of Üsküdar in channelling supplies into the capital, Seng (1991: 27) suggests that the town served as a supply depot for Istanbul and that it hosted a merchant community, which was specialized in the eastern trade: "The commercial class of Üsküdar organized and dealt with internal or the eastern international trade destined for Ottoman consumption, or more specifically, Istanbul consumption, and was distinguished from the European merchants whose venue was trade to and with Europe and who settled in Galata-Pera". How this commercial class was affected by the decline in eastern trade from the second half of the eighteenth century onwards is a question that remains to be investigated.

Üsküdar was at the same time a good example of urban agriculture oriented towards urban consumption. The town provided Istanbul with fruits and vegetables, and it was particularly known for its sweet grapes. Covered with vineyards, gardens, and orchards, Üsküdar kept its semi-rural nature well into the early twentieth century. According to Bostan (2012), in the seventeenth century, more than half of the total population made their living from agriculture. Evidence from inheritance inventories suggests that this figure is also viable for the eighteenth and early nineteenth centuries. Vineyards and gardens, and agricultural means of production, such as ploughs, sickles, hoes, and oxen frequently appeared in the estates, particularly of the poor and the middling groups. Owning agricultural land also seems to have been an investment strategy for the wealthy. Evidence also suggests a developed transportation sector in Üsküdar, in line with the town's role as the supplier of the capital (Mazak 2005). Bostan (2012) points to the high number of boat owners who also appear in the estates. These point to high levels of participation in the market economy in the town.

Despite its semi-rural character, the town had a vibrant urban life, with numerous shops and covered bazaars (*bedestans*), mosques, charity kitchens, religious schools, and dervish lodges constructed and maintained by large pious foundations (Mantran 1986). The town was the site of principal markets for bread, clotted cream, yogurt, grapes, fruit and fish,

as well as slaughterhouses. Tanners, lumber workers, arrow makers, pipe makers, candle makers and suppliers of yogurt frequently appear in seventeenth-century court registers for the town, suggesting that these were the most important crafts in Üsküdar (Seng 1991). During the nineteenth century, a small-scale textile industry developed. Bostan (2012: 367) reports that in 1867, 2,750 looms and around 3,500 textile workers were recorded. This picture is complemented by the existence of köşks and palaces for the use of the sultan during his eastern campaigns.

The town's position on the outskirts of the capital and at the crossroads of the major eastern trade routes was favourable for the supply of most of consumer goods. It would not be incorrect to assume that many consumer durables, including imported goods that were available in Istanbul markets, were accessible to the inhabitants of Üsküdar. The town provisioned Istanbul, and the returning shipping could have been used to carry consumer items imported from Europe (Solmaz 1979). Its proximity to the largest city in the empire, with a lively urban commercial culture, likely also facilitated the transmission of information about material goods.

As a middle-sized town, Üsküdar was likely to have offered its inhabitants the relative anonymity of an urban environment, which according to Overton et al. (2004) provided more opportunity to fashion an identity through consumption. Furthermore, the coexistence of several religious communities and the presence of a commercial class alongside religious and administrative bureaucracy likely resulted in a dynamic social life in which consumption could act as a means of distinction.

But in discussing the consumer behaviour of the inhabitants, the pastoral character of Üsküdar should be taken into account as well, since this might have affected the pace at which new tastes and goods were introduced. It is often argued that urbanity encouraged the emergence of a consumer culture. Nevertheless, several empirical studies (Overton et al. 2004; Weatherill 1988) indicate the absence of a clear-cut distinction in the ownership of goods between the rural and urban population. However, in England changes in income and its distribution among the rural and urban classes might have been a significant factor determining the variety and quantity of goods owned, particularly if the relative prices of agricultural and manufactured goods changed significantly. Additionally, increased demand

for market-supplied goods and services is associated with the transition from self-sufficiency to market dependence for households. A high level of market participation would be expected among the rural population of Üsküdar, as most of the peasants were engaged in commercial agriculture oriented towards the capital and, as such, they assumed a place in the market economy.

With its advantageous geographical location with regard to the supply of goods and high levels of market participation, Üsküdar cannot be considered a typical Ottoman town. Thus, one needs to be cautious when expanding the results of an investigation on the adoption of material goods in eighteenth and nineteenth-century Üsküdar to other parts of the empire. It is highly likely that rural households in remote regions of the empire remained self-sufficient for much longer and their mode of consumption shifted slowly and only as the result of increasing involvement in commercialized agriculture, which allowed households to earn money to spend on textile yarn or ready-made cloth.

2. Sample

2.1. Sampling strategy

For this study, I selected six periods each of ten years' duration from 1700 to 1850. Each period marks the beginning of a 30-year phase: 1695-1705; 1725-1735; 1755-1765; 1785-1795; 1815-1825 and 1845-1855. In each period, I constructed a sample consisting of about 80 inheritance inventories from the town of Üsküdar. Initially, I surveyed all the available inventories in the court registers belonging to the years 1700, 1730, 1760, 1790, 1820 and 1850, as well as the two years preceding and following these dates, recording the total estate values of each along with relevant information on gender and religious status (For the details of the inventories employed see Primary Sources section). The frequency distribution of these inventories (for two years preceding and following the benchmark years) was divided into four wealth groups according to the total estate values in constant akçe⁵³. The boundary values that defined each group are noted, and the resulting wealth brackets are given in Table 1.

53 The monetary values are deflated by Pamuk' s (2000a) price index, which takes 1489-1490 as the base period.

Table 1- Wealth brackets (in constant akçe)

	1700	1730	1760	1790	1820	1850
Q1-Q2	339	952	567	455	1,095	585
Q2-Q3	968	2,619	1,345	1,155	2,360	1,700
Q3-Q4	2,856	7,143	5,670	4,330	7,403	5,574
N	99	17	98	120	78	89

Subsequently, for each wealth quartile in each period, I randomly selected 20 inventories from the court registers for the five years preceding and following the benchmark years. The method applied in the selection of the inventories is designed to yield a stratified sample that reflects the frequency distribution of available inventories in the court registers as accurately as possible.

For the 1730 period, the number of available inheritance inventories in the registers is less than 80. In this case, I used all available inventories. Yet, this is only a partial solution. As will be seen in the analysis later, this sample generates some unusual findings (such as unrealistically high mean wealth). On the other hand, a number of inheritance inventories that depict only real estate appear in the Üsküdar court registers. It seems that in several instances, the relatives of deceased individuals applied to the court merely to share immovable properties but did not make the deceased's movable assets subject to probation. As estates are randomly selected, such inventories were included in the initial sample but were omitted in subsequent steps, reducing the sample size (aside for 1730) to around 70 inventories. The final sample consists of 380 inventories.

2.2. Composition of the sample

Wealth

As defined by Overton et al. (2004: 138), the wealth of a household consists of "anything that members of the household possess which can be sold for money or used to acquire other commodities: real property, durable goods, financial assets and human capital." Ottoman inheritance inventories present a more complete picture of estate owners' total wealth than seventeenth- and eighteenth-century British and American inventories do. These sources report all movable and immovable assets possessed at the moment of death, as well

as the slaves, debts owed to and debts held by the deceased.⁵⁴ Owning shares of real estate was a common practice in Ottoman society and these shares were also recorded and inherited. However, since married women had the right to their own possessions according to Islamic property law, the total value of the estates reflects personal rather than household wealth.

An important problem concerns the representation of the poorest segments of society in inventories. In the case of Ottoman inheritance inventories, there are no independent sources that we can use to check the social representativeness of these sources. Therefore, it is not possible to calculate the proportion of the population who had few possessions, and thus who did not leave any inventories, as Overton (2014) did for British probate records by linking inventories to the list of taxpayers. However, considering that inventories were obligatory in Islamic law – regardless of the amount to be inherited – in the event that were minor heirs, a pregnant wife or a missing heir, it would not be incorrect to assume the poor appeared in these records to some degree. Accordingly, some of the inventories included in the sample belonged to individuals who did not have any material possessions, except a few personal and household goods of insignificant value.

In what follows, I compare real wealth series constructed based on Üsküdar inheritance inventories with Pamuk's (2000a) real wage series for construction workers in Istanbul. Real wages are the best indicator available for long-term trends in real incomes in the Ottoman realm (Özmucur and Pamuk 2002). Table 2 looks at the descriptive statistics of wealth in constant akçe in each period. The "wealth" refers here to the net wealth of the deceased, obtained by subtracting the debts owed by the deceased from the total estate value. Real wealth, or wealth in constant akçe, is calculated by dividing the net estate values by Pamuk's (2000a) consumer price index. Figure 1 compares mean and median real wealth values and real wages. The real wages given for each of the 10-year intervals are the average daily wage rates for skilled and unskilled construction workers in Istanbul (Pamuk 2000a). To facilitate a comparison with wealth, the wages are reported as 1,000 days' wages.

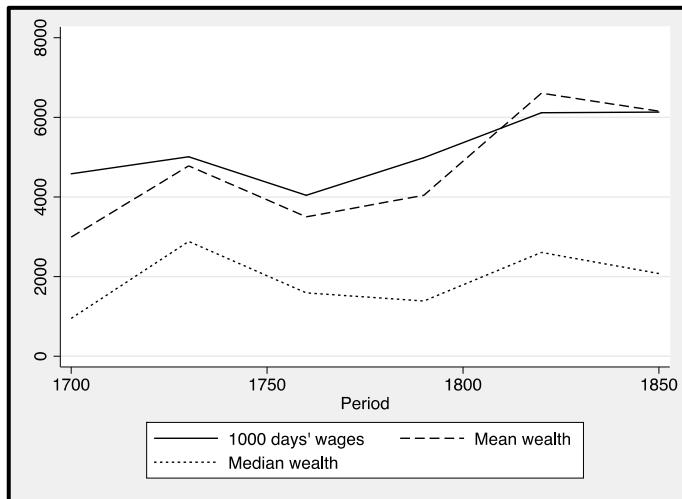
54 However, it should be noted that only freely held lands *mülk* were subject to the inventory process, while Islamic inheritance law did not apply to state lands (*miri*), which constituted the majority of agricultural lands well until the mid-nineteenth century. The peasants possessed only usufruct rights to state lands, while the transfer of such rights was regulated by customary (*örfi*) law (Inalcık 1953).

Table 2- Wealth in constant akçe (Total estate value/CPI)
Descriptive statistics

	N	Mean	Median	S. D.	Min	Max
1695-1705	70	2,989	949	5,023.41	64	26,776
1725-1735	31	4,780	2,883	5,078.56	226	17,813
1755-1765	68	3,504	1,590	4,569.16	267	20,361
1785-1795	74	4,040	1,385	6,745.29	160	41,775
1815-1825	69	6,582	2,606	12,069.34	123	86,341
1845-1855	68	6,116	2,076	9,910.13	149	57,791

The distribution of wealth in eighteenth- and nineteenth-century Üsküdar as observed in inheritance inventories was highly positively skewed, with means greater than medians and the standard deviations large. The general trend in average wealth was upward and, to a large extent, reflected the real wages. Still, it should be noted that the relationship between income and wealth might have been significantly altered during this period.

Figure 1-Wealth and wages (in constant akçe)



Nevertheless, the growth rate of mean and median wealth values from 1700 to 1730 was unrealistically high, suggesting an upward bias in the inventories included. Taken together with the restricted number of observations from this period, this reflects the limits to this sample. Table 3, which shows the across-period variations in the ownership of real estate as a percentage of all observations, also confirms this statement. While in the other periods,

between 16 percent and 21 percent of all inventories contained real estate, about half of estate owners had immovable property in 1730. It is likely that in the second period, the primary motive of inheritors who applied to the court was to share the immovable properties of the deceased. Thus, the wealthy who owned immovable property were overrepresented in the available inventories in the registers.

Table 3- Ownership of real estate according to periods

Real estate owners as % of all observation	
1700	20.9
1730	48.1
1760	20.6
1790	15.9
1820	17.4
1850	16.8

At this point, it should be underlined that the question of how representative our sample is of the living population in terms of wealth distribution, is in fact of relatively little significance for the purposes of this study. While the affluent may have been overrepresented, the poor also appear. For the type of analysis being conducted here, it is the latter condition that is more important. This is one of the advantages of this study over previous research on the ownership of goods from probate records, whose reliability depends on the correctness of the assumption that the samples of probates employed provide an accurate picture of the population.

Studies of the adoption of material goods also emphasize identity (gender, social status, and occupation of individuals) as a determinant of material culture and consumption patterns. If the latter were related to personal attributes, variations over time in the stock of household chattels could also reflect across-period changes in the composition of the sample in terms of the identity of the estate owners. For instance, if women left significantly more household goods than men, the inclusion of more female inventories in the later periods might lead us to falsely assume that such goods proliferated over time. For this reason, the sample needs to be controlled as much as possible for factors that play on the ownership of household

chattels. In what follows, I briefly discuss the relationship between different aspects of identity and ownership of goods and provide a description of the sub-samples with regards to the personal attributes of the estate owners.

Gender and religious status

The gender and religious status of the estate owners can be safely obtained from Ottoman inheritance inventories. It is often noted that in order to study gender differences in consumption and material culture, British and American probate records and wills are not ideal sources. Only unmarried women (primarily widows) made wills or had inventories, because according to the common law, the possessions of a married woman belonged to her husband, as long as he was alive (Overton et al. 2004). As a result, the number of female inventories and wills that exist is considerably lower than that of male inventories, and for several regions and periods, there are not sufficient for gender-based comparisons to be made (Shammas 1980). An equally important limitation concerns the upward bias in the female estates. Widows, whose property was probated at a later stage of the life cycle than married women, constitute the great majority of the female estate owners. The inventories of this group of women include both what they accumulated themselves and what had been passed down to them by their husbands and fathers (Berg 1996).

Ottoman inheritance records provide a more favourable ground to study gender differences, as women's property rights were guaranteed by Islamic law, and the estates of adult women of all ages and social origins were brought to the court, like those of men. As for non-Muslims, churches and synagogues were responsible for distributing the inheritances of members of their communities. However, non-Muslims were free to apply to the court for the distribution of the estates. They applied to the *kadi* to distribute their inheritances especially when taxes paid to the *kadi* were lower than the ones paid to synagogues and churches, or when the distribution of the estate according to Islamic law was more profitable for the heirs (Karababa 2006: 75).

In Üsküdar during the 1700-1850 period, both women and non-Muslims were only slightly underrepresented among the subjects of inventories, as can be seen in Table 4 and Figure 2. The share of women and non-Muslims within the overall estate owners is 42.6 percent and 30 percent, respectively. Muslim men were the focus of 40 percent of all the inventories

in the sample, followed by Muslim women (30 percent), non-Muslim men (17.4 percent), and non-Muslim women (12.6 percent). Considering that non-Muslims constituted about one third of the inhabitants of the town, it seems that our sample provides a good representation of the population of Üsküdar in terms of gender and religious status.

Figure 2-Distribution of the sample according to gender and religious status

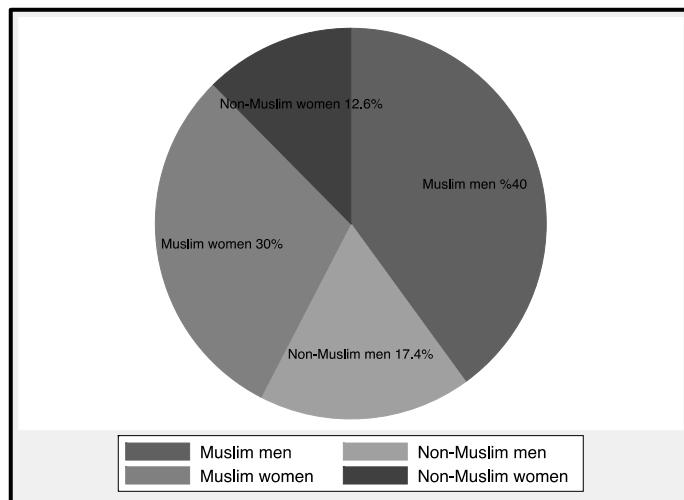


Table 4-Distribution of the sample according to gender and religious status

	Muslim men		Non-Muslim men		Muslim women		Non-Muslim women	
	N	%	N	%	N	%	N	%
1700	28	40.0	5	7.1	33	47.1	4	5.7
1730	8	25.8	12	38.7	6	19.4	5	16.1
1760	26	38.2	14	20.6	24	35.3	4	5.9
1790	26	35.1	17	23.0	8	10.8	23	31.1
1820	34	49.3	8	11.6	23	33.3	4	5.8
1850	30	44.1	10	14.7	20	29.4	8	11.8
TOTAL	152	40.0	66	17.4	114	30.0	48	12.6

Social status and occupation

Overton et al. (2004) suggest that in England social status and occupational categories appear to be more strongly associated with the acquisition of new kinds of material goods than wealth was. The acquisition of new material goods was linked both to the status hierarchy

of gentlemen, yeomen, and husbandmen and to occupations associated with the service and retail trades, reinforcing Weatherill's (1988) findings. In the existing literature, there are no studies investigating how consumption was related to social status in the Ottoman society.

Unfortunately, the information provided by Ottoman inheritance inventories do not allow us to control for differences in the occupation of the estate owners. The occupation of the deceased was not systematically indicated in the inventories. These sources recorded the economic activity of the deceased only occasionally. In most other instances, we lack this important information. On the other hand, religious and official titles, which signalled the position of Ottoman individuals in their society, were always reported in the estates together with the name of the deceased. Having said that, the meanings of these titles in terms of the social status of the individuals who possessed them underwent a transformation in the seventeenth and eighteenth centuries.

In the context of seventeenth-century Ayntab, Canbakal (2007: 63-4) speaks of an "inflation of honours." She demonstrates that the distribution of titles and ranks was used by the Ottoman state as a strategy to achieve a stronger degree of integration between the centre and the provinces. As more and more people acquired religious and official titles, which were indicative of membership in the tax-exempt ruling class,⁵⁵ the social prestige these titles represented for their owners eroded.

The evidence from inventories suggest that in Üsküdar, "inflation of honours" did not occur in the second half of the seventeenth century, but was a phenomenon of the second half of the eighteenth century. As can be seen from Table 5, very few individuals acquired religious or official titles during the first half of the eighteenth century or even by 1760. In contrast, from the second half of the eighteenth century onwards, a greater share of Muslim men and women were granted these titles. The expansion of the military class in the town did not indicate a change in the composition of the population, but a change of the social

55 During the second half of the seventeenth century, there were three points of entry to the military class: acquisition of revenue grants with or without performing civil service, claiming descent from the Prophet Muhammad or acquiring membership in a military corps (Canbakal 2007: 63). These three points were associated with religious and official titles. Religious titles included *şerif* and *seyid* and could be attributed to both Muslim men and women, whereas most common official titles consisted of *bese*, *ağa*, and *efendi*, and were only bestowed upon Muslim men.

significance of the honorifics. Likewise, the religious titles of *seyid* or *şerif* did not refer to the same position in the social hierarchy in 1760, when only 6 percent of Muslim estate owners had these titles, and in 1850, when almost one third of the inventories of the Muslims claimed to be descendants of the Prophet.

Table 5- Estate owners with titles

	Official title*		Religious title**	
	N	%	N	%
1700	4	14	0	0
1730	1	13	1	7
1760	14	54	3	6
1790	22	85	5	15
1820	28	82	10	18
1850	27	90	15	30
ALL	96	63	34	13

Notes: *As percentage of Muslim males

**As percentage of Muslim males and females

3. Ownership of household goods according to categories

3.1. Measuring household amenities

In order to observe how household comfort evolved over time, I examined the variety and quantity of household chattels reported in the inventories. In the first stage of the analysis, I look at the change in the possession of different categories of household goods by using frequency counts, to offer a detailed picture of the Ottoman material culture in 1700-1850. Inventories enable material culture to be quantified in a number of ways. Frequency counts, based on the presence or absence of objects in the estates, are the most straightforward and common way to arrive at such a quantification (Overton et al. 2004). This is also a particularly effective method in showing the spread of new goods throughout the society.

In the second stage of the analysis, I employ an index of amenities, an item-by-item counting method that identifies the presence or absence of consumption goods. This method helps reduce the data to a manageable size that generates easy comparisons. This method is employed by Carr and Walsh (1980; 1988), Main (1988), and Göçek (1996), who sought to measure the overall progress in the acquisition of amenities. I included 12 groups of goods in this index: bedding items, sitting implements, storage equipment, floor coverings, lighting and heating utensils, household linen, mirrors, clocks, modern furniture, and serving utensils.⁵⁶ The particular items that each group includes are presented in Table 6. The first six groups (bedding, sitting implements, linen, storage, floor coverings, and linen) on the list are established goods that made part of an ordinary Ottoman household in the beginning of the eighteenth century. These can be assumed to be minimal equipment for comfort and cleanliness. The next six groups (lightening and heating utensils, mirrors, clocks, modern furniture, and crockery, plates, and cutlery) appear rarely and only in the estates belonging to the rich in the initial period. These goods were associated by the changing lifestyles, and attitudes towards home.

56 In a number of cases, more than one word is used to indicate the same item or the items that fulfil the same function but differ slightly in a particular feature. I took two words to indicate the same item only in instances where they were used interchangeably (e.g. *minder yüzü* and *minder kılıfı*, both of which mean cushion case). In order to remain loyal to the function attributed to the goods by the Ottomans of the eighteenth and nineteenth centuries, I treated the items that are indicated by different words as different goods. For instance, *makreme*, *peşkir*, *havlu*, and *silecek*, all refer to different types of towel. Because they appeared next to each other in the same inventory on several occasions, I assume that at the time there was a meaningful distinction between them. However, in some cases, a good fulfilling a particular function was replaced over time by another fulfilling the same function. In these cases, I considered both as a single item in order to keep the continuity over time. For example, *kahve ibriği* (coffee ewer), which was used to make and serve coffee, gave way to *cezve* (coffee pot) towards the end of the eighteenth century. I did not include *cezve* on the list as a new item but treated it as the same good as a coffee ewer.

Table 6-Index of amenities

GROUP	SCORE	ITEMS (OTTOMAN TURKISH)	ITEMS
Established goods			
Bedding	4	<i>döşek, şilte, yorgan, baş/yüz yaslığı</i>	Mattresses, thin mattresses, quilts, face/head pillows
Sitting implements	2	<i>minder, makad</i>	Cushions, couches
Linen	10	<i>çalışaf, perde, sofa örtüsü, döşek yüzü, yasdık kılıfı,</i>	Sheets, curtains, table cloths, bedclothes, pillowcases/bedticks
Storage	2	<i>sandık, boğça</i>	Chests, cloth bundles
Floor coverings	6	<i>hali, kilim, kaliçe, keçe, hasır, seccade</i>	Carpets, rugs, felts, rush mats, prayer rugs
Towels	4	<i>Makrama, pêşkir, havlu, pêştemal</i>	Towels, washcloths, towelettes, etc.
New goods			
Lightening	2	<i>şamdan, fener</i>	Candlesticks, cressets
Heating	1	<i>mangal</i>	Braziers
Mirrors	1	<i>ayna/mirat</i>	Mirrors
Clocks	1	<i>saat</i>	Clocks
Modern furniture	5	<i>iskemle, sandalye, masa, dolab, çekmece, koltuk</i>	Stools, chairs, tables, cupboards, chest of drawers, armchairs
Crockery, plates and cutlery	8	<i>tabak, çatal, bıçak, kaşık, kase, bardak, fincan, zarf</i>	Plates, forks, spoons, knives, bowls, drinking glasses, coffee cups, cup holders
MAX. SCORE	48		

I constructed two index scores for each inventory. Index score A indicates the presence or absence of the selected goods in the inventories. The presence in an individual inventory of an item results in one point. Each category of goods is attributed a total score corresponding to the number of types of items it includes (i.e. the total score for bedding equals to four, as this category includes four different types of household goods: mattresses, thin mattresses, quilts, and pillows.) In calculating the index score B, an additional point is given if one of the selected goods appeared more than once in an inventory. Accordingly, each inventory is given a score A of between 0 and 48 and a score B of between 0 and 96. For instance, if two carpets, three sheets and a mattress were reported, the index score A of such an inventory would be 3 (1 for each of the selected goods appearing in the inventory); and its index score B would be 5 (3 for the presence of three selected items, 1 for the presence of more than one piece of kitchenware and 1 for the presence of more than one sheet). As such, score A reflects changes in variety, whereas score B reflects changes both in the variety and quantity of goods.

It should be noted that the index scores constructed in an attempt to provide a comprehensive measure of ownership of goods fail to fully capture the progress in the ownership of household chattels. These only partially reflect the rise in quantity, as they only look at (a) whether selected goods appeared in a certain inventory, and (b) whether they appeared more than once. As such, the index scores will underestimate the multiplication of goods in number, an important aspect of the new consumer regime.

A separate third series was necessary to measure copperware, which appeared prominently among the household goods in the estates. Most of the kitchenware in the estates consisted of objects linked to the preparation and consumption of food (cooking pots, frying pans, cauldrons, shallow pans with two handles, round trays used as a table for serving meals, trays, dishes, ewers, churns, vessels, strainers, and milk buckets). Besides kitchenware, copper buckets, washtubs, and mugs frequently appear in the inventories. In the first three periods (1700, 1730 and 1760), copperware was recorded as a separate item with unit valuations. However, in the last three periods, copperware was generally reported in weight units and with lump-sum valuations, probably because there were too many items to be listed individually. For this reason, copperware cannot be included on the index of amenities alongside other household items. Instead, I have calculated the amount of copperware included in each estate

in kilograms.

For the last three periods, the value of copperware is obtained by simply adding up the lump-sum amounts indicated in an inventory. Since the weight of the copperware items was recorded unsystematically in the earlier periods, I computed the monetary value of the overall stock of copperware for each inventory before dividing the resulting value by the yearly copper prices to obtain the amount of copperware possessed by estate owners.

To look at the evolution of the ownership of household goods according to categories, I subdivide index A, into different categories of household goods (bedding, sitting implements, floor coverings, storage, etc.). For each category, a score showing the number of types of goods contained in the inventory is calculated. For instance, the bedding category includes four different items: mattresses, thin mattresses, duvets, and pillows. The bedding score for an inventory displays how many items this inventory contains out of the four items. If the inventory records a mattress and a duvet, the bedding score equals 2. If none of these items are listed, the inventory is attributed a score of 0 for bedding. Quantities are not taken into account. This serves the purpose of making clear developments in each category while elucidating their contribution to the index of amenities.

As a first pass at controlling for the effect of wealth during this discussion, I have restricted the sample to inventories falling within two constant wealth brackets. Several studies that analyse material culture based on frequency counts either use a sample of all available inventories for selected dates, or focus on the middling range in each period. As has been discussed, this casts doubt on the robustness of the results if evidence cannot be provided to test how representative the sample is of the living population in terms of wealth distribution. Since we are interested in quantifying change in the ownership of goods for Ottoman subjects with comparable wealth levels, we look at the average scores of inventories that stand within constant wealth brackets from 1700 to 1850. The lower and upper thresholds are 250 and 18,000 constant akçe. In determining the thresholds, I aim to select a range that can be traced in all periods. The highest possible upper boundary and the lowest possible lower boundary are taken. The upper threshold, 18,000 constant akçe, is the highest total estate value in the first period when the outlier value of 26,776 constant akçe is omitted. The lower threshold, 250 constant akçe, is the lowest estate value in the 1760 period. Estates falling outside of these

thresholds have been left out.

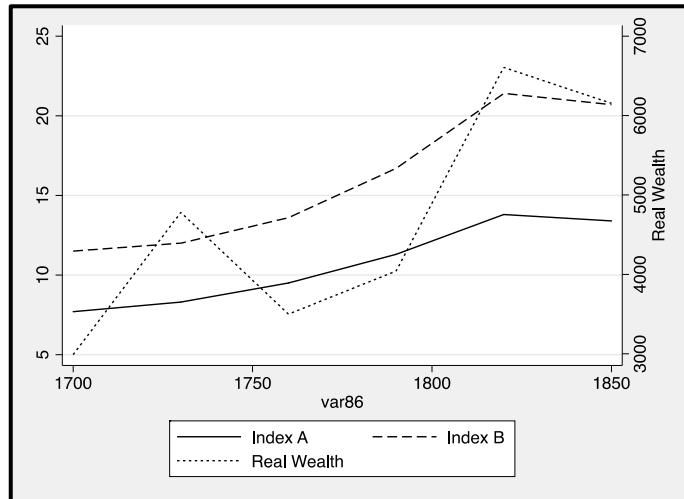
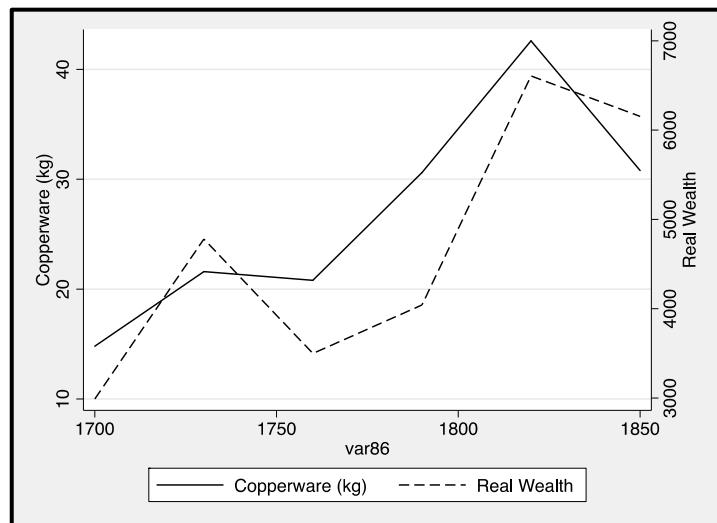
According to the frequency distribution of inventories that fall between these two thresholds in 1700, two wealth groups are defined. 1,650 constant akçe, the median value in the initial period, is taken as the middle wealth bracket that separates lower and upper wealth groups. Although in each period the frequency distribution of inventories according to total estate value is not identical, samples that are reasonably comparable are constructed for an across-period comparison.

The descriptive statistics of the regression variables are presented in Table 7.

Table 7- Descriptive statistics of regression variables

	N	Mean	Median	Std. Dev.	Min	Max
LNINDEXA	380	2.19	2.30	0.68	0.00	3.74
LNINDEXB	380	2.55	2.64	0.77	0.00	4.11
LNCOPPERKG	319	2.85	2.95	1.253	-1.63	5.58
LNWEALTH	380	7.55	7.51	1.39	4.16	11.37
MEN_NONMUSLIM	380	0.17	0.00	0.38	0.00	1.00
WOMEN_MUSLIM	380	0.30	0.00	0.46	0.00	1.00
WOMEN_NONMUSLIM	380	0.13	0.00	0.33	0.00	1.00
TITLE_MEN	380	0.26	0.00	0.44	0.00	1.00
TITLE_WOMEN	380	0.13	0.00	0.33	0.00	1.00
ELHAC	380	0.07	0.00	0.26	0.00	1.00

It is useful to begin by asking what the index of consumption tells us about changes in households over this time period. Figure 3 and 4 display average index scores and average copperware owned in kilograms in each period. The average index scores A and B steadily increased between 1700 and 1820. Index A rose from 7.7 to 13.4, and index B from 11.5 to 20.7 during this period. From this date to the mid-nineteenth century, the scores remained constant. The average amount of copperware per estate increased from 15 kilograms in 1700 to 41.5 kilograms in 1820, and then declined to 31 kilograms during the same period.

Figure 3- Mean index and mean wealth (in constant akçe)**Figure 4- Mean amount of copperware owned (kg) and mean wealth (in constant akçe)**

The growth in household possessions visible in the index could, of course, be due to rising wealth or some other changes in the composition of the sample, and this issue will be addressed fully in section 3.2. First, in order to better understand the nature of the changes in household possessions that occurred over this period, and through this the underlying foundations of the index, in this section I explore developments in the ownership of goods among two slices of the sample whose wealth falls within two brackets.

Bedding

Over the entire period, items related to bedding were the essential household goods that appeared in all Ottoman houses. These items were mattresses (*dösek*), thin mattresses (*şilte*), duvets (*yorgan*), and pillows (*yaslık*). The lower wealth group recorded an average of two of the four items as early as the beginning of the eighteenth century. Some 150 years later, the average number of types of bedding items possessed by estates owners from the same wealth group was 2.6. In 1700, the mean score of this category of household goods for the upper wealth group was 2.3, only slightly more than the first group, rising to 3.5 by around 1850 (see Table 8).

Table 8- Goods concerned with bedding

<i>LOWER WEALTH GROUP</i>	1700	1730	1760	1790	1820	1850
Mattresses (%)	44	56	40	46	63	76
Thin mattresses (%)	0	0	9	19	6	48
Duvets (%)	85	78	80	78	100	90
Pillows (%)	70	78	71	81	100	90
SCORE	2	2.1	2	2.2	2.6	2.6
<i>UPPER WEALTH GROUP</i>						
Mattresses (%)	57	57	65	77	76	79
Thin mattresses (%)	7	14	16	36	60	68
Duvets (%)	89	86	84	87	82	97
Pillows (%)	82	91	94	90	87	94
SCORE	2.3	2.5	2.6	2.9	3.1	3.5

At the beginning of the eighteenth century, bedsteads were not in use. Instead, thick mattresses (*dösek*) were layed out on the floor at night, to be removed in the morning. Some 44 percent of the estates in the lower wealth group and 57 percent of the estates in the upper wealth group contained mattresses in 1700. By 1850, almost 80 percent of all estate owners had mattresses. These mattresses were usually stuffed with cotton and wool. Mattresses stuffed with feather appeared in the inventories of the rich very occasionally. Until the late eighteenth century, mattresses used by all social segments were covered with *beledi*, a cotton textile, which occassionally included silk. Production of the textile began in Urla and Tire, on the

Aegean coast of Anatolia, in the early sixteenth century. Before 1820, we come across mattresses covered by a fabric called *alaca*, a striped cotton-silk mixture with a substantial share of cotton, in just a few inventories of the rich. In the nineteenth century, the use of *beledi* for mattresses dropped by half. Instead, *çit*, a printed cotton fabric produced in the Central Anatolian towns of Sivas and Tokat, were increasingly used for covering mattresses. Thin mattresses (*si/te*), the ownership of which was restricted to a small minority among the wealthier group around 1700, trickled down to the lower middle class by around the mid-eighteenth century. These were probably placed on mattresses to provide more comfort. They were quite common among all estate owners in Üsküdar in the first half of the nineteenth century.

In 1700, duvets were among the items that appeared most frequently in the inventories. Over 80 percent of the estates owners from both groups possessed at least one duvet throughout the period, while 50 percent owned more than one. From 1790 onwards, most estate owners had at least two duvets. Until the late eighteenth century, duvets were commonly covered with *yemeni*, an Ottoman adaptation of Indian prints. Though exceptional, duvets covered with *sandal*, a cotton-silk mixture, were a marker of wealth. Around 1790, *çit* and *basma*, local cotton prints replaced *yemeni* as the common material of duvets. After this date, a large number of rich inventories contained *sakızkari*⁵⁷ and *kibriskari*⁵⁸ quilts.

By around 1700, 70 percent of estates from the lower wealth group and 82 percent from the upper wealth group contained pillows, while an important share reported more than one. In 1820, almost all estates included at least two of these items. In the second half of the eighteenth century, pillows began to be differentiated according to their functions. Face pillows (*yüz yasdığı*) and head pillows (*baş yasdığı*) were increasingly reported over time.

Floor coverings

Üsküdar estates contained a variety of floor coverings in various colours and decorated with different designs: *hali* (carpets), *kilim* (rugs), *kaliçe* (small carpets), *keçe* (felts), *hasır* (rush mats), and *seccade* (prayer rugs). These constituted important elements of the

57 A cotton textile produced in Chios.

58 A cotton textile produced in Cyprus.

eighteenth- and nineteenth-century Ottoman house. *Keçe* (felts) and *kilim* (rugs) appear to have been the most popular types of floor coverings among the inhabitants of Üsküdar in this period. During the second half of the eighteenth century, felts coming from Yambol (*Yanbolu*), located in the Western Black Sea region, appear frequently in the estates. Felts said to be produced in Salonika were reported only a couple of times. As for the rugs, these were described with their size, colour and state of wear rather than the place of origin.

Table 9-Floor coverings

LOWER WEALTH GROUP	1700	1730	1760	1790	1820	1850
Carpets (%)	15	22	6	3	6	3
Rugs (%)	52	11	29	22	6	21
Prayer rugs (%)	19	11	26	19	38	17
Rush mats (%)	4	11	11	19	13	0
Felts (%)	22	33	34	14	19	24
SCORE	1.1	0.9	1.1	0.8	0.8	0.5
UPPER WEALTH GROUP						
Carpets (%)	46	10	10	13	0	0
Rugs (%)	54	10	19	42	27	38
Prayer rugs (%)	25	19	48	45	47	50
Rush mats (%)	29	14	26	10	20	18
Felts (%)	54	33	42	48	27	27
SCORE	2.1	0.9	1.5	1.8	1.2	1.1

The index scores present an interesting pattern for this group of items (see Table 9). Unlike most other household goods, their ownership declined over time. The index score fell from 1.1 in 1700 to 0.5 in 1850 for the lower wealth group, and from 2.1 to 1.1 for the upper wealth group. Carpets totally disappeared in the mid-nineteenth century, while rugs and rush mats diminished significantly. The felts lost popularity for the upper wealth group, but continued to appear in the houses of the poorer. In the study of Kent and Cornwall estates from the seventeenth and eighteenth centuries by Overton et al. (2004), the same situation is observed. The authors cite improvements in the construction and the treatment of woods as the reason for the development. According to them, as furniture became more decorative, the necessity to cover it with carpets declined. Similarly, for Ottoman houses, it could be suggested

that with the introduction of new and more tasteful goods and improvements in construction techniques and materials, floor coverings were less necessary for interior decoration. Additionally, floor coverings also served as a measure against loss of heat (Üstündağ 2003). It is possible that with the introduction of stoves to houses and the improvement of heating facilities, the necessity for such goods disappeared.

The details given in the estates and the wide range of prices suggest that for the inhabitants of Üsküdar, floor coverings were much more than a mere necessity. Rather, these were means of social differentiation. For instance, rush mats (*hasır*) were markers of wealth in the eighteenth century. In the first three periods, they appeared only in the inventories of the wealthy, and they were substantially more expensive than other types of floor coverings. After their peak in the late eighteenth century, they gradually disappeared. In 1850, rush mats were totally absent from Ottoman houses in Üsküdar.

Sitting implements

One of the main features of the eighteenth- and nineteenth-century Ottoman house was the *diwan* known in Ottoman Turkish as *sedir*. This continuous and slightly raised platform running along the walls of a room was furnished with long cushions and pillows. Tanyeli (2003) suggests that in the sixteenth and seventeenth centuries, textiles were so expensive that even the townspeople of upper-middle income groups did not use them in large quantities for interior decoration. He argues that the interior organization of the Ottoman room, which featured large quantities of textiles, was created from the seventeenth century onwards.

Charles White, a British traveller who spent three years in Istanbul in the 1840s, described the *sedir* as follows:

“In Turkish habitations, the framework of divans generally consists of rough wooden planks, over which is placed a long narrow mattress, filled with wool of straw. This is covered with printed cotton, chintz, or cloth, bordered with fringe, frequently festooned. In wealthy houses, these covers are of costly materials, such as silk or velvet, embroidered with gold or silver, the frames of carved wood. At the back and extremities are thick cushions of the same materials, and a long strip of white linen is stretched over the seat and cushions from end to end to preserve them from being

soiled. These strips of linen, which can be removed and replaced in an instant, are kept carefully stretched, clean and free from creases (1846: 170-1)."

Cushions (*minder*) were perceived as being essential for comfort in the view of eighteenth-century Ottomans. The poor as well as the wealthy acquired a couple of cushions, even in the early eighteenth century. For practical reasons, I focus on whether an inventory contains one or more than one piece of this item. This methodological choice has the disadvantage of neglecting an increase in the quantity beyond two. In the case of items which were acquired in large quantities, such as pillows and cushions, we cannot accurately determine change over time. Nevertheless, based on my reading of the inventories, it is clear that the inhabitants of Üsküdar, with their different levels of wealth, acquired increasingly greater numbers of pillows and cushions from the early eighteenth century until the mid-nineteenth century.

Table 10-Sitting implements

LOWER WEALTH GROUP	1700	1730	1760	1790	1820	1850
Cushions (%)	74	67	63	68	75	66
Couches (%)	0	11	26	38	38	38
SCORE	0.8	0.8	0.9	1.1	1.1	0.9
 						
UPPER WEALTH GROUP						
Cushions (%)	79	76	74	71	67	68
Couches (%)	7	19	48	55	60	62
SCORE	0.9	1	1.2	1.3	1.3	1.4

Compared to pillows, the textiles used for cushions were less frequently recorded. The available evidence suggests that from 1700 to 1760, *alaca* and *yemeni* were used for cushions, whereas pillows were commonly covered by *beledi* or *yemeni*. An important marker of wealth was *kadife* (velvet) and *çatma*⁵⁹ pillows, which were substantially more expensive than ordinary ones. Almost all members of the upper wealth group possessed one or several of these. *Çatma* pillows were particularly very popular around 1760.

As reported in Table 10, in the early eighteenth century, couches (*makad*) were present

59 A silk-velvet mixture with embossed floral patterns

only in a small share (11 percent) of the inventories of the upper wealth group. Over time, they trickled down and began to be adopted more widely. It was not before the late eighteenth century that couches found their way into the houses of the poor. By this date, one third of the members of lower wealth group, as well as more than half of the members of the upper wealth group, had acquired them. Around the mid-nineteenth century, these figures reached 38 percent and 62 percent. From 1700 to 1760, *makads* were generally made of *yemeni* and *çuka*. Around 1790, *çit* began to replace *yemeni*; and in 1850, these items were commonly covered with *çit* and *basma*.

Storage

The Ottoman approach to collecting and keeping objects while facilitating their easy transport is a legacy of the nomadic period. Nomads used to keep their objects in light, easily collected and transportable bundles, saddlebags and chests. Turks living in permanent settlements also used to wrap their valuable items, dresses, fabric products and dowry in bundles (Usal 2010).

Chests (*sandık*) were among the most ordinary and indispensable items of domestic furniture. It was a basic, modest and inexpensive necessity for the lower classes, while the upper classes preferred more expensive pieces decorated with ornaments and made of better-quality material. For instance, several wealthy inventories report chests featuring mother-of-pearl in the nineteenth century. Similarly, towards the end of the eighteenth century, chests made of cypress became fashionable among the upper classes in Üsküdar. Another item used for storage was cloth bundles (*boğça*), which were used to wrap pieces of cloth, dresses, and household linen.

Table 11- Goods concerned with storage

LOWER WEALTH GROUP	1700	1730	1760	1790	1820	1850
Chests (%)	22	33	51	57	56	62
Cloth bundles (%)	30	22	23	32	19	35
SCORE	0.8	0.6	0.7	0.9	1.1	0.8
UPPER WEALTH GROUP						
Chests (%)	57	24	52	68	67	71
Cloth bundles (%)	29	29	16	16	51	53
SCORE	0.9	0.5	1	1.2	1.2	1.2

Table 11 shows that at the beginning of the eighteenth century, almost all estate owners from both wealth groups had a chest or a cloth bundle, as the scores close to 1 indicate (0.8 for the first wealth group, 0.9 for the second wealth group). As the items to be stored increased, chests rose in popularity among the lower wealth group from 22 percent in 1700 to 62 percent in 1850. However, only a modest improvement (from 57 percent in 1700 to 71 percent in 1850) can be detected within the upper wealth group over the same period. This might be explained by rising ownership of drawers and cupboards. However, these new items did not totally replace chests, as high percentages at the end of the period indicate.

Household linen and towels

The interior organization of the eighteenth- and nineteenth-century Ottoman house featured large quantities of textiles: towels, sheets, tablecloths, bedclothes, cushions/pillowcases, and curtains.

Four different types of towels, probably with different functions, are mentioned in the inventories: *Makrama*, *peşkir*, *havlu*, and *peştemal*. Among these, *makrama* seems to have lost its popularity among the inhabitants of Üsküdar, while *havlu* became increasingly more common throughout the eighteenth century. In the overall category of towels, there appears to have been no progress in the lower wealth group. In the upper wealth group, the adoption of towels rose from 1700 to 1820 by almost half before declining between 1820 and 1850 (see Table 12).

Table 12- Towels

LOWER WEALTH GROUP	1700	1730	1760	1790	1820	1850
Makrama (%)	39	22	26	24	31	7
Peşkir (%)	11	0	9	14	6	7
Havlu (%)	7	22	14	19	38	24
Peştemal (%)	30	22	14	19	25	21
SCORE	0.7	0.9	0.8	0.8	0.9	0.7

UPPER WEALTH GROUP

Makrama (%)	39	29	48	55	47	12
Peşkir (%)	25	10	23	23	24	12
Havlu (%)	14	5	29	45	53	35
Peştemal (%)	18	10	19	19	22	18
SCORE	1	0.5	1.4	1.4	1.4	0.7

Interestingly, between 1700 and 1850, the inventories show only modest, if any, improvements in the ownership of towels and household linen. The index scores for towels passed from 0.7 in 1700 to 0.9 in 1820 in the lower wealth group, and from 1.1 to 1.4 in the upper wealth group. The lower wealth group had on average of one type of household linen per estate around the beginning of the eighteenth century, while this figure was 1.3 in the early nineteenth century. The average score of household linen in upper wealth group also rose slightly during the same period from 1.2 to 1.5. In the final period, the scores substantially declined for both items in both wealth groups (see Table 13).

Table 13- Household linen

LOWER WEALTH GROUP	1700	1730	1760	1790	1820	1850
Curtains (%)	15	11	9	16	10	24
Table cloths (%)	0	0	9	8	13	3
Sheets (%)	56	33	49	70	73	35
Pillow/Cushion cases (%)	22	11	3	14	13	10
Bedclothes (%)	15	11	6	8	13	10
SCORE	1.1	0.8	0.8	1.2	1.3	0.8
UPPER WEALTH GROUP						
Curtains (%)	50	0	26	19	13	47
Table cloths (%)	11	5	19	10	27	6
Sheets (%)	64	52	55	74	83	59
Pillow/Cushion cases (%)	29	14	10	26	13	9
Bedclothes (%)	15	5	16	23	24	9
SCORE	1.2	0.9	1.3	1.5	1.5	1.2

Nonetheless, these figures should not be taken as an indicator that household textiles in Ottoman houses did not improve over time. Observations from these sources suggest the acquisition of greater quantities of better-quality linen by many households appears to have begun in the mid-eighteenth century. Qualitative evidence also confirms this observation.

Two factors probably lay behind the unlikely results for household linen. First, as will subsequently be shown in this study, the possession of these items were closely linked to gender. Differences in terms of the composition of the sample⁶⁰ across periods might be why we cannot follow the real change in the ownership of these goods. Women, who were predominant in terms of household textiles, constituted 58 percent of the estate owners in the initial period, but only 35 percent in 1820 and 39 percent in the final period. However, a more important limitation should be sought in the process of the registration of the inheritance inventories. In the final period, a portion of the used textiles, available in the house – particularly those worth insignificant amounts – were recorded as lump-sum quantities, while newer, more valuable and ornamented pieces were mentioned item by item. This might be masking the evolution of this category of goods in the inventories. Furthermore, it is also possible that mattress and duvet covers, whose appearance diminished over time, began to be considered as integral parts of mattresses and duvets, and thus, were valued and recorded together with these items. Expressions such as "mattress covered with *basma*" support this argument. Thus, the result seems very likely to reflect the increasing tendency to omit this category of household good from the inventories.

Sheets were evident across all groups even at the beginning of the eighteenth century. More than half of the estates in both wealth groups (56 percent in the lower wealth group, and 63 percent in the upper wealth group) included sheets for this period. Around 1820, about three quarters of estate owners had them (73 percent and 83 percent, respectively, for each wealth group). Until 1790, sheets were prevalently made of *alaca*. A number of rich houses contained "sheets of Egypt" (*Misir çarşebi*), which probably meant sheets made of Egyptian cotton. In the nineteenth century, *bürüncüük*, another local cotton fabric, began to be used for sheets.

60 The sample refers to the restricted sample used in this exercise and not the extended sample employed for the regressions in the earlier parts of this paper.

Curtains were recorded in different forms in the inventories. Door curtains (*kapu perdesi*), which protected the inhabitants against cold draughts in winter, were the most popular. Window curtains (*pencere perdesi*) and oven curtains (*ocak perdesi/yasmağı*) began appearing in Ottoman houses over the course of the eighteenth century. Curtains were not reserved for the richer group, even in the first half of the eighteenth century. However, like bedclothes and duvets, the ownership of these items as recorded in the inheritance inventories did not follow a meaningful pattern.

Unlike sheets and curtains, bedclothes and duvet covers were rarely part of a middle-class house in 1700. They became widespread among these groups around the turn of the nineteenth century. Their disappearance from the estates in 1850 is interesting and should be linked to the factors mentioned above.

Lighting implements

The ownership of lighting elements is indicative of the use of time in early-modern Ottoman society. The day began with the first light of day, preceding the morning prayer, and ended early, soon after sunset. This pattern was not only imposed by technological limitations, but was also a reflection of the daily routines of agricultural society. Lighting was a luxury by the standards of the early eighteenth century, and was in limited use even among the rich.

Between the sixteenth and seventeenth centuries, *şamdan* (candlesticks) and *fener* (cressets) replaced *çerağ* (oil lamps). In the lower wealth group, candlesticks made of copper, brass, and iron doubled (19 percent to 38 percent) from 1700 to 1850 (see Table 14). Cressets, which were absent from the inventories in this group in the initial period, appeared in just a few instances (7 percent) around 1850. In the upper wealth group, less than one third of estate owners had candlesticks in the initial period, but almost half had these items one-and-a-half centuries later. The ownership of cressets also grew, passing from 7 percent to 15 percent.

Table 14- Lightening implements

LOWER WEALTH GROUP	1700	1730	1760	1790	1820	1850
Candlesticks (%)	19	22	27	19	19	38
Cressets (%)	0	0	9	3	13	7
SCORE	0.2	0.2	0.3	0.3	0.3	0.4
UPPER WEALTH GROUP						
Candlesticks (%)	31	10	26	23	37	49
Cressets (%)	7	5	10	3	13	15
SCORE	0.3	0.2	0.4	0.4	0.4	0.5

These figures suggest that by the mid-nineteenth century, interior-lighting equipment was no longer confined to a minority. However, it should also be noted that one almost never comes across expensive lighting implements. Adopting elaborate lighting arrangements, such as extravagant chandeliers, seems to be a phenomenon that emerged in the later part of the nineteenth century.

Heating

Early-modern Ottoman houses were generally heated by ovens and fireplaces, which also served for cooking purposes. Even imperial palaces did not use stoves before the *Tanzimat* era (1839) (Üstündağ 2003). *Mangals* (braziers) made of copper, brass, metal or baked clay vessels, were introduced to Ottoman houses after the invention of charcoal in the Middle Ages.

Braziers were used to heat rooms which did not contain ovens or fireplaces. Thus, it can be expected that their usage became widespread with the increase in the number of rooms in houses and with the functional differentiation of space. From the first half of the nineteenth century, the covered stove began to infiltrate Turkish daily life, gradually superseding the open brazier as a major form of heating, but even after the introduction of the stove, the brazier was still used as an auxiliary heating source to heat other rooms of the house with the embers from the stove. Today, in many parts of Anatolia, the brazier is still the major form of heating.

Table 15-Heating

LOWER WEALTH GROUP	1700	1730	1760	1790	1820	1850
Braziers (%)	0	0	17	16	19	38
UPPER WEALTH GROUP						
Braziers (%)	0	5	16	19	42	56

At the beginning of the eighteenth century, estates in Üsküdar did not report any braziers (see Table 15). By 1730, there were still only two instances of the object. The share of inventories from the lower wealth group containing braziers rose from 15 percent in the early eighteenth century to 31 percent in the mid-nineteenth century. In 1850, 54 percent of the estates of the upper wealth group included more than one brazier.

Mirrors and clocks

Mirrors and clocks, the consumption of which was associated with Westernization, entered Ottoman houses in the late seventeenth century. In the first half of the eighteenth century, only a small share (about 10 percent in the case of both items) of estates from lower and upper wealth groups contained them (see Tables 16 and 17). The middle of the century appears to have been a turning point in terms of the consumption of these items due to increased European influence. About 40 percent of the upper wealth group and 15 percent of the lower wealth group owned clocks around 1760, whereas 30 percent of the upper wealth group and 10 percent of lower wealth group possessed mirrors. By this date, both of these items had appeared only once in the estates of the lower wealth group. Yet, in 1820, 39 percent of inventories from the poor mentioned clocks, whereas mirrors remained a luxury for this group, even in the middle of the century, with only 15 percent of estates including this item. As for the rich, both mirrors (57 percent) and clocks (43 percent) were quite popular among this class.

Table 16- Mirrors

LOWER WEALTH GROUP	1700	1730	1760	1790	1820	1850
Mirrors (%)	0	0	6	5	6	28
UPPER WEALTH GROUP						
Mirrors (%)	7	5	19	13	22	38

Table 17- Clocks

LOWER WEALTH GROUP	1700	1730	1760	1790	1820	1850
Clocks (%)	0	0	11	8	38	7
UPPER WEALTH GROUP						
Clocks (%)	11	5	23	39	44	44

Western furniture

With the incorporation of influences from Western culture into the daily lives of Ottoman subjects, European furniture entered Ottoman houses in the second half of the eighteenth century, proliferating in the course of the nineteenth century. The adoption of new furniture and changes in the interior decoration and inner arrangement of rooms began in elite urban houses (Esenbel 1994). White's observation of mid-nineteenth century Ottoman society suggests that by this date, elites had already adapted themselves to the Western standards of domestic comfort:

"In proportion as intercourse with Europeans extends, fashions and customs vary, so that an important change is rapidly taking place in the furniture of houses. Thus, in those of wealthy persons, chairs, sofas, tables, consoles, mirrors, wardrobes, chandeliers, and a variety of Western essentials may be seen. Indeed, the Sultan's private day-apartments, at Tcheraghan and Beshiktash, are furnished more in the European than Oriental style. ... The middling classes are also making some progress, but in general they retain their ancient simplicity. Their furniture is limited to divans, mats, carpets, and a few pieces of glass or porcelain placed in wooden niches," (White 1846: 174-5).

Table 18- New furniture

LOWER WEALTH GROUP	1700	1730	1760	1790	1820	1850
Chairs (%)	0	0	0	0	0	10
Stools (%)	4	0	11	14	31	24
Armchairs (%)	0	0	0	0	0	10
Drawers (%)	0	0	6	0	31	28
Cupboards (%)	4	0	3	24	6	7
Tables (%)	0	0	0	0	0	3
SCORE	0.1	0	0.2	0.5	0.6	0.6

UPPER WEALTH GROUP	1700	1730	1760	1790	1820	1850
Chairs (%)	0	0	0	10	0	29
Stools (%)	11	0	16	3	22	32
Armchairs (%)	0	0	0	0	0	32
Drawers (%)	0	0	16	19	27	44
Cupboards (%)	0	0	3	26	18	26
Tables (%)	0	0	0	0	0	9
SCORE	0.1	0	0.4	0.7	0.7	1.8

Üsküdar inventories record six different types of new furniture: chairs, stools, armchairs, tables, cupboards, and drawers. In 1700, the average score of this category of goods was 0.1 for both wealth groups (see Table 18). As Table 15 shows, particularly in the first half of the nineteenth century, there was a significant shift in the ownership of Western-style furniture. In 1850, the average score was 0.6 for the lower and 1.8 for the upper group. In terms of modern furniture, stools and drawers were the first to enter Ottoman house and were present in several estates as early as 1760. In both wealth groups, drawers and stools were by far the most popular type of modern furniture in mid-nineteenth-century Üsküdar. Some 28 percent and 44 percent of estate owners from the lower and upper wealth groups had drawers, and 24 percent and 32 percent had stools. Cupboards and chairs followed them. Tables, on the other hand, were rare even in mid-nineteenth-century inventories, with less than 10 percent of the upper group owning them. Armchairs only appeared in the estates of the upper wealth group in 1850. Furniture made of walnut tree or decorated with mother-of pearl appeared in several instances among the higher levels of wealth in the mid-nineteenth century.

Crockery, plates, and cutlery

Changes in eating and drinking rituals and the introduction of modern habits in the Ottoman realm was a phenomenon of the late nineteenth century. The custom of using tables, chairs, forks, plates and glasses for everyone began in elite households and slowly filtered down to moderate families. Before this date, the meal was placed in the middle of the *sini*, a round copper tray, which was set up at meal times and taken away afterwards, and everyone ate from the common dish using their spoons. Forks are almost completely absent from the inventories throughout the whole period, only appearing in a couple of instances for wealthy estate owners. Although common, knives were probably used for cooking rather than as an eating utensil.

Table 19- Crockery, plates, and cutlery

LOWER WEALTH GROUP	1700	1730	1760	1790	1820	1850
Plates (%)	0	11	6	11	19	24
Cups (%)	4	11	17	19	13	14
Cup holders (%)	0	0	9	16	6	7
Forks, spoons, knives (%)	11	0	11	24	31	7
Drinking glasses (%)	0	0	6	11	6	7
Bowls (%)	0	0	3	8	13	14
SCORE	0.1	0.2	0.3	0.6	0.6	0.6
 						
UPPER WEALTH GROUP						
Plates (%)	7	5	13	16	38	35
Forks, spoons, knives (%)	14	5	11	32	33	24
Drinking glasses (%)	7	0	0	7	27	24
Cups (%)	4	5	23	26	44	24
Cup holders (%)	0	5	16	23	36	21
Bowls (%)	0	5	10	7	38	24
SCORE	0.3	0.1	0.4	0.7	0.9	0.9

Progress in the ownership of plates is quite striking (see Table 19). While in 1700 plates were present in only 7 percent of the estates belonging to the upper wealth group, one fourth of the lower wealth group and one third of the upper wealth group owned plates by around the mid-nineteenth century. Although the increase is relatively less pronounced when

compared to British inventories, in which 85 percent of the deceased had plates reported in their estates by the mid-eighteenth century (Overton et al. 2004: 99), it might be indicative of the practice of eating from separate dishes.

Estates from 1700 do not report any bowls (*kase*), but this item was introduced into Ottoman households and proliferated in both wealth groups throughout the eighteenth century. More than one tenth of the lower wealth group and about one fourth of the upper segment had bowls by 1850. As bowls were used for soups and compotes, which have an important place in Ottoman cuisine, their absence in the initial period is intriguing. *Kase* probably referred to vessels made of glass or pottery, and replaced the copper *tas*, which was used for drinking water and consuming stews and similar foods in previous periods.

The proliferation of drinking glasses, on the other hand, appears to be associated with wealthier segments of society. As in the case of *kase*, *bardak* seems to refer to glass or pottery, which began to replace *tas* in Ottoman houses. One fourth of the estates from the second wealth group report this item around the mid-nineteenth century.

Coffee cups (*fincan*) were present in the estates of the lower wealth group throughout the period, showing that drinking coffee was not a privilege completely reserved for the elite even as early as the first half of the eighteenth century. Still, there was a much larger increase in the ownership of coffee cups in the upper wealth group. In 1820 almost half of the estate owners from this group possessed cups. Strangely, this figure drops by half in the next period, although the change in the composition of the sample in terms of the individual characteristics of the estate owners might be an explanation.

Copperware

As Faroqhi (2002a: 301) states, until the nineteenth century, there was very little furniture in Ottoman houses that could be defined as "furniture in today's norms." These were some "chests and boxes, a *yer sofrası* (a traditional dining place which is used on the ground), made up of a wooden or leather stool for putting pots, pans and trays on, carved shelves on the wall for putting lamps and books." In contrast to the simplicity of the home furnishings, a large variety and quantity of copperware was present in an average Ottoman house even at the beginning of the eighteenth century. Almost all estates possessed a few pots, cauldrons,

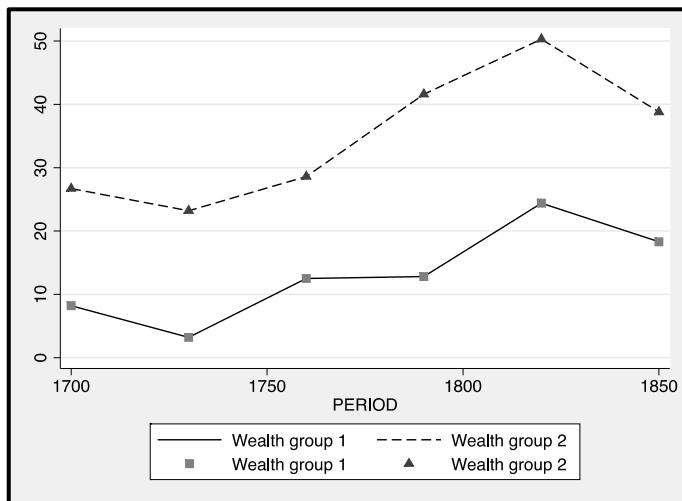
and pans, in different sizes, with or without lids. As wealth grew, the quantity and variety of the copperware increased, leading to differentiations in function. The variety of items we come across in these sources proliferated: *hamam leğeni* (bathtub), *çamaşır leğeni* (washtub), *hamam tası* (bath bowl), *abdest leğeni* (ablution tub), *mışraba* (dipper), *el tabesi/tabe dest* (hand pan), *pekmez tabesi* (molasses pan), *yol tabesi* (journey pan), *börek tebsisi* (pastry tray), *baklava tebsisi* (baklava tray), *kadayıf tebsisi* (kadayıf tray), *kevgir/süzgü/süzgeç* (colander), *ayaklı sahan* (free standing shallow pan), *el ibriği* (hand ewer), *şerbet ibriği* (syrup ewer), *kahve ibriği* (coffee ewer), *abdest ibriği* (ablution ewer), *çorba tası* (soup bowl), *hoşab tası* (compote bowl), *kahve tebsisi* (coffee tray), *ocak güğümü* (oven billycan), *hamam güğümü* (bath jug), *sofra tası* (table vessel), *yumurta tabesi* (egg pan), and *lokma tabesi* (plum pan).

Although, as mentioned previously, a systematic review of the ownership of different types of copperware is impossible due to the inconsistency in the recording of the inventories, the improvement in the possession of kitchenware and other household goods made of copper can be traced by looking at the lump-sum amounts recorded (see Table 17 and Figure 5). An average estate owner in lower wealth group possessed 8.2 kilograms of copperware in around 1700; within a century, this figure had tripled, reaching 24.4 kilograms by around 1820. In the upper wealth group, the amount of copperware per estate rose from 26.7 kilograms in 1700 to 50.3 kilograms in the early nineteenth century. From 1820 to 1850, copperware declined for all estate owners – albeit to levels still substantially higher than those in the initial period.

Table 20- Average amount of copperware possessed (in kg)

	Lower wealth group	Upper wealth group
1700	8.2	26.7
1730	3.2	23.2
1760	12.5	28.6
1790	12.8	41.6
1820	24.4	50.3
1850	18.3	38.8

**Figure 5- Average amount of copperware possessed (in kg)
Lower and upper wealth groups**



Overall, it can be suggested that in the early the eighteenth century, an average Ottoman house consisted of mattresses, duvets, rugs or felts, chests, a number of cushions, towels, and some copperware. The richer households contained, alongside these essential goods, carpets, curtains, and sheets, and occasionally candlesticks and mirrors. Around this date, differences in wealth and status of the estate owners manifested themselves not in the composition but in the quantity, quality, the degree of wornness, the ornamentation and the raw material of the household goods.

From the mid-eighteenth to mid-nineteenth centuries, the durables present in the Ottoman houses from different wealth groups diversified and multiplied, with the households acquiring many new types of furniture and consumer durable. Not all commodities followed the same trajectory, however. Patterns of ownership varied by the type of good.

4. Ownership of household goods at constant wealth levels

4.1. Regression model

In this section, I seek to better identify the degree to which ownership of household goods grew independently of the wealth of individuals. To do so, I conducted a pooled, cross-sectional regression analysis that evaluates how the index scores of consumer goods and the amount of copperware owned changed over time, independently of changes in the

composition of the sample in terms of wealth, gender, religious status, and social status. As was mentioned earlier, the pooled cross-sections are obtained by collecting samples independently of each other at different points in time. The fact that the random samples are collected independently of each other implies that they need not be of equal size and will usually contain different statistical units at different points in time. The data can be analysed like ordinary cross-sectional data, except that we must use dummies in order to account for shifts in the distribution between different points in time. Regressing index scores and the amount of copperware upon time dummies and controls for wealth yields information about improvements in the ownership of domestic goods unexplained by an increase in wealth.

Separate OLS regressions are run for the index scores A and B and the amount of copperware owned, using the form:

(1)

$$\begin{aligned}
 LNINDEXSCORE_i &= \beta_0 + \beta_1 LNWEALTH_i + \beta_2 WOMEN_MUSLIM_i + \beta_3 MEN_NONMUSLIM_i \\
 &+ \beta_4 WOMEN_NONMUSLIM_i + \beta_5 TITLE_MEN_i + \beta_6 TITLE_WOMEN_i \\
 &+ \beta_7 ELHAC_i + \sum \beta_k PERIOD_k + u
 \end{aligned}$$

Logged index scores (LNINDEXA, LNINDEXB) and logged copperware in kilograms (LNCOPPERKG) are regressed against variables for real wealth, dummies combining the gender and religious status of the estate owners, as well as the titles that were acquired. LNWEALTH is the logged net estate value in constant akçe⁶¹. WOMEN_MUSLIM, MEN_NONMUSLIM, WOMEN_NONMUSLIM are dummy variables indicating gender and religious status. These variables assume the value 1 if the estate owner was, respectively, a Muslim woman, a non-Muslim man, and a non-Muslim woman. Muslim man is the reference category, meaning it is omitted from the regression. As has been discussed above, if there was a meaningful relationship between the religious status or the gender of the estate owners and the quantity and variety of the domestic goods owned, the evolution of the index scores would also reflect

61 It must be noted that in computing the CPI, Pamuk (2000a) uses a consumer basket which consists predominantly (80 percent) of agricultural products. Thus, the deflation process does not remove the potential impact of changes over time in the prices of manufactured goods relative to agricultural goods on the ownership of consumer durables. It is assumed that this impact will be captured by the time dummies.

changes in the composition of the sample. Incorporating these variables controls for across-period variations in the number of female and non-Muslim inventories in the sample. TITLE_MEN, TITLE_WOMEN and ELHAC are dummy variables that are included in the model as an indicator of social status. TITLE_MEN and TITLE_WOMEN indicate men and women with official and religious titles, and ELHAC indicates pilgrims. The reference category is men and women without titles⁶².

The effect of time-dependent factors other than wealth is captured by the period dummies in the regression for each sample period (1730, 1760, 1790, 1820, and 1850). The reference category is our initial period, 1700. Including time dummies allows the intercept to have a different value in each period. In so doing, we can observe changes in the possession of household goods over different periods. If the number and variety of household effects owned by the estate owners increased independently of wealth and the changing character of the estate owners, we would expect the coefficient of the dummies for later periods to be positive and significant.⁶³

One important point needs to be made at the outset about employing this functional form. In the regression WEALTH, our control variable is not independent from the index scores, since the total value of the domestic durable stock is a share of the total estate value. A rise in index scores and the amount of copperware signifies that the estates contained a larger amount of domestic chattels, which would be expected to have increased the value of the domestic goods stock and thus the total wealth. However, the aim of the exercise is to identify

62 Some of the individual characteristics of the estate owners that one might expect to be closely associated with the level of domestic comfort and conveniences enjoyed are not included in the model due to absence of systematic information in the inventories. Age, marital status, and the occupation of the deceased are three such characteristics. This should be noted as a limitation of the present study.

63 As has been shown above, the wealth measure used here closely reflects the real wages, the only proxy available for income in the Ottoman realm. However, we do not know whether and how the relation between income and wealth changed over time. It is entirely possible that during a period of significant social and economic transformation, this relationship was markedly altered. Thus, in controlling for wealth, we are not completely isolating the impact of changing income levels. For instance, if saving rates were declining over time, a constant wealth level would indicate rising lifetime earnings. This changing relationship between wealth and income can also be captured by the “time effect.”

any the change over time in ownership of goods at constant wealth levels, rather than explain the relationship of wealth to consumption per se. In other words, I am not trying to establish a causal relationship, but to estimate the level of domestic comfort enjoyed by Ottomans with comparable wealth levels in different time periods.

That said, the relationship between total estate value and the stock of household durables deserves discussion. First, it should be noted that the link between wealth and the value of the stock of domestic goods was weaker in Ottoman inheritance inventories than in European and American probate inventories. Overton et al. (2004) state that consumption goods made up over half of the total value of an average English inventory. In our sample, the share of the value of household durable stock held within the overall estate was less than one third (29 percent). The lower shares constituted by domestic durables in the Ottoman inventories can be explained by the inclusion of real estate, which was usually the most valuable item in an inventory.

Second, it should be underlined that the positive association between the total estate value and the stock of household durables is not merely a result of the endogeneity between these two variables. Even when the value of the household durables is excluded, the remaining wealth comprised of real estate, net debts, cash, capital goods, and personal goods (such as clothing) still correlates positively with the index scores and the amount of copperware owned, although the strength of the relation is slightly weaker in this second case, as would be expected (see Table 21 and Figures 6 to 8). This is in accordance with the general wisdom that wealthier people lived in a richer domestic environment than their poorer compatriots.

Table 21- Correlations between the (pooled) stock of household durables and (pooled) wealth (in constant akçe)

	Total estate value	Total estate value less the value of household durable stock
Index A	0.34	0.29
Index B	0.36	0.31
Copperware (kg)	0.49	0.43

Figure 6- Index A, Total estate value, and total estate value less the value of household durables stock (in constant akçe)

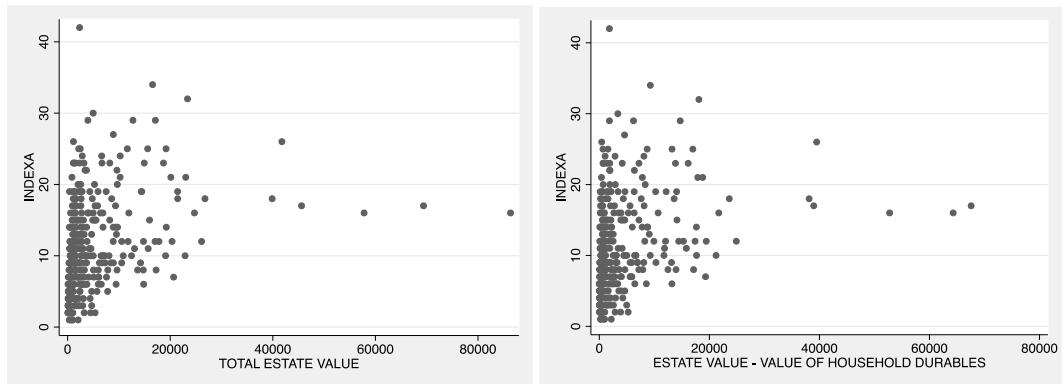


Figure 7- Index B, Total estate value, and total estate value less the value of household durables stock (in constant akçe)

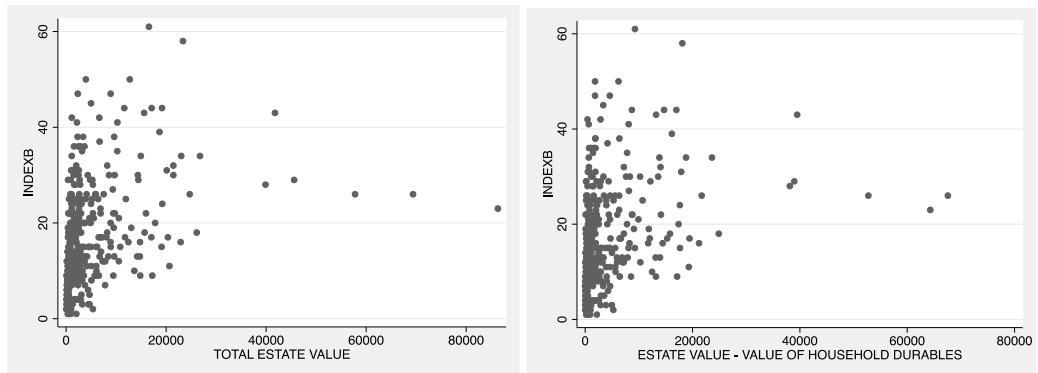
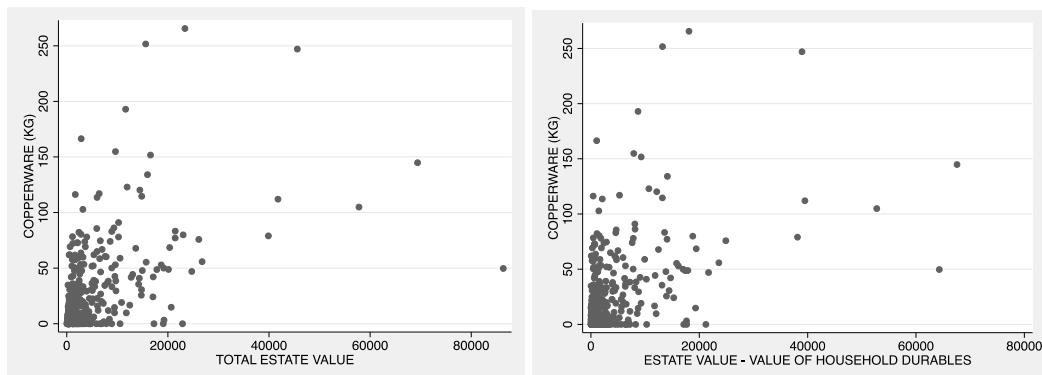


Figure 8- Copperware (kg), Total estate value, and total estate value less the value of household durables stock (in constant akçe)



4.2 Results

Table 22 reports the regression results. As expected, wealth is strongly and positively associated with the number and variety of household durables owned. In all three regressions separately run for index scores A and B, and copperware, LNWEALTH1 is positive and significant at the 1 percent level. When wealth doubles, index scores A and B, and copperware owned rise by 20 percent, 24 percent and 44 percent respectively.

Another important finding was the difference between Muslim men and Muslim women. While no statistically significant difference exists between Muslim men and non-Muslim estate owners (both men and women) is detected in the ownership of household goods, the results show that Muslim women owned more domestic goods compared to Muslim men who possessed the same level of wealth. The index scores A and B assigned to estates belonging to Muslim females are 44 and 49 percent higher than the scores assigned to the estates belonging to Muslim males. In 1700, an estate owned by a woman that was worth 1,000 constant akçe had index scores 8 (A) and 11 (B), whereas these figures were 5 and 7 for a Muslim man's estate of comparable total value. Unlike other types of household goods, Muslim women did not display superiority in terms of ownership of copperware over Muslim men. Yet, there was a significant difference between these latter and non-Muslim Ottoman women. Women in the non-Muslim community owned about 43 percent less copperware than Muslim men of comparable wealth.

Table 22- OLS Regression results

Dependent variable	LNINDEX A	LNINDEXB	LNCOPPERKG
CONSTANT	-0.127 (0.174)	-0.157 (0.194)	-1.360*** (0.352)
LNWEALTH	0.262*** (0.022)	0.308*** (0.024)	0.505*** (0.043)
WOMEN_MUSLIM	0.364*** (0.1)	0.458*** (0.112)	-0.086 (0.202)
MEN_NONMUSLIM	0.039 (0.106)	0.106 (0.118)	-0.01 (0.216)
WOMEN_NONMUSLIM	0.049 (0.116)	0.096 (0.13)	-0.567*** (0.242)
TITLE_MEN	0.183* (0.103)	0.222** (0.115)	0.039 (0.216)
TITLE_WOMEN	-0.096 (0.123)	-0.122 (0.137)	0.163 (0.235)
ELHAC	-0.248** (0.116)	-0.290** (0.129)	-0.051 (0.23)
1730	-0.220* (0.122)	-0.323** (0.136)	-0.069 (0.237)
1760	0.061 (0.095)	0.025 (0.106)	0.364** (0.187)
1790	0.306*** (0.104)	0.304*** (0.116)	0.752*** (0.204)
1820	0.388*** (0.11)	0.410*** (0.123)	0.851*** (0.215)
1850	0.411*** (0.11)	0.443*** (0.123)	0.411* (0.218)
N	380	380	319
Adjusted-R2	0.38	0.4	0.42

Notes: *, **, *** indicates significance at the 10 percent, 5 percent and 1 percent levels, respectively. 1700 period is the omitted category.

Acquiring religious and official titles, which were indicative of social status, was only significantly associated with the ownership of domestic chattels in the case of men. TITLE_MEN is significant at the 10 percent level in the first two regressions. The estates of men with titles

had 20 percent (A) and 25 percent (B) higher scores than estates belonging to the deceased without titles. TITLE_WOMEN is not significant at the 10 percent level, suggesting that acquiring titles had no statistically meaningful effect on the ownership of domestic goods by women. Interestingly, the pilgrim status was inversely related to the quantity and variety of household goods contained in an inventory. At the same level of wealth, pilgrims' estates had lower scores for A and B. Titles and pilgrim status had no significant effect on the ownership of copperware.

However, the main purpose of the exercise is to detect improvements over time in the ownership of domestic goods that cannot be explained by variations in real estate values or by differences in the composition of the sample in terms of gender, religious status, or titles. This is the time effect, which is assumed to be captured by the period dummies. When controlled for changes in wealth, and differences in the sample across periods, the coefficients of the period dummies 1790, 1820, and 1850 are positive and highly significant for all three series. This shows that at constant wealth values, the index scores are higher in the last three periods compared to the initial period. Estates of the same total value contained more and more various domestic goods around the mid-nineteenth century. Like several empirical studies on European consumerism, these findings point to the second half of the eighteenth century as the period when consumer goods proliferated in the Ottoman Empire.

Another interesting finding concerns the 1730 period, which is often associated in the literature with conspicuous consumption and extravagant lifestyles of the rich, and more recently, with the rise of the consumerist desire among ordinary Ottomans. The results, however, contradicted these arguments. The regression detected a decline in the ownership of household goods at constant wealth levels during the Tulip Era. This, of course, does not rule out the possibility of progress in the possession of household durables that occurred in parallel to the rise in wealth levels. Having said that, it should be also recalled that the limited sample size for this period might be responsible of this situation.

We can probe the change over time further. The estimated coefficient on a time dummy corresponding to a particular period is an estimate of the difference between the intercept in that period and the intercept in the omitted time dummy. Hence, the coefficient of the period dummies reflects changes in the level of index scores compared to the initial

period (1700), and does not give us an idea about changes between consecutive periods. For instance, the fact that the dummies for 1820 and 1850 are significant and positive only indicates that in these periods, the index scores were higher than the level in 1700 when controlled for the wealth, religious status and gender of the estate owner, and does not provide evidence of a statistically significant increase from 1790 to 1820 or from 1820 to 1850. However, by altering the time dummy omitted, we can observe changes between consecutive periods. When the 1730 dummy is omitted instead of the one from 1700, the coefficient of the 1760 dummy will now reflect the variation in the scores between 1730 and 1760, provided other variables remain constant. The coefficients of all other variables will remain the same, while the constant and the coefficients of the time dummies vary.

Table 23 examines the exponential coefficients of the time dummies when the dummy for the previous period is omitted.⁶⁴ This allows us to identify statistically significant changes between successive periods. At the 1 percent level, the intercepts of the 1790 period are significantly different from the intercepts of the 1760 period. The results show that while wealth remained constant, index scores A and B rose by 28 percent and 32 percent from 1760 to 1790. The intercepts for 1760 are significantly higher than those for 1730 at the 1 percent level for index B, and at 5 percent level for index A, although the scores for this period are no different than the initial period (see Table 10). The results also suggest a decline in scores from 1700 to 1730 at constant wealth levels, as demonstrated by negative and significant coefficients at the 10 percent level. The third regression employing the amount of copperware owned as the dependent variable yields similar results. Like the ownership of other household goods, the ownership of copperware improved at constant levels of wealth between 1730 and 1790. However, from 1820 to 1850, the copperware appearing in the estates of comparable real wealth declined by 36 percent.

64 Only CONSTANT and the coefficients of the time dummies vary. Coefficients of LNREALWEALTH, MEN_NM, WOMEN_M, and WOMEN_NM remain the same. CONSTANT indicates the intercept for the omitted period.

Table 23- Exponential coefficients of time dummies ($\exp(\delta n)-1$)

Omitted variable	Time dummy	Dependent variable		
		LNINDEXA	LNINDEXB	LNCOPPERKG
1700	1730	-0.197*	-0.276**	-0.07
1730	1760	0.325**	0.417***	0.542*
1760	1790	0.277***	0.321***	0.474**
1820	1820	0.085	0.112	0.104
1850	1850	0.023	0.034	-0.356***

Notes: *, **, *** indicates significance at the 10 percent, 5 percent and 1 percent levels, respectively.

The findings of this study demonstrate that Ottoman individuals who were equally wealthy owned a greater variety and quantity of domestic durables from the second half of the eighteenth century onwards. The ownership of goods at constant wealth levels declined from 1700 to 1730 (for household goods other than copperware), rose between 1730 and 1790, and then remained roughly the same until around the mid-nineteenth century.

As a check on the robustness of these results, the index scores and the amount of copperware owned are regressed against LNWEALTH2, an alternative measure of wealth.

(2)

$$\begin{aligned}
 LNINDEXSCORE_i &= \beta_0 + \beta_1 LNWEALTH2_i + \beta_2 WOMEN_MUSLIM_i + \beta_3 MEN_NONMUSLIM_i \\
 &+ \beta_4 WOMEN_NONMUSLIM_i + \beta_5 TITLE_MEN_i + \beta_6 TITLE_WOMEN_i \\
 &+ \beta_7 ELHAC_i + \sum \beta_K PERIOD_K + u
 \end{aligned}$$

LNWEALTH2 is constructed by excluding the value of the domestic durables stock. As mentioned above, LNWEALTH, our control variable in regression (1) is not independent from the index scores, since the total value of the domestic durable stock is a share of the total estate value. Using LNWEALTH2 as a control variable, we will now look at whether Ottomans with the same amount of assets other than household goods, owned a greater quantity and variety of domestic durables.

The results presented in Table 24 are consistent with the results from the previous regressions employing the total estate value as the independent variable. The index scores

indicating the quantity and the variety of domestic goods, as well as the amount of copperware possessed, are strongly and positively associated with the value of the assets other than household durables. When WEALTH2 doubles, the index scores A, B, and C rise by 13 percent, 16 percent, and 17 percent, respectively. This suggests that only a small share of the change in the value of other types of assets was reflected in the ownership of domestic durables. As in the previous model, the coefficients of WOMEN_MUSLIM, TITLE_MEN, and the period dummies 1790, 1820, and 1850 are positive and significant. The coefficients of the independent variables other than LNWEALTH2 are quite close, and are slightly higher than the coefficients in the previous regression. This alternative model produces lower R^2 compared to the first model since the value of the household effects and WEALTH2 are independent.

Table 24- OLS Regression results

Dependent variable	LNINDEXA	LNINDEXB	LNCOPPERKG
CONSTANT	0.546*** (0.159)	0.642*** (0.179)	-1.491*** (0.364)
LNWEALTH2	0.178*** (0.02)	0.208*** (0.022)	0.524*** (0.044)
WOMEN_MUSLIM	0.362*** (0.109)	0.452*** (0.122)	-0.075 (0.208)
MEN_NONMUSLIM	0.063 (0.114)	0.132 (0.128)	-0.053 (0.223)
WOMEN_NONMUSLIM	0.036 (0.126)	0.077 (0.142)	-0.584** (0.251)
TITLE_MEN	0.230** (0.111)	0.275** (0.125)	0.043 (0.224)
TITLE_WOMEN	-0.066 (0.133)	-0.082 (0.149)	0.158 (0.242)
ELHAC	-0.193 (0.125)	-0.226 (0.14)	-0.076 (0.234)
1730	-0.207 (0.133)	-0.310** (0.15)	-0.071 (0.242)
1760	0.097 (0.102)	0.066 (0.115)	0.360* (0.191)
1790	0.292*** (0.112)	0.285** (0.126)	0.679*** (0.211)
1820	0.420*** (0.119)	0.445*** (0.133)	0.838*** (0.22)
1850	0.440*** (0.119)	0.477*** (0.134)	0.403* (0.223)
N	376	376	316
Adjusted-R2	0.29	0.3	0.42

Notes: *, **, *** indicates significance at the 10 percent, 5 percent and 1 percent levels, respectively. 1700 period is the omitted category.

In order to understand better what these results mean, we can estimate the changes in the level of domestic comfort enjoyed by Ottoman men without any titles and with a wealth equal to the median wealth (949 constant akçe) in 1700. The estimated index scores for each period comes from the initial equation (1).

$$\begin{aligned}
 LNINDEXSCORE_I &= \beta_0 + \beta_1 LNWEALTH_i + \beta_2 WOMEN_MUSLIM_i + \beta_3 MEN_NONMUSLIM_i \\
 &+ \beta_4 WOMEN_NONMUSLIM_i + \beta_5 TITLE_MEN_i + \beta_6 TITLE_WOMEN_i \\
 &+ \beta_7 ELHAC_i + \sum \beta_K PERIOD_K + u
 \end{aligned}$$

The estimated intercept term (β_0) is the intercept in the period indicated by the omitted dummy, namely the 1700 period. The estimated coefficient on an included time dummy corresponding to a particular period is an estimate of the difference between the intercept in that period and the intercept in 1700 (e.g. for 1730 this equals $\beta_0 + \beta_{k1}$).

The estimates are presented in Table 25, Figures 9 and 10; and use the coefficients presented in Table 22.

Table 25- Estimated index scores for 949 constant akçe (Muslim male)

	Index A	Index B	Copperware (Kg)
1700	5.32	7.06	8.1
1730	4.27	5.11	7.6
1760	5.66	7.24	11.8
1790	7.23	9.57	17.4
1820	7.84	10.63	19.1
1850	8.03	10.99	12.2
Increase as % of the initial score	0.51	0.56	0.51

In 1700, a Muslim Ottoman man with an estate worth 949 constant akçe and without any titles possessed roughly five different types of domestic durables, excluding copperware. About a century later, a Muslim man with comparable wealth owned eight different types of domestic durables. During the same period, index score B, which proxies for both the variety and the quantity of the goods owned, rose from 7 to 11. The amount of copperware owned at this wealth level was 8 kilograms in 1700 and 19 kilograms in 1820. This figure declined to 12 kilograms in the mid-nineteenth century. Put differently, the level of domestic comfort, as measured in terms of index B, enjoyed by a Muslim male inhabitant of Üsküdar with a wealth of 949 constant akçe in the mid-nineteenth century could only be attained by his ancestor in

the early century if he was four times wealthier. The amount of copperware owned by this individual would be equal to the amount of copperware owned by his counterpart who was twice as wealthy in 1700. From the early eighteenth to the mid-nineteenth century, the estimated scores of A and B, and the amount of copperware possessed rise by 51 percent, 56 percent, and 38 percent, respectively. When the fact that the early modern house contained very few objects is taken into account, the extent of the change becomes evident. As such, every additional item should have significantly contributed towards a more comfortable domestic environment.

Figure 9-Estimated index scores for an estate of 949 constant akçe (Muslim male)

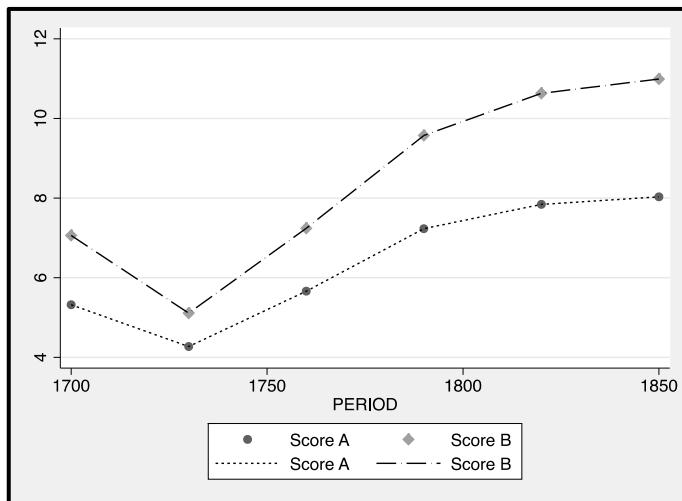
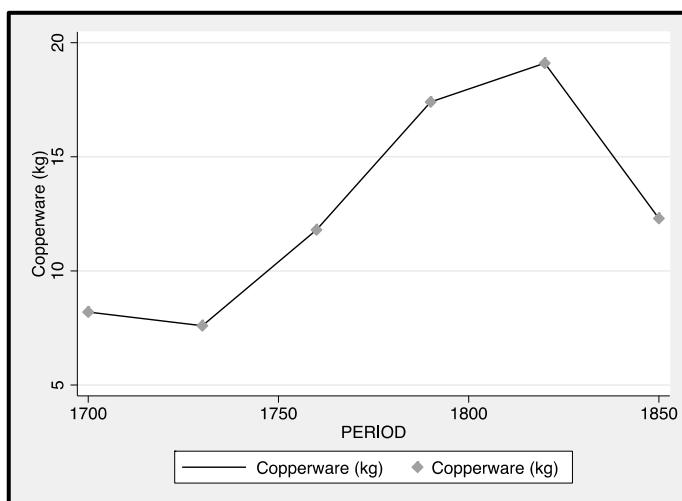


Figure 10 – Estimated amount of copperware (kg) owned for an estate of 949 constant akçe (Muslim male)



5. Conclusion

Using evidence from inheritance inventories, this study uncovered substantial changes in the domestic environment in the Ottoman town of Üsküdar from 1700 to 1850. The interiors of houses grew much richer whether assessed by the more conventional method of counting the frequency of goods, or by using an index of amenities that provides a more comprehensive picture of the domestic environment. By looking at the change over time in the ownership of consumer durables after controlling for variations in wealth, gender, religious status, and titles, I identified a marked increase in the acquisition of goods that did not follow from rising wealth in households and from the change in the sample in terms of the characteristics of estate owners.

Three caveats need to be recognized in considering these findings. First, Ottoman inventories capture individual not household possessions. Male and female estates were complementary, and would ideally be taken together to evaluate changes in the material environment. Second, I have considered household durables, but as Karababa (2006) has suggested it is possible that the consumption of personal items might have followed a different trajectory. Third, it is uncertain how well these findings can be generalized beyond Üsküdar to the less well-connected regions that made up the majority of the Ottoman Empire.

The rise over time in consumer goods as observed in inventories does not simply reflect an upward bias in the sample of inventories that became more pronounced in later periods. The improvement in the material environment is observable even at the same wealth level. In fact, rising wealth was not the major determinant of the growth of household goods over time.

From the second half of the eighteenth century onwards, Ottomans who were no richer than their counterparts in 1700 owned a greater quantity and variety of domestic goods, and thus, enjoyed higher levels of domestic comfort. The amount of household effects owned by a Muslim male with a wealth of about 1,000 constant akçe in the mid-nineteenth century could only be attained by ancestors living in around 1700 who were roughly four times wealthier. In accordance with this picture, the frequency counts of selected household goods demonstrated that several of these goods spread throughout society during the same period. By around the 1850s, an ordinary Ottoman household contained most of the basic necessities,

and in several cases, some of the luxuries that were reserved for the rich in the early seventeenth century, such as coffee utensils and clocks.

The results suggest that the growth of consumer goods in the early-modern era was not a phenomenon restricted to Europe and America, and can be observed in certain regions outside the Western world. Another striking finding concerns the timing of the improvements. The most rapid growth in the household effects owned at constant wealth levels occurred in the second half of the eighteenth century. This is also when, according to several historians, the consumer boom became revolutionary in the West. A comparison of the extent of the improvements in the material environment between Western Europe and the Ottoman Empire is much more difficult. The picture depicted here gives the impression that throughout the period, Ottoman domestic interiors remained quite simple when compared to their European and American counterparts, both in terms of the number and variety of pieces present, and the level of elaboration of the material surroundings.

Several time-dependent factors may have undergirded the introduction of new consumption habits. Possible candidates include price reductions, product innovations, enhanced distribution and retail networks, and increased interest in and information about material goods that led households to reallocate their resources in favour of these goods. An increase in the lifetime earnings that is not reflected in the total estate values due to several factors might also be a factor that helps explain the phenomena.

The improvement in the domestic environment from the second third of the eighteenth century onwards overlaps with the upward trend in urban construction workers' real wages that lasted until around the 1850s. Interestingly, both the inheritance inventories and wage series depict an optimistic picture for this part of the century, characterized by a general economic decay. This might be indicative of a declining demographic trend that created labour shortages on the one hand and resulted in industrial goods becoming relatively more abundant on the other.

Finally, if increasing acquisition of consumer goods by all segments of the society independently of wealth is considered as the trademark of the early modern consumer revolution, then the Ottoman Empire experienced this revolution in the second half of the eighteenth century.

CHAPTER 5

RELATIVE PRICES AND THE RISE OF HOUSEHOLD GOODS

From the second half of the eighteenth century onwards, inhabitants of Üsküdar owned a greater variety and quantity of domestic goods compared to their counterparts possessing the same level of real wealth in the early century. In this paper, I analyse the relationship between the possession of household durables and their overall value in the estates and trace the evolution of the price of consumer goods as a possible explanation for the improvements in the domestic environment.

As Shammas (1989) highlighted, an important lacuna in the historical literature on consumption is the lack of attempts to distinguish changes in consumption due to alterations in price or income from those produced by a shift in tastes. If higher income levels are set aside, the most straightforward explanation of the growth of consumer goods would perhaps be a shift in the consumer strategies driven by changing attitudes towards consumption and the domestic environment. In the face of higher standards imposed by a new understanding of a comfortable and desirable domestic life, we might expect that in the eighteenth century, individuals redefined their priorities and thus reallocated their resources in favour of domestic durables. A second (or complementary) explanation can be sought in prices. A decline over time in the prices of consumer durables would mean that households might have acquired a greater quantity of household goods than they had earlier, despite the constant – and sometimes even shrinking – overall value of their total stock of such goods.

These two alternative explanations are of a different nature and have different implications for the study of Ottoman consumption and living standards. If the increase in the ownership of domestic goods occurred due to greater resources devoted to these goods, changes in preferences finding their source in transformations in the sociocultural sphere would appear to be the most important factor underlying eighteenth- and nineteenth-century Ottoman consumerism. This would provide support for the relatively autonomous cultural approach to the consumer change (McKendrick 1982; McCraken 1988). In this case, the ownership of domestic goods would not point to an increase in living standards but merely to

a change in priorities, since the individuals had to abandon a share of their spending on other items in order to acquire more consumer goods.

However, if the ownership of greater quantities of domestic goods was made possible by the declining prices of such goods, then our attention needs to focus on the economic dynamics and structural changes in production and trade that might have provided the driving force for Ottoman consumerism. In this case, individuals would have achieved an increase in their living standards by acquiring more goods and achieving higher levels of domestic comfort without a trade-off between different expenditure categories.

Changes in consumer preferences are conventionally traced in expenditure patterns. In an ideal world, we would look at household budgets to investigate whether the rise of consumer goods in the early-modern period can be explained on the basis of a demand shift that resulted from sociocultural transformations in early-modern societies. At constant income and price levels, an increased preference for household durables would be shown by an increase in the share of household budgets spent on these goods at the expense of other items of consumption. Unfortunately, historical household budgets are rarely available in most cases, and are certainly not extant for Ottoman households.

In the absence of budgets, we are forced to explore what inventories can tell us about this question. As De Vries and other historians have emphasised, probate/inheritance inventories are not ideal sources to determine whether more goods were consumed because prices declined, income levels rose, or consumers changed their budget allocations and spent more on that category of goods. Consumption is a flow concept linked to income rather than wealth. Probate inventories are snapshots of the possessions of the deceased at the moment of death, and as such, they capture only a part of all the consumer goods acquired during a person's lifetime. Since early-modern consumption changes were characterized by the acceleration of fashion cycles, the diminishing durability of goods, and a lower intrinsic or resale value, the evolution of the value of the stock of consumer goods in the estates cannot be understood as a reflection of the evolution of expenditures (De Vries 1994, 2008). In other words, the relative importance of consumer goods within overall wealth is not an indicator of consumer preferences.

Notwithstanding the pitfalls and dangers of conducting an analysis based on the value of the consumer goods stock recorded in the inventories, their analysis can yield important insights regarding the relationship between the possession of household goods and their value. Numerous studies on early-modern consumerism revealed that in seventeenth- and eighteenth-century Europe and America, the growing prominence of consumer goods was tied to the reduced (or constant) values of the consumer goods stock. Here, I explore whether this characteristic feature of Western consumerism was also present in Ottoman inheritance inventories.

In this paper, I examine both the changes over time that occurred in the total value of the stock of household durables and the evolution of prices and inventory valuations. I investigate whether Ottomans *could* increase their consumption without a rise in expenditures on domestic goods. This question can be addressed independently of whether Ottomans raised their overall spending on consumer durables. A decline in the prices of household durables would mean that individuals were able to enjoy more domestic chattels, even when they did not experience a rise in their incomes, or when they did not increase the share of income allocated to these goods.

This investigation ultimately aims to understand whether early-modern Ottoman consumerism can be understood only as a sociocultural phenomenon. Despite the growing interest in material culture and consumption in the Ottoman realm in recent decades, the Ottoman world of goods has not been explored from an economic perspective. Rather, Ottomanists are inclined to portray consumerism as a social and cultural phenomenon linked to rising social mobility and changing modes of sociability. These studies adapt the theoretical framework offered by McKendrick (1982) to the Ottoman context, and demonstrate how consumption gained a social role and began to be used for social differentiation (Artan 1998, 2000; Baram 1999; Ellis 2011; Exertzoglou 2003; Karababa 2006, 2012; Karababa and Ger 2011; Micklewright 2000; Salzmann 2000; Sajdi 2014; Zilfi 2000). Little consideration has been given to the alternative possibility: that falling prices might have encouraged greater consumption.

In the following sections of this chapter, I first look at the share of wealth tied up in durables, and investigate whether it grew parallel to the increase in the variety and quantity of household goods possessed. At a second step, I focus on prices of luxuries, non-food items

and domestic goods, and explore whether a declining trend, that might be explicative of the rising ownership of household goods, was observable.

1. Evolution of value of household durable stock over time

This first question we address here is whether the growth in consumer durables that we observed in Ottoman households is simply explicable by a shift towards buying more goods. To do so, I look at the overall value of domestic goods reported in the estates and explore the evolution of the share of household durables within the whole estate.

Numerous studies on early-modern consumerism have revealed that in seventeenth- and eighteenth-century Europe and America, the growing prominence of consumer goods was paired with their reduced (or constant) significance to the total wealth of those that bequeathed estates. Shammas (1982) was the first historian to discover this vital fact of early-modern consumerism. She calculated that the percentage of total wealth in her inventories formed by consumer goods remained fairly steady from the sixteenth century until the eighteenth century at around 25 percent. Similarly, Main and Main (1988) determined that consumption goods declined not only as a percentage of total probated wealth, but also in absolute values, in southern New England between 1640 and 1774. The decline of the share of consumer goods, they supposed, could be explained by the process of investing in farm improvements, which would raise the value of farm assets as frontier settlements aged. They also thought that the decline in absolute values was surprising and warranted explanation. Carr and Walsh (1980) showed that in colonial Chesapeake, the value of consumer durables as a percentage of total estate value rose from the 1650s to the 1670s before falling in every county examined from the 1670s to the late 1770s. Here, too, the absolute values often – but not always – fell. In England, Earle (1989) found that “there was little change over time [in the value of domestic goods], a rather surprising result since...there was a considerable qualitative change in domestic goods.” Here, I ask whether this characteristic of the consumer revolution was also present in the Ottoman Empire, or whether they highlight an economic shift that was characteristic of European and North America but not observable elsewhere in the early-modern world.

In the first exercise, I examine whether the share of domestic goods in the total estate value increased over time. This refers to the relationship between the value of domestic

durables and other components of wealth (such as real estate, production goods, jewellery, books, and the like). However, one needs to be cautious when interpreting this relationship. The proportion of material wealth represented by domestic goods might reveal more about the other components of wealth than it does about domestic durables (Overton 2002). For instance, a rise in the value of real estate recorded from one period to another might mask the increase in the value of domestic durables in absolute terms, by keeping the share constant or reducing it. Looking at the change in the share of domestic goods at constant wealth levels solves the problem only partially.

The nominal values of domestic durables are a better guide to understanding whether the increased quantity and variety of household goods in the estates can be coupled with the rising values of such goods, as one might expect. In the second exercise, I explore the evolution of the value of the domestic durable stock expressed in terms of Pamuk's consumer basket, which consists of basic consumer goods⁶⁵.

1.1. Methodology

In order to understand whether the increased quantity and variety of household goods in Ottoman estates occurred in tandem with the rising values of such goods, the share of household durables within the whole estate and the value of household durables in terms of CPI are regressed against variables indicating total wealth, gender, religious status, titles, and the period dummies.

65 Although the exercise is the same as deflation, I prefer not to call the resulting figure "real" or "absolute" value, unlike most other studies. The method of deflation, dividing a nominal quantity by the price level, is applied to express the quantity in real terms. However, when the nominal value of consumer durable stock is divided by an index of agricultural prices, as seen in many of the studies above, this does not give us real quantities, unless the relative prices of agricultural and consumer goods are constant (meaning agricultural prices can act as a proxy for manufactured goods prices). The greater the decline or increase in the prices of manufactured goods relative to agricultural goods is, the greater the gap between real terms and the resulting figure. Therefore, here, the quotient is interpreted to represent the number of staple goods (constituting Pamuk's consumer basket) that the stock of consumer durables possessed by estate owners corresponds to at different periods. Since staples constituted by far the greatest share of the total expenditures of a household, and since the majority of the inhabitants of Üsküdar were engaged in agricultural activities - meaning they had recourse to agricultural incomes during the period - this can provide a cogent indicator of the phenomenon at play.

(1)

$$\begin{aligned}
 \text{LNSTOCKVALUE}_i &= \beta_0 + \beta_1 \text{LNWEALTH}_i + \beta_2 \text{WOMEN_MUSLIM}_i + \beta_3 \text{MEN_NONMUSLIM}_i \\
 &+ \beta_4 \text{WOMEN_NONMUSLIM}_i + \beta_5 \text{TITLE_MEN}_i + \beta_6 \text{TITLE_WOMEN}_i \\
 &+ \beta_7 \text{ELHAC}_i + \Sigma \beta_K \text{PERIOD}_K + u
 \end{aligned}$$

(2)

$$\begin{aligned}
 \text{SHARE}_i &= \beta_0 + \beta_1 \text{LNWEALTH}_i + \beta_2 \text{WOMEN_MUSLIM}_i + \beta_3 \text{MEN_NONMUSLIM}_i \\
 &+ \beta_4 \text{WOMEN_NONMUSLIM}_i + \beta_5 \text{TITLE_MEN}_i + \beta_6 \text{TITLE_WOMEN}_i \\
 &+ \beta_7 \text{ELHAC}_i + \Sigma \beta_K \text{PERIOD}_K + u
 \end{aligned}$$

As the stock of household durables is correlated with wealth, the incorporation of a variable indicating the total estate value allows us to observe whether the value stock of household durables possessed by individuals at the same level of wealth, increased over time. This also helps us to avoid any distortions that might occur due to possible upward or downward biases in the samples across different periods. If the share of wealth allocated to domestic goods and the value of household durable stock in terms of CPI increased over the course of time, we would expect the coefficients of the dummies for later periods to be significant and positive when controlled for wealth. Interaction dummies bringing together the gender and religious statuses of the estate owners (MEN_M, WOMEN_M and NON-MUSLIM) are included as control variables.

The descriptive statistics of the regression variables are reported in Table 1.

Table 1- Descriptive statistics of the regression variables

	N	Mean	S.D.	Min	Max
LNSTOCKVALUE	380	5.916	1.360	-2.263	9.064
LNWEALTH	380	7.549	1.387	4.158	11.369
WOMEN_MUSLIM	380	0.300	0.459	0	1
MEN_NONMUSLIM	380	0.174	0.379	0	1
WOMEN_NONMUSLIM	380	0.126	0.333	0	1
TITLE_MEN	380	0.261	0.440	0	1
TITLE_WOMEN	380	0.126	0.333	0	1
ELHAC	380	0.074	0.262	0	1
SHARE	380	29.689	23.341	0.003	100

1.2. Results

Regression results are presented in Table 2. In both regressions, the coefficient of LNWEALTH is significant at the 1 percent level. As expected, wealth is positively associated with the overall value of the household good stock and negatively associated with the share this stock held within the total estate. When other variables are held constant, the share of household durables declined by 5.3 points while the value of domestic durables rose by 60 percent when wealth doubled.

Table 2- OLS Regression results

Dependent variable	SHARE	LNSTOCKVALUE
CONSTANT	87.073*** (6.413)	0.608* (0.321)
LNWEALTH	-7.651*** (0.8)	0.676*** (0.04)
WOMENMUSLIM	7.206** (3.703)	0.526*** (0.186)
MENNOMUSLIM	-0.586 (3.896)	0.105 (0.195)
WOMENNOMUSLIM	-5.495 (4.294)	-0.223 (0.215)
TITLE_MEN	6.274* (3.805)	0.173 (0.191)
TITLE_WOMEN	-0.212 (4.531)	-0.171 (0.227)
ELHAC	-9.526** (4.267)	-0.3 (0.214)
1730	-7.891* (4.506)	-0.207 (0.226)
1760	-3.978 (3.5)	-0.069 (0.175)
1790	-6.012 (3.828)	-0.029 (0.192)
1820	1.326 (4.055)	0.273 (0.203)
1850	2.147 4.075	0.245 0.204
N	380	380
Adjusted-R2	0.29	0.47

Notes: *, **, *** indicates significance at the 10 percent, 5 percent and 1 percent levels respectively. 1700 is the reference category.

The interaction dummies show that Muslim women were distinctive in terms of the composition of their estates as well as the value of the household goods they owned. At constant levels of wealth, household durables occupied a greater place (about 8 percent more)

in the estates of Muslim women, while the value of domestic durables possessed by this group was 52 percent higher compared to Muslim men. These results are in accordance with the findings on index scores of consumer goods in chapter 4, which revealed that Muslim women possessed a greater quantity and variety of household chattels. The overall value of the stock of household effects possessed by a Muslim male estate owner with a wealth of 949 constant akçe (the median wealth in 1700) is estimated at 209 constant akçe, while the same figure was 319 constant akçe for a Muslim female. At this wealth level, the value of the domestic durable stock constituted 34 percent of the total value of Muslim male estates, and 42 percent of Muslim female estates. No significant difference is detected between male and female non-Muslims and Muslim men.

When wealth remained constant, household durables held a greater share in the estates of men with official and religious titles (about 6 percent more), and a smaller share (about 10 percent less) in the estates of pilgrims compared to those individuals who held no titles.

At constant levels of wealth, the value of the domestic durable stock or its relative share of overall wealth did not increase over time. Neither of the regressions detected a statistically significant difference between 1700 and the later periods. These results are similar to the findings of previous research for large parts of early-modern England, North America, and the Netherlands, which have shown that both the absolute value of probated consumer goods and their share within the overall estate remained stable or declined, while people owned increasingly more goods.

As pointed out by De Vries, the constant stock values of consumer goods do not necessarily imply that the flow of household expenditures was also constant. The size of the stock can be a misleading proxy for expenditures when the rate of change of this stock is not taken into consideration. As snapshots of the possessions of the deceased at the moment of death, probate inventories capture only a part of all the consumer goods acquired during a lifetime. The turnover associated with the accelerating changes in fashion cycles throughout the long eighteenth century resulted in an increasingly smaller number of goods purchased over the course of a lifetime being included in the inventories. This implies that long-term

growth in the volume and diversity of possessions in inventories is an underestimated measure of the real increase in consumption, both in real and monetary terms.

This notwithstanding, it should be recalled that the purpose of the exercise is not to observe changes in household expenditures on domestic goods from the stock values; rather, it is to explain the contradiction between material and monetary expressions of the household durable stock in inventories. As we saw in chapter 4, the quantity and variety of the household effects contained in Ottoman inheritance inventories increased over time independently of any growth in wealth. The results of this exercise suggest that this growth was not driven by a rising shares of the stock of these goods within estates. We can thus reject one obvious explanation for how consumption might increase, and again see a close parallel between Ottoman and Western patterns of consumption in this period.

2. Prices of luxuries, non-food items and domestic goods

The other potential explanation for this paradox of rising consumption despite stagnant wealth is a decline in the prices of such goods. We can consider the stock of household durables in each inventory as a bundle. The overall value of this bundle would be equal to the sum of the per-unit-price of each good multiplied by its quantity.

$$VALUE = Q_1 * P_1 + Q_2 * P_2 + \dots Q_n * P_n$$

In this formula, the quantity (and the variety) of domestic goods owned represents the relationship between the total value of the bundle and the prices. If everything else remained constant, an increase in the amount of goods owned implies either an increase in the overall value of the bundle or a decline in prices (or a combination of these two). At a constant price level, people who owned more goods would see the total value of their possessions increase. On the other hand, if prices were declining, the same total value would indicate ownership of a larger quantity of goods.

Falling prices has a long been identified as one driver of rising consumption in Europe and America. Shammas (1994) and Overton (2000), showed that the prices of manufactured goods, particularly of textiles, declined substantially in early-modern England and America. More recent findings on the changes in relative prices of agricultural and non-agricultural prices in Europe (Clark 2004; Hoffman et al. 2002; Malanima and Pinchera 2012) have

supported the hypothesis that declining prices played a crucial role in explaining the rising consumerism in the seventeenth and eighteenth centuries.

Does the evolution of prices also explain consumption in the Ottoman Empire? Were the Ottomans *able to* increase their consumption without incurring rising expenditures on domestic goods? This section of the paper explores the evolution of the inventory valuations of household effects and the prices of some other manufactured and traded goods in the eighteenth- and nineteenth-century Ottoman Empire, in an effort to understand how the changes in relative prices were linked to the growth of domestic goods.

At this juncture, it should be recalled that most estate owners were engaged in agricultural activity to some extent, as suggested by the frequent appearance of rural assets and means of production in the inventories, and one would expect the semi-rural character of Üsküdar to enhance the effect of relative price trends. A rise in agricultural prices relative to manufactured goods would not only expand the ability to purchase manufactured goods but would also lead to an increase in agricultural incomes.

Comparing the levels of relative prices (price of silver and manufactured goods relative to wheat) across nations, Allen et al. (2004), suggest that in addition to being a region of high wages, rents and cheap silver, Northwest Europe was also a region with the world's most expensive food grains vis-à-vis the world's cheapest non-food industrial goods. Allen et al. (2004) conclude that the discrepancy in the relative prices is a source of misleading findings regarding global inequality based on grain wages that depict a picture of non-divergence prior to the Industrial Revolution. They argue that wages deflated by a consumer basket involving non-food goods, as well as staple goods, would provide a more accurate picture of inequality between nations, allowing us to observe divergence well before the nineteenth century⁶⁶.

However, in their analysis, Allen et al. (2004) focus on levels rather than trends. That manufactured goods were cheaper relative to grains in Northwest Europe compared to other parts of the continent, including Ottoman Istanbul – and presumably other parts of the world

⁶⁶In contrast to the stylized facts this study highlights, the tables presented demonstrate that the region that was home to the cheapest manufactured products in almost every case was Spain (rather than England or the Netherlands). Spain was followed by England or the Netherlands depending on the item. For the tables of the paper, see <http://www.iisg.nl/hpw/globalhistory.php>.

– does not necessarily mean that the latter did not experience the same trend in prices during the same period. By investigating the evolution in the prices of manufactured and traded goods and the valuations of domestic goods in the Ottoman realm between 1700 and 1850, I aim to understand whether the downward trend in the relative prices of industrial goods was a pattern particular to Northwest Europe or can be expanded to other regions.

3.1. Manufactured and traded goods

We can obtain an initial sense of the movement of the prices of manufactured against agricultural products if we look at a snapshot of the start and points of our period. Table 3 compares the 10-year average of the real prices of a number of manufactured and traded goods (sugar, coffee, soap, nails, charcoal, wood, woollen cloth, imported cloth, and velvet) from the early seventeenth (1600-1610) and mid-nineteenth (1850-1860) centuries. The price series are taken from Pamuk (2000a), while the real prices are obtained by dividing the nominal prices by Pamuk's consumer price index, his indicator of the general price levels in Ottoman Istanbul.

Apart from wood, itself an agricultural product, the real prices of all the goods dropped during the 1600-1860 period (see Table 3). The largest drop occurred in imported cloth (Londrina) and velvet. Between these dates, the price of imported cloth declined by 97 percent while velvet diminished by 82 percent. The decline (42 percent) in woollen cloth prices was less emphatic, yet still significant. Compared to the price levels in the early seventeenth century, 10-year average real prices of coffee and sugar were about 75 percent lower in the mid-nineteenth century. Similarly, the real price of soap, nails and charcoal decreased by 43 percent, 52 percent, and 33 percent, respectively.

Table 3- Comparison of prices (in constant akçe)
Early seventeenth to mid-nineteenth centuries

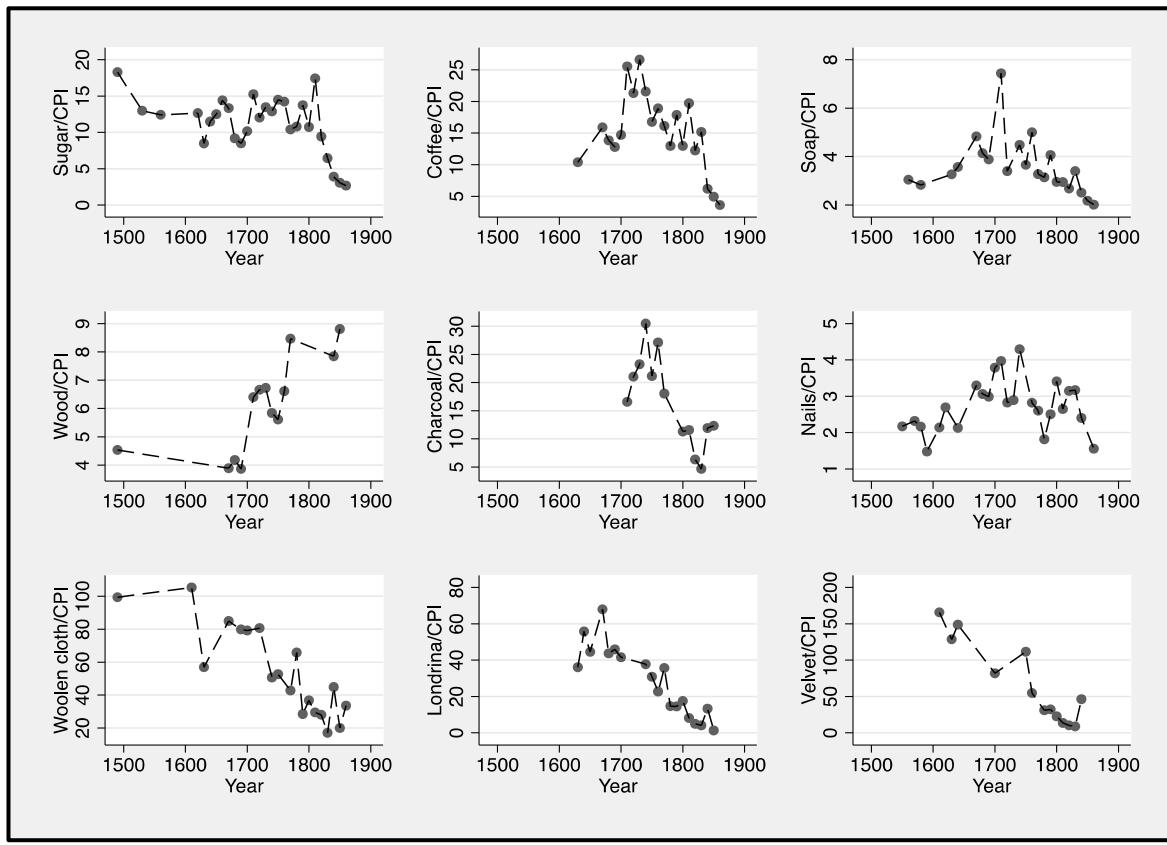
	<i>Early 17th c.</i>	<i>Mid-19th c.</i>	<i>Change as % of initial price (1600-1860)</i>
Sugar/CPI (kg)	11.2	3	-0.73
Coffee/CPI (kg)	13.8	4	-0.77
Soap/CPI (kg)	20.9	11.9	-0.43
Nails/CPI (kg)	12.5	6	-0.52
Charcoal/CPI (100kg)	19.1	12.8	-0.33
Wood/CPI (250 kg)	3.8	9.1	1.37
Woollen cloth/CPI (meter)	91	48.6	-0.47
Imported cloth/CPI (meter)	49.1	1.5	-0.97
Velvet/CPI (meter)	143.3	45	-0.82

Source: Prices are taken from Pamuk's (2000a) database.

Figure 1, looking at the 10-year average real prices of manufactured and traded goods contained in Pamuk's consumer basket clearly reveals the decline in the real prices of most of these goods between 1600 and 1860. Furthermore, the figure demonstrates that the average price of sugar, coffee, soap, charcoal, and nails followed an inverse U-shape pattern, rising from the early sixteenth to mid-eighteenth century, before subsequently falling until the end of the period. The same pattern, albeit less markedly and with a peak in the early eighteenth century, is also visible for woollen cloth and Londrina⁶⁷.

67 It is quite striking that a similar inverse U-shape pattern in real prices of industrial and traded goods is identified in England and Italy by Clark (2004), Hoffman et al. (2002), and Malanima and Pinchera (2012) for the same period. The “bundle of modern goods,” as Clark puts it, became more expensive relative to staples in England between 1650 and 1730 before becoming more inexpensive until the last decade of the eighteenth century. Similarly, in Central-Northern Italy, the increasing trend of real textile prices was reversed around 1730, and the price of textiles declined relative to the general price level between 1730 and 1790.

Figure 1- Manufactured and traded goods' prices (in constant akçe)



Sources: Prices are taken from Pamuk's (2000a) database.

The inspection of Figure 1 also makes the considerable volatility of the manufactured and traded goods' real prices, manifest. Therefore, at a further step, the time trend of the yearly real prices is investigated by a regression. To understand the trajectory of price movements better, we can break down the period into shorter durations. For each of the goods, time trends in yearly prices in constant akçe are estimated using the regression below:

(3)

$$LN\left(\frac{P_t}{CPI_t}\right) = \beta_0 + \beta_1 TIME + u$$

Regressions are conducted separately for the seventeenth, eighteenth and nineteenth centuries, as well as for the whole period (1600-1860). The estimated time trend coefficients indicating the yearly rate of the change in prices are given in Table 4. For the whole period, the downward trend in real prices is confirmed by the results. Except for nails and wood, the time coefficient is negative and significant at the 1 percent level.

Table 4- Estimated time trend coefficients (in constant akçe)

	1600-1700	1700-1800	1800-1860	1700-1860
Sugar	-0.0018	-0.0017**	-0.0254***	-0.0035***
Coffee	-0.0022	-0.0060***	-0.0324***	-0.0055***
Nails	0.0033***	-0.0025*	-0.0162**	-0.0008
Charcoal		-0.0034	0.0103	-0.0096***
Soap	0.0001	-0.0040***	-0.0061***	-0.0030***
Wood	0.0003	-0.0012	-0.0427	0.0032***
Woollen cloth	0.0017	-0.0089***	0.0013	-0.0063***
Imported cloth	-0.0031	-0.0149***	-0.0267*	-0.0125***
Velvet	-0.0033	-0.0288***	0.0464*	-0.0092***

Source: Prices are taken from Pamuk's (2000a) database.

The results also show that despite skyrocketing grain prices due to widespread rebellions in the countryside in the seventeenth century, drops in the relative prices of manufactured and traded goods were not a general phenomenon during this century. The coefficients of several goods are positive and none of the negative coefficients are significant at the 10 percent level for the seventeenth century. This notwithstanding, there is clear evidence that prices dropped throughout the eighteenth century prior to industrialization that occurred, although in general, the annual rate of decline between 1800 and 1860 was higher than the yearly rate between 1700 and 1800.

Overall, the prices of manufactured and traded goods appear to support the argument that the growth in quantity of consumer goods possessed by the deceased may in part be explained by falling prices. However, none of the prices in those series are for the types of consumer goods we find in inventories, although some are for commodities used to manufacture consumer durables. Hence, it is important to examine whether similar price trends can be identified from the evidence in the inventories themselves. Now we turn to valuation of household durables appearing in the inventories to test whether the decline observed in manufactured and traded goods' real prices throughout out this period was also reflected in the inventory valuations of consumer durables.

4.2. Household durables

In this section, based on the valuations in the inventories, I trace how the prices of selected household effects evolved over time. Data on industrial prices are harder to collect and analyse than data on agricultural goods. While the unit valuations of consumer goods in inventories were not the prices of first-hand goods in the market, they still permit us to observe general price trends⁶⁸. The most important example of this approach is Overton's analysis of English prices. Employing inventory valuations, Overton (2000) constructed composite price indices for *wood* (bedsteads, chairs, chests, coffers, cupboards, tables), *textiles* (blankets, coverlets, cushions, napkins, pillowcases, sheets, tablecloths, towels), *metals* (brass pots, brass candlesticks, dripping pans, frying pans, irons, chaffing dishes, pewter plates), *agricultural products* (wheat, rye, barley, oats, cattle, horses, sheep, pigs), and *capital goods* (furnaces, harrows, ladders, malt mills, ploughs and gear, spinning wheels). His findings reveal that consumer goods became increasingly cheaper from the mid-seventeenth to the mid-eighteenth centuries, while the price of agricultural products and capital goods rose during the same period.

Do we see a similar change in the prices of household goods in the Ottoman Empire from 1700 to 1850? I investigate this using my sample of inventories from the town of Üsküdar. The unit valuation of sheets, mattresses, duvets, cushions, pillows, chests, and felts⁶⁹ are drawn from inventories in the sample. It has been previously demonstrated that the quality of the goods and – thus the prices – were positively associated with wealth. To limit the study to goods of "average quality," the valuations are taken from the interquartile range of the sample in each time interval, while observations that are described as old, torn, ornamented, and the like are omitted, as well as outlier values. Unit valuations are divided by Pamuk's CPI (2000a), and average figures are computed for each period (see Table 10).

Table 5 and Figures 2 to 6 look at unit valuations of the selected goods. The first striking finding is that mean valuations for mattresses, cushions, pillows, duvets, and sheets

68 The reliability of inventory valuations in reflecting the trends in conventional prices is discussed in the first chapter of the present study.

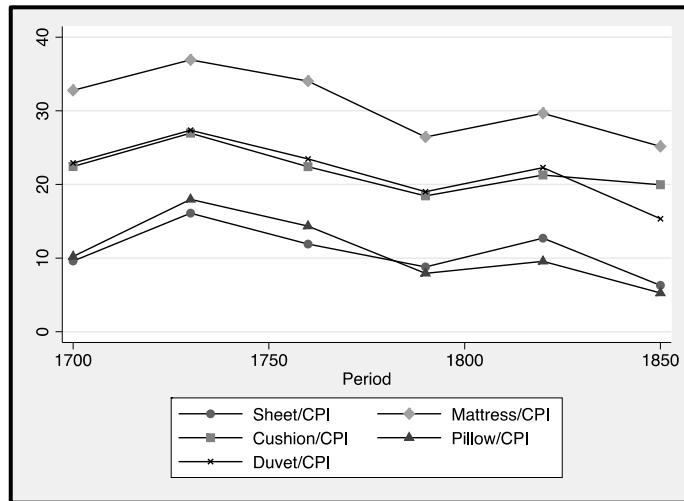
69 Throughout the period and at all wealth levels, these goods were the most common domestic goods present in the inventories.

moved in concert. The overlap between the trends in the prices of these goods, which were made of the same materials, supports the reliability of the findings. The first four of these items were usually stuffed with cotton and covered with cotton textiles or occasionally silk-cotton or wool-cotton mixtures. Sheets were usually manufactured from cotton or cotton-silk mixtures. In all five cases, the average values declined modestly from 1700 to 1850, with two upward shifts around 1730 and 1820.

**Table 5- Unit valuations of selected household goods from Üsküdar inventories
(in constant akçe)**

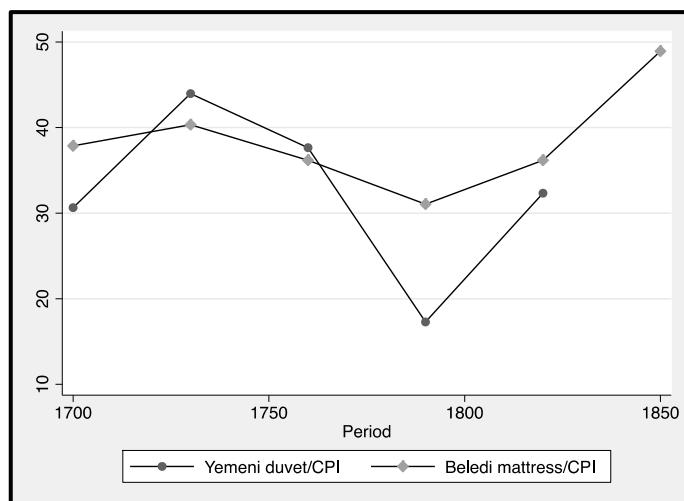
	SHEET			MATTRESS			CUSHION			PILLOW		
	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	N
1700	9.6	5.88	40	32.77	12.76	41	22.43	13.17	68	10.22	7.09	63
1730	16.1	8.35	18	36.91	12.94	14	26.96	11.56	28	17.97	8.85	42
1760	11.9	6.27	42	34.03	11.07	32	22.41	11.66	43	14.34	9.27	53
1790	8.8	5.69	28	26.44	9.47	41	18.44	12.26	48	7.93	6.09	73
1820	12.7	7.82	23	29.66	10.26	33	21.28	12.28	17	9.56	8	44
1850	6.3	3.21	10	25.16	8.64	5	19.96	9.01	14	5.26	4.49	22
	CHEST			FELT			DUVET					
	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	N			
1700	7.96	5.23	20	19.67	15.35	28	22.91	14.98	88			
1730	16.16	6.57	12	21.09	17.42	14	27.36	9.6	29			
1760	9.3	6.39	22	12.77	12.15	22	23.46	17.79	33			
1790	14.89	9.13	30	29.39	24.24	16	19.01	11.94	47			
1820	19.17	11.79	28	21.46	19.98	9	22.29	13.63	62			
1850	15.36	8.56	22	48.96	24.89	7	15.34	11.11	20			

**Figure 2- Unit valuations of sheets, mattresses, duvets, cushions and pillows
(in constant akçe)**



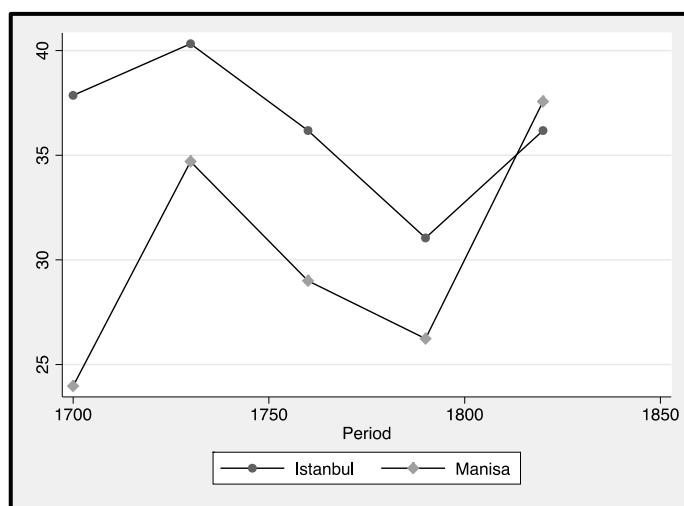
As the quality of the textiles contained in the estates might be shifting over time, the same exercise is repeated for mattresses covered with *beledi* (a local cotton fabric) and duvets covered with *yemeni* (Indians), to achieve a greater homogeneity of observations. These two textiles were the most commonly used fabrics in Ottoman houses all through the eighteenth century, and they appear in the inventories even as late as the 1820s. The unit valuations of both *beledi* mattresses and *yemeni* duvets relative to basic consumption goods followed the same pattern with all mattresses and duvets (see Figure 3).

Figure 3- Price of *beledi* mattresses and *yemeni* duvets (in constant akçe)



To check the reliability of the trends, I compare with the price of *beledi* mattresses in Üsküdar with those from inventories belonging to another Ottoman town, Manisa (see Figure 4). The evidence provided by Manisa inventories⁷⁰ also confirms the trends. As *beledi* was produced in Manisa, the price of an item made of this fabric was lower in this city compared to Üsküdar. At the turn of the eighteenth century, the fabric began to be produced in Istanbul, something that was also reflected in the series through converging prices.

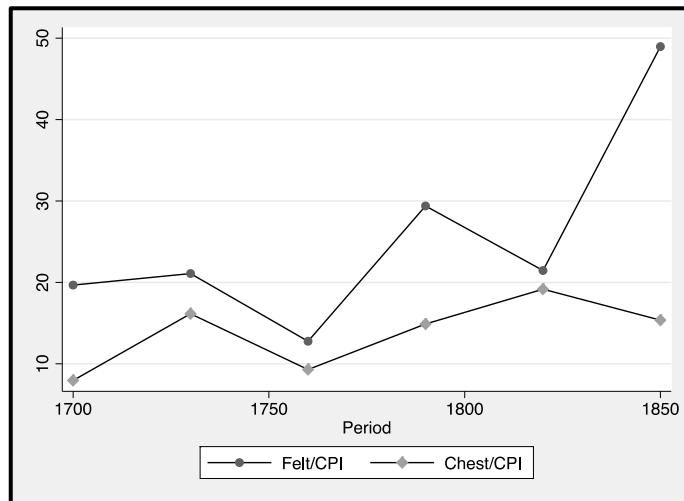
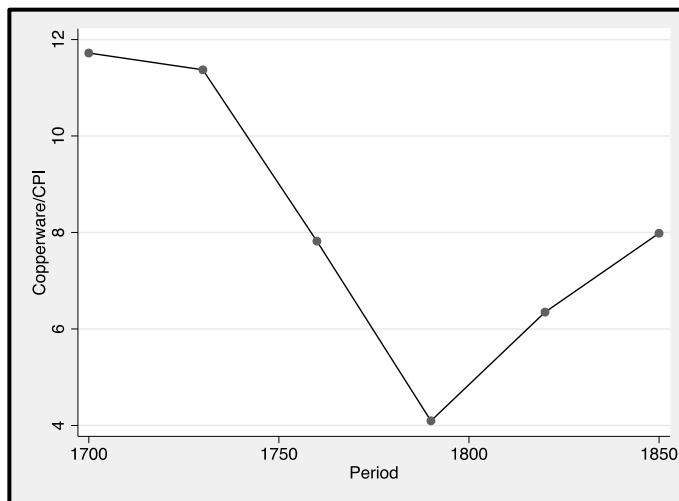
Figure 4 –Unit valuations of *beledi* mattresses from Üsküdar and Manisa (in constant akçe)



Source: Manisa valuations are collected by the author. See Primary Sources section for details.

Unit valuations of felts and chests, on the other hand, exhibited a rising trend (see Figure 5). Measured in terms of staples, both of these items were substantially more expensive at the end of the period compared to the initial period. The increase in mean valuations of chests was consistent with the rising wood prices as demonstrated by Pamuk's price series for this period.

70 We need a note indicating the source: where are these held? And the number of observations.

Figure 5- Unit valuations of felts and chests (in constant akçe)**Figure 6- Valuation of copperware (in constant akçe/kg)**

Copperware was indispensable in an Ottoman house and possessed an important share within the overall value of the household durable stock. Ottoman inheritance inventories recorded copperware owned by the deceased in weight units and with valuations. I constructed yearly price series for copperware using two observations per year. Figure 21 shows the 10-year average for copperware prices. The price of copperware relative to staples follows a similar pattern to that of household linen, declining from 1730 to 1790 by about 60 percent, and rising from this date onwards (see Figure 6).

4.3. Household durable basket

The price of individual goods from inventories is not easy to interpret. Most fell. Some rose. But what did this mean for the affordability of the kind of consumer goods that Ottoman people owned? For a more comprehensive understanding of the changes in the prices of household durables, and how this might have affected the ability of individuals to own these goods, we can construct a consumer basket and look at how the value of this basket evolved between 1700 and 1850. The basket includes the essential domestic goods that appear most frequently in the estates, according to the frequency counts in chapter 4. These goods are presented in Table 6. Even as early as 1700, they appeared in the inventories of all Üsküdar inhabitants independent from wealth.

Table 6- Household durables contained in basket

		UNIT
<i>Copperware</i>		
2 shallow pans with handles	1.94	kg
1 cooking pot	2.65	kg
1 frying pan	0.86	kg
1 ewer	1.2	kg
1 washtub	2.45	kg
TOTAL	9.1	kg
<i>Household goods</i>		
<i>Mattresses</i>	1	piece
<i>Sheets</i>	1	piece
<i>Duvets</i>	1	piece
<i>Pillows</i>	1	piece
<i>Cushions</i>	4	piece
<i>Felts</i>	1	piece
<i>Chests</i>	1	piece

Table 7- Value of household durable basket from 1700 to 1850

VALUE OF THE BASKET/CPI	
1700	297.25
1730	346.94
1760	266.63
1790	217.48
1820	257.69
1850	251.16

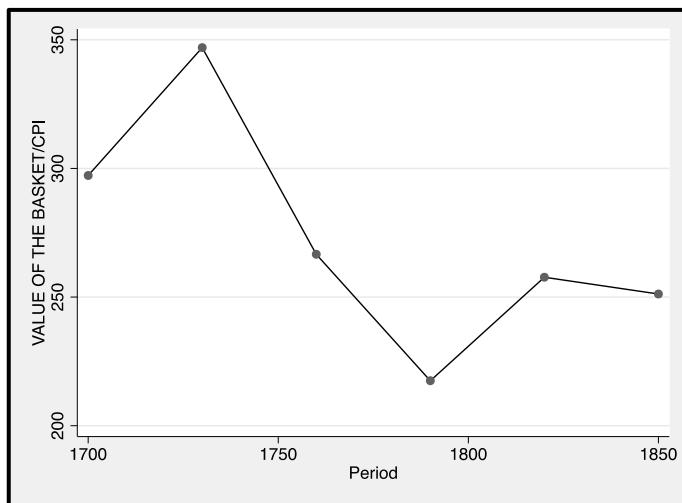
Figure 7- Value of household durable basket (in constant akçe)

Table 7 and Figure 7 depict the evolution of the value of the consumer durable basket. In the first half of the nineteenth century, the overall value of the household durable basket in constant akçe was significantly lower than it was a century ago. The basket was worth about 300 constant akçe around 1700. This figure rose to 350 constant akçe in 1730 before falling to 220 constant akçe in 1790. Following an upward shift in the early nineteenth century, the overall value remained at the level of 250 constant akçe in 1850. The prices dropped sharply between 1730 and 1790. However, it was in the 1760-1790 period that the prices dropped below their initial level.

These trends in household durable prices closely mirror the evolution of estimated index scores and the estimated amounts of copperware owned at constant wealth levels. As prices declined in the 1730-1790 period, index scores A and B, as well as the amount of

copperware owned for constant wealth levels, steadily rose (see Figures 8 and 9). These findings strongly support the role of the decline in consumer durable prices in the growth of household effects.

Figure 8- Value of household durable basket (in constant akçe), and the estimated index A and B for an estate of 949 constant akçe (Muslim male)

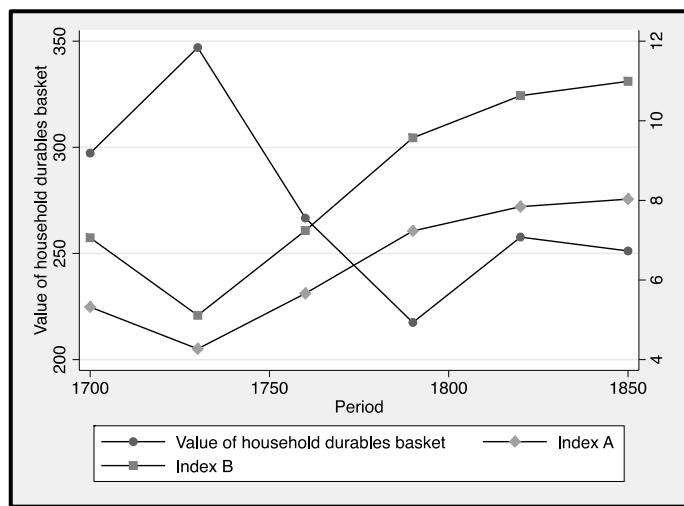


Figure 9- Price of copperware (in constant akçe), and the estimated amount of copperware (in kg) owned for an estate of 949 constant akçe (Muslim male)



5. Depreciation and decline in resale values

Alongside the decline in the original purchase price of the goods, another factor affecting inventory valuations was lower resale values (De Vries 1994, 2008). Goods

depreciated and thus, devaluated faster in the course of the long eighteenth century because they wore out faster and went out of fashion sooner (De Vries 2008). In the case of Üsküdar, the traces of accelerated depreciation are visible in the 1850 sample. It is very likely that the decline in the number of household linen items reported individually during this period (score for this category of goods declined from 1.3 in 1820 to 0.8 in 1850 in the lower wealth group, and from 1.5 to 1.2 in the upper wealth group), was linked to their registration as lump-sum quantities under "some used linen." It appears as though only newer and ornamented pieces of linen with some resale value were mentioned item-by-item in the mid-nineteenth century inventories, while in the previous periods, almost all items were separately recorded in detail⁷¹. This can be perceived as an indication that most of the used linen ceased having any substantial worth by around the 1850s.

Accelerated physical and stylistic depreciation implies that the downward trends in inventory valuations at least partially reflected reduced resale values. Is it possible that the declining trend we observed in valuations is merely an indicator of higher depreciation rates rather than a sign of a drop in consumer good prices? First, inventory valuations are not the only evidence of the drop. As has been demonstrated above, the market prices for a number of manufactured and traded goods also decreased during this period.

In addition, higher depreciation rates or the widening difference between sale and resale values might not have been the case with all goods. Overton's (2000) comparison of second-hand pewter valuations from Lincolnshire and Worcestershire inventories and Rogers' wholesale pewter prices show no divergence between sale and resale prices from 1550 to 1750. Like pewter in European inventories, copperware in Ottoman inventories was so durable that it functioned as a store of value. Second-hand copperware could easily be sold at the market (Bozkurt 2011).

Therefore, even though we accept that the general declining trend in inventory valuations was to a certain extent resulted from speeded devaluation, we can still conclude

71 This also suggests that selected household goods' mean valuations, as presented above, might be understating the actual fall in prices, as quality of the composition of the household goods reported in the estates was rising over time.

that they also reflected the decreasing trend in the purchase price of the consumer durables relative to agricultural prices.

6. Conclusion

The growth of domestic goods in the Ottoman realm from the second half of the eighteenth century onwards was not associated with a rise in the value of domestic durable stock owned by people with similar levels of wealth. Instead, falling prices for consumer goods offer us a better explanation for the growth of consumption. There was a downward trend in both the valuations of selected household goods, as well as the prices of several manufactured and traded goods throughout the 1700-1850 period.

Consumption in the Ottoman Empire had similar characteristics to that in early-modern Europe and America, where a range of studies have shown that both the absolute value of probated consumer goods and their share within the overall estate remained stable or declined, while people owned increasingly more goods. Several studies on early-modern European prices, which have revealed that the prices of industrial goods declined relative to those of agricultural products, have complemented these findings while offering an explanation as to how consumer durables spread throughout society in the face of stagnant/declining real wages. Based on these findings, it can be argued that eighteenth-century European consumerism was not distinctive in these respects. If the rising consumption of durables triggered by social transformations and by declining relative prices of consumer goods was a driving force behind the Industrial Revolution, why the same mechanism did not operate in the Ottoman Empire, where similar trends were observed, remains an unanswered question.

This analysis of Ottoman prices and inventory valuations refutes Allen et al. (2004)'s argument that the decline in prices of non-food items was a phenomenon particular to pre-industrial Northwestern Europe.⁷² At the present state of research, it is too early to determine

72 It could be claimed that the decreasing trend in inventory valuations in the Ottoman realm reflected the price drops in goods imported from Europe. Nevertheless, observations on inheritance inventories show that even as late as the 1820s, local textiles were predominant by far among the textiles used for household linen. Furthermore, copperware, which constituted an important share of household durables in inventories, was made of copper that was mined and processed in the Ottoman realm.

whether the price drops prior to industrialization occurred due to productivity gains in the manufacturing and transportation sectors or were a result of demographic trends.

Finally, these findings highlight the economic dimension of eighteenth-century Ottoman consumerism. Depicting the decline in the prices of manufactured goods allows us to sidestep the broad question of whether early-modern individuals increased their overall spending on consumer durables and focus on a narrower one that concerns the ability of individual to own goods. Based on the decline in prices of consumer goods, we can draw the conclusion that the inhabitants of Üsküdar *could* own more goods without increasing their spending on domestic durables. These findings point to an increase in living standards that cannot be captured by consumer price indexes mainly based on food.

Although changing tastes and the disappearance of social boundaries doubtlessly played an important role in the introduction of new consumerist desires and habits in the eighteenth- and nineteenth-century Ottoman realm, Ottoman consumerism cannot be conceived merely as a socio-cultural phenomenon that can be explained by a greater preference for consumer goods resulting from higher social mobility and new modes of sociability. These results should provide further motivation to focus on transformations in the economic sphere, alongside sociocultural processes, in explaining the spread of consumer goods throughout society.

CHAPTER 6

GENDER, RELIGIOUS STATUS AND OWNERSHIP OF HOUSEHOLD GOODS

How did gender and religious status affect the ownership of household durables in eighteenth and nineteenth century Üsküdar? In this chapter, we compare male and female, as well as Muslim and non-Muslim, estate owners' possessions in an effort to understand how material culture varied between them.

A significant portion of the scholarly literature on the topic suggests that by the nineteenth century, women in the West were central to consumption as makers of the middle-class home and consumers of fashion (McGowan 2006; Leach 1984; Burman 1999; Auslander 2001; Walton 1986; Breward 1994; Roberts 1998). There is, however, no consensus as to whether this was also true in earlier periods. While some historians argue that women were the drivers of early-modern consumerism and possessed a striking interest in new material goods, others are more reluctant to accept that seventeenth and eighteenth century women played the role of independent consumers, let alone pioneers of modern consumer behaviour.

According to De Vries (1994), in an age of rising consumerism, clothing and household goods were particular novelties, and it was women who both sought such products and who abandoned their former domestic production of basic household goods to work in the marketplace in order to buy the novel goods, luxuries and household goods they desired. Comparing men's and women's wills in Birmingham and Sheffield, Berg (1996) argued that as early as the eighteenth century, women bequeathed significantly more items per person than men, including clothing, glassware, jewellery, linen, plates, and silver. Berg (1996) also claims that women devoted greater attention to their personal effects, as more detailed and scrupulous descriptions of clothing and other personal belongings in women's wills would suggest.

Nevertheless, the evidence does not always support an explicit differentiation between men and women in terms of material culture and consumer habits. Weatherill's (1986) findings based on 3,000 British probate inventories showed little distinctiveness in the

possessions of female estate owners, although slightly higher proportions of British women had new and decorative goods than did men from similar classes. She concluded that the influence of status, wealth, and occupation on consumption was more important than gender. Similarly, Shammas (1980) objected to the argument that early-modern women were independent consumers who expressed themselves through consumption, suggesting that women were unable to exercise much influence on consumption decisions as they possessed only limited control over resources.

Recent work on eighteenth century Ottoman women's consumerism has typically focused on elite women. Artan (2010) and Faroqhi (2002b) point to a radical transformation in the way Ottoman princesses related to material culture and domesticity in parallel to the enhancement of their political role. They suggested that, from the eighteenth century onwards, women of the dynasty were less engaged with large-scale mosque complexes or other types of charity construction. Instead, they owned lavishly decorated seashore villas along the Bosphorus (*sahilsarayı*), which were designed to display political and social power. Artan (2010: 124) states that "the Ottoman princesses were becoming more and more independent not just of 'traditions' but also of their husbands, and this was reflected in the way in which their own waterfront palaces came to dwarf those of their spouses along the Bosphorus and the Golden Horn." In doing so, they not only disassociated themselves from things past, but also from other new elites in Istanbul. The quest for differentiation through extravagance was also expressed in interior decoration. For instance, in decorating their palaces, these women preferred European porcelain, unlike the new elites and the commoners, for whom Oriental porcelain remained most desirable (Artan 2010).

Little, however, is known about ordinary Ottoman women's attitudes towards consumption and domesticity in the eighteenth century. This is partly due to the paucity of primary sources which could shed light on how domestic interiors were arranged and decorated, or on the objects and textiles used for home decoration. A veil of privacy, which the Ottomans were keen at protecting, shadows our knowledge of Ottoman family life and, hence, of the inner spaces of the Ottoman house. Was the increased importance attributed to the domestic environment particular to wealthy and powerful women, or did it affect ordinary Ottoman women in the eighteenth century? Did women from middling and lower ranks also

seek social differentiation and dissociation from established roles assigned to them through consumption? Did women's particular roles within the household result in different material values? Were they more prone to changing tastes and fashions than men? Unfortunately, it is difficult to answer these questions in the absence of comprehensive studies. In this regard, Ottoman inheritance inventories represent an even more unique opportunity to "lift up the roofs" and "peek into the most intimate corners of a household," than they do in Europe (Braudel 1967: 217).

In this regard, Establet and Pascual's (2002) study based on a sample of Damascene inventories from around 1700 is illuminating. They demonstrate that Damascene women⁷³ received a patrimony that was clearly inferior to that of men. It consisted of certain items: some real estate, but primarily jewellery and domestic goods, which made up more than three-quarters of their belongings. Women particularly dominated the textile interior of the home. The authors conclude that "women ruled, with more or less variety and fantasy, the furniture of the house, which was used not only for rest and sleep, but also as a venue for receiving guests," (Establet and Pascual 2002: 301).

It is not only gender-based differences in consumption and material culture, but differences across religious communities that have attracted little attention in the literature. The only study dealing with changing consumption patterns in Ottoman non-Muslim communities is by Exertzoglou (2003). He identifies and explains the novel consumption practices by the Christian Orthodox in the late nineteenth century – mainly Greek-speaking middle class groups of the major Ottoman urban centres – as an aspect of national identity construction.

However, it is suggested that non-Muslim communities were pioneers in adopting modern furniture and novelties symbolizing a Western lifestyle (Exertzoglou 2003; Göcek 1996). The use of Western products was closely linked to rising Western political, economic, and cultural influence, and as such, Christian and Jewish merchants and their communities, being in close contact with Europe, were in an advantageous position. Accordingly, Ottoman

73 Establet and Pascual (2002) do not mention the religious status of the women estate owners in their sample, and thus do not look at whether the estates of women from Muslim and non-Muslim communities displayed distinctive features in terms of ownership.

Muslims are usually thought to have acquired Western products later than their non-Muslim counterparts (Göçek 1996). The European presence in the capital during the Crimean War (1853-1856) was a turning point in terms of the Westernization of the domestic interiors in Muslim houses (Hornby 1863). While these interpretations are plausible, the literature contains no solid evidence to support the argument that non-Muslims were the leaders in the possession of Western goods.

In this chapter, I grapple with a set of questions that addresses these points: What conclusions can we arrive at regarding the varying levels of material culture encompassing men and women and Muslims and non-Muslims in eighteenth and nineteenth century Üsküdar? Can we identify characteristic features in the ownership of household goods for these groups? Do the household items included in an inventory vary by gender and religious status? Was there a complementarity between the durables owned by men and women? Did women and non-Muslims own more new goods associated with consumerism and Westernization, implying that they were more inclined to adapt themselves to changing consumer habits?

To address these questions, at a first instance, I compare Muslim and non-Muslims and male and female estate owners in Üsküdar, in terms of wealth and ownership of real estate. Subsequently, I look at how the overall value of household durables stock responded to variations in total wealth. Finally, I analyse the ownership of selected household goods according to gender and religious status.

1. Wealth and ownership of real estate

Before delving into the questions stated above, we need to examine the wealth and ownership of real estate and ask whether there were significant differences between Muslim men, Muslim women, non-Muslim men, and non-Muslim women.

Studies on inheritance inventories from different regions of the empire unanimously reveal that Ottoman women were in general poorer than their male counterparts (Establet and Pascual 2002; Grehan 2007; Karababa 2012; Ergene and Berker 2008). These studies also reveal a significant difference in terms of ownership of real estate and production goods across

genders. However, they do not provide information about wealth disparities between Muslim and non-Muslim communities.

As shown in chapter 4, wealth was positively and strongly associated with the quantity and variety of the household goods that the deceased possessed. Thus, any differences in distribution and level of wealth, and in the composition of estates across genders and religious groups, needs to be identified and controlled for when we are exploring the effect of gender and religious status on the ownership of household goods. We can only meaningfully speak of an "effect of gender and religious status" when examining variations in the level of material culture between individuals of comparable wealth.

In Table 1, the average total estate values for inventory in each category are given. Except for the initial period, the average wealth of Muslim male inventories in constant akçe is the highest of all four categories. Non-Muslim men and non-Muslim women came below Muslim men. In 1700, Muslim women with a mean wealth of 1,227 constant akçe were three times poorer than Muslim men, who left inventories worth 3,711 constant akçe on average. At the end of the period, the gap remained the same. When all periods are taken together, Muslim women appear as the poorest group in our sample (with a mean total estate value of 2,664 constant akçe), with Muslim men the richest. Putting it differently, Muslim women held a mere 17 percent of recorded assets, even though they represented 30 percent of the total group. The mean value of the estates left by non-Muslim men was lower than that of those left by the Muslim men, yet were higher than those belonging to non-Muslim women.

Out of the 38 estates in the upper wealth decile, only eight belong to women, and out of the 162 female estates, only 21 finished in the upper quartile. This suggests that most of the female estates included in this study belonged to women who controlled very limited resources. In interpreting the results of this study, this fact should be taken into consideration.

**Table 1- Mean total estate value by gender and religious status groups
(in constant akçe)**

	Muslim men	Non-Muslim men	Muslim women	Non-Muslim women
1700	3711	7901	1227	5390
1730	6922	5910	2023	2907
1760	4511	2618	2632	4306
1790	5192	5166	960	3089
1820	6919	5204	5837	2289
1850	9838	3365	2302	3253
ALL	6630	4962	2664	3476
N	152	66	114	48

Although evaluating the mean values can give us an idea, this can be deceptive due to the presence of outliers, particularly when working with small samples. An OLS regression employing dummies can provide us with a more reliable picture as to whether there is a statistically significant difference between the total wealth of members of these four categories. The regression model employed is as follows:

(1)

$$LNWEALTH_i = \beta_0 + \beta_1 MEN_NONMUSLIM_i + \beta_2 WOMEN_MUSLIM_i + \beta_3 WOMEN_NONMUSLIM_i + \sum \beta_k PERIOD_k + \epsilon$$

$LNWEALTH$ is the logged total estate value in constant akçe. $MEN_NONMUSLIM$, $WOMEN_MUSLIM$, $WOMEN_NONMUSLIM$ are dummy variables indicating gender and religious status. These variables assume 1, if the estate owner is respectively a non-Muslim man, a Muslim woman, and a non-Muslim woman, and 0 otherwise. The reference category is Muslim males. The period dummies are incorporated into the model to control for variations in wealth that occurred across periods.

Descriptive statistics of the regression variables are reported in Table 2.

Table 2- Descriptive statistics of the regression variables

MEN_MUSLIM	380	0.400	0.491	0	1
MEN_NONMUSLIM	380	0.174	0.380	0	1
WOMEN_MUSLIM	380	0.300	0.458	0	1
WOMEN_NONMUSLIM	380	0.126	0.333	0	1
LNWEALTH	380	7.549	1.387	4.158	11.369

The results are presented in Table 3. Among the three dummy variables, only the coefficient of WOMEN_MUSLIM is significant at the 1 percent level. According to these results, compared to Muslim men in the sample, Muslim women were poorer. In terms of wealth levels, there was no significant difference between Muslim men on the one side, and non-Muslim men and women on the other.

Table 3- OLS regression results

Dependent variable	LNWEALTH	
	Coef.	Std.Err.
CONSTANT	7.2242***	0.1815
MEN_NONMUSLIM	-0.1072	0.2001
WOMEN_MUSLIM	-0.5847***	0.166
WOMEN_NONMUSLIM	-0.245	0.2278
1730	0.9453***	0.2942
1760	0.5271**	0.2271
1790	0.3229	0.2336
1820	0.8245***	0.2256
1850	0.7736***	0.2273
N	380	
R2	0.07	

*Notes: *, **, *** indicates significance at the 10 percent, 5 percent and 1 percent levels respectively. 1700 is the omitted category.*

The wealth inequality between men and women in the Muslim community of the town can be partially attributed to the inheritance rules in sharia. "By law, as well as in fact, the single

or married woman inherits from her parents half the share of her brother," (Daghestani 1932: 144). However, gender-based inequalities in inheritance practices were not particular to Islamic law. Regulations applied by the Ottoman non-Muslim communities also reinforced economic disparities between men and women. For instance, the Torah awards women no rights of inheritance as long as there are male heirs in the same class. Realising that the sharia was often more beneficial to women than the Jewish *halakha*, many Ottoman Jewish women appealed to Islamic courts rather than their own communal courts to settle inheritance issues (Lamdan 2005).

In order to determine whether wealth inequality across genders was also observable in the non-Muslim community in Üsküdar, the same regression is run this time with the non-Muslim men as the reference category. The variable MEN_NONMUSLIM is omitted instead of MEN_MUSLIM. The results are reported in Table 4. The coefficient of WOMEN_NONMUSLIM is not significantly different from that of MEN_NONMUSLIM at the 10 percent level. Unlike the Muslim estate owners observed, gender does not appear to be a significant determinant of variations in wealth among the non-Muslim testators included in this study.

Table 4- OLS regression results

Dependent variable	LNWEALTH	
	Coef.	Std. Err.
MEN_MUSLIM	0.1072	0.2001
WOMEN_MUSLIM	-0.4774**	0.2132
WOMEN_NONMUSLIM	-0.1378	0.2553
1730	0.9453***	0.2942
1760	0.5271**	0.2271
1790	0.3229	0.2336
1820	0.8245***	0.2256
1850	0.7736***	0.2273
CONSTANT	7.1170***	0.2351
N	380	
R2	0.07	

*Notes: *, **, *** indicates significance at the 10 percent, 5 percent and 1 percent levels respectively. 1700 is the omitted category.*

These findings alone are not sufficient to assert that different cultural norms regulating matters about marriage, family, and ownership in the non-Muslim communities resulted in a more equal distribution of economic resources within the household. Besides possible biases in the sample of inventoried estates belonging to non-Muslims, whether these results are generalizable to the rest of Ottoman society is dubious. In Galata, located just across the Bosphorus, Baer and Göcek (1997) detected no significant difference in ownership of immovable property and composition of estates between Muslim and non-Muslim women in eighteenth-century inventories, concluding that the material life of women did not differ according to religion. It would not be surprising if gender-based economic inequalities differed from one place to another depending on the economic and social structure of the local society.

One of the fundamental reasons for Muslim women's lower wealth was their much lower levels of ownership of real estate. The inequality in land ownership between genders is striking. Table 5 shows the share of real estate owners as percentage of the number of observations for each category. Whereas an important proportion of Muslim (26.3 percent) and non-Muslim men (36.4 percent) owned houses, shops, vineyards, and gardens in Üsküdar, immovable property appears in the estates of only 14.6 percent of non-Muslim women, and of 7 percent of Muslim women. Putting it differently, of 79 owners of real estate in our sample, only 15 (19 percent) were women.

Table 5- Ownership of real estate

	N (Estates recording real estate)	Share of real estate owners as %
Muslim men	40	26.3
Non-Muslim men	24	36.4
Muslim women	8	7.0
Non-Muslim women	7	14.6
Total	79	

2. Wealth and value of stock of household durables

We can compare and draw out the contrasts in ownership patterns across gender and religious status groups by analysing how the differences in the stock of domestic durables responded to variations in total wealth. Here, I break the sample down into subsamples according to gender and religious status in order to discover whether these categories are distinctive in terms of the relationship between wealth and domestic durables. I regress then, the total value of consumer durables (STOCKVALUE) against wealth in linear, semi-log, and double-log forms separately for each of these subsamples, and compare the coefficients of determination (R^2) in order to understand which of the regression models best captures the relationship between wealth and the value of consumer durables stock.

No time trend variable is introduced, and observations from different periods are handled together. Putting it differently, any time effect that may alter the relation between the value of the domestic durable stock and total wealth is ignored, and the value of the stock is assumed to respond in the same fashion to the variations in wealth both within a period and across periods.

Table 6 reports the descriptive statistics of WEALTH, LNWEALTH, STOCKVALUE, and LNSTOCKVALUE, according to the four categories. When not controlled for wealth, Muslim men had the highest mean value of the consumer durables stock with 579 constant akçe. Muslim women and non-Muslim men followed this group with, respectively, 516 and 460 constant akçe. The average non-Muslim female estate included the smallest value of the consumer durables stock (410 constant akçe).

Table 6- Descriptive statistics of the regression variables according to gender and religious status

WEALTH	N	Mean	S.D.	Min.	Max.
Muslim males	152	6830	12046.09	64	86341
Non-Muslim males	66	4962	5567.98	149	26117
Muslim females	114	2770	4594.1	66	24725
Non-Muslim females	48	3476	4813.92	183	23375

<i>LNWEALTH</i>	N	Mean	S.D.	Min.	Max.
Muslim males	152	7.80	1.51	4.16	11.37
Non-Muslim males	66	7.71	1.33	5.00	10.17
Muslim females	114	7.15	1.24	4.19	10.12
Non-Muslim females	48	7.49	1.17	5.21	10.06
<hr/>					
<i>STOCKVALUE</i>	N	Mean	S.D.	Min.	Max.
Muslim males	152	579	862.11	2	5659
Non-Muslim males	66	460	554.49	10	2982
Muslim females	114	516	649.89	6	3574
Non-Muslim females	48	410	594.83	8	3794
<hr/>					
<i>LNSTOCKVALUE</i>	N	Mean	S.D.	Min.	Max.
Muslim males	152	5.46	1.54	0.66	8.64
Non-Muslim males	66	5.48	1.27	2.31	8.00
Muslim females	114	5.59	1.23	1.84	8.18
Non-Muslim females	48	5.39	1.17	2.11	8.24

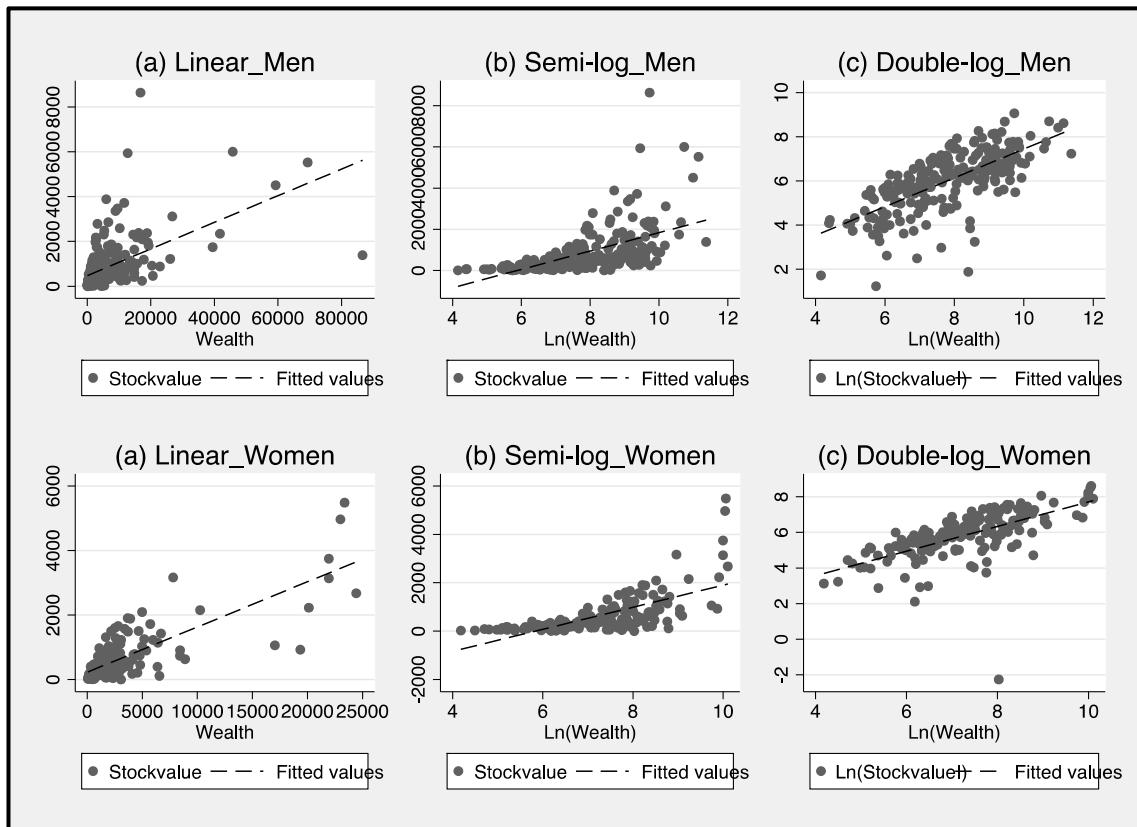
Table 7 reports the regression results. When the total value of the domestic durables stock is regressed against the total estate value, the linear form produces the highest R^2 (0.69 and 0.56) and thus, presents the best fit for both Muslim and non-Muslim women, as shown in Table 6. For men, the best fit is the double-log model, with coefficients of determination 0.46 and 0.53, respectively. This suggests that at all levels of wealth, the value of domestic durables possessed by women continued to rise at the same pace as increasing total estate value, while for men as wealth rose, the stock of domestic durables expanded at a lower rate than other assets. The propensity of Ottoman women to own domestic goods did not decline at higher echelons of wealth, whereas increasingly a smaller portion of the increment in the total estate value was reflected in the stock of domestic goods at male-owned estates. These results also imply that as wealth increased, the share of domestic goods within the overall estate declined for Muslim and non-Muslim men, whilst for Muslim and non-Muslim women it, remained constant.

Table 7- Coefficients of determination (Adjusted R2) from OLS regressions (Sub-samples)

	LINEAR	SEMI-LOG	DOUBLE-LOG	N
Dependent var.	STOCKVALUE	STOCKVALUE	LNSTOCKVALUE	
Independent var.	WEALTH	LNWEALTH	LNWEALTH	
Muslim men	0.30	0.31	0.46	152
Non-Mus. men	0.32	0.39	0.53	66
Muslim women	0.69	0.56	0.63	114
Non-Mus. women	0.56	0.31	0.19	48
Men	0.31	0.33	0.48	218
Women	0.63	0.46	0.39	162

Figure 1 scatters the value of household durables stock against wealth in linear, semi-log, and double-log forms with fitted lines, separately for men and women.

Figure 1-Value of household durables against wealth (Men and Women)



We can take this question further by estimating how patterns of accumulation varied across gender and faith. In the following step, I examine the effect of gender and religious status on the responsiveness of the domestic durables value through the following regression model:

(2)

$$LNSTOCKVALUE_i = \phi_0 + \phi_1 LNWEALTH_i + \phi_2 LNWEALTH_NONMUSLIMMEN_i + \phi_3 LNWEALTH_MUSLIMWOMEN_i + \phi_4 LNWEALTH_NONMUSLIMWOMEN_i + \Sigma \phi_k PERIOD_k + u$$

LNSTOCKVALUE is the logged domestic durables stock. Interaction terms for non-Muslim men, Muslim women, and non-Muslim women (*LNWEALTH_NONMUSLIMMEN*, *LNWEALTH_MUSLIMWOMEN*, *LNWEALTH_NONMUSLIMWOMEN*) are computed by multiplying the *LNWEALTH* by gender and religious status dummies. The reference category is *LNWEALTH_MUSLIMMEN*.

Table 8 looks at the descriptive statistics of the regression variables.

Table 8- Descriptive statistics of the regression variables

	N	Mean	S.D.	Min.	Max.
LNSTOCKVALUE	380	5	1	0.66	8.64
LNWEALTH	380	8	1	4.16	11.37
LNWEALTH_MENNOMUSLIM	380	1	3	0	10.23
LNWEALTH_WOMENMUSLIM	380	2	3	0	10.08
LNWEALTH_WOMENNOMUSLIM	380	1	3	0	10.15
TIME	380	3.64	1.72	1	6

Table 9 reports the regression results. Only one of the interaction terms, *LNWEALTHWOMEN_MUSLIM*, is statistically significant at the 1 percent level. Compared to Muslim Ottoman men, the slope is steeper for Muslim women. In other words, a greater proportion of the increase in wealth in the estates of Muslim women is reflected in the value of domestic durables stock. When wealth is increased by 10 percent, the value of domestic goods rises by 6.4 percent in the estates of Muslim men, while it rises by about 7.1 percent in the estates of Muslim women. While great shares held by producer goods and real estate,

particularly agricultural assets, characterised wealthy Ottoman men's estates, the composition of the wealthy Muslim women's inventories did not differ much from those of poor and middle-class women.

Table 9- OLS regression results

Dependent variable	LNSTOCKVALUE	
	Coef.	Std.Err.
CONSTANT	0.652**	0.274
LNWEALTH	0.644***	0.035
LNWEALTH_MENNOMUSLIM	0.016	0.017
LNWEALTH_WOMENMUSLIM	0.07***	0.016
LNWEALTH_WOMENNOMUSLIM	0.003	0.02
TIME	0.043	0.03
N		380
R2		0.5

*Notes: *, **, *** indicates significance at the 10 percent, 5 percent and 1 percent levels, respectively. LNWEALTH_MENMUSLIM is the omitted category.*

3. Ownership of selected categories of goods according to gender and religious status

While the value of household goods gives some indication of the variation in the approach to material culture between members of each groups, it does not treat the types of goods in question with any subtlety. In the discussion so far we have bundled all household goods up into a single category that is measured by value. However, the type of household good, not its price, is important as well, particularly if we are seeking to consider the speed and impact of cultural transmission. To address this issue, in this section we focus on the presence or absence of selected categories of goods. Which group(s) were pioneers in adopting new material goods? Did women's, and especially Muslim women's, predominance in terms of household durables result from the possession of goods associated with rising consumerism, or from their ownership of greater amounts of traditional chattels?

I address these questions through logistic regression equations that attempt to predict the presence of a particular item. Logistic regression is a technique designed for use when the dependent variable is categorical and the independent variables are categorical or

continuous. Towels, household linen, chests, clocks, modern furniture, mirrors, and cutlery and serviettes are used as the dependent variable, with real wealth (in log natural form), period dummies, gender and the religious status of the estate owner (MEN_NONMUSLIM, WOMEN_MUSLIM, WOMEN_NONMUSLIM), constituting the independent variables. MEN_MUSLIM, the reference category, and is omitted.

The descriptive statistics of the logistic regression are given in Table 10.

Table 10- Descriptive statistics of the regression variables

	N	Mean	S.D.	Min	Max
TOWELS	380	0.518	0.500	0	1
HOUSEHOLD LINEN	380	0.687	0.464	0	1
CHEST	380	0.542	0.499	0	1
CLOCK	380	0.218	0.414	0	1
MODERN FURNITURE	380	0.339	0.474	0	1
CUTLERY AND SERVIETTES	380	0.308	0.462	0	1
MIRROR	380	0.166	0.372	0	1
MEN_NONMUSLIM	380	0.174	0.380	0	1
WOMEN_MUSLIM	380	0.300	0.458	0	1
WOMEN_NONMUSLIM	380	0.126	0.333	0	1
LNWEALTH	380	7.549	1.387	4.158	11.369

The results are presented in Table 11. In addition to the coefficient and the standard error of each independent variable, the odds ratios (exponentiated coefficients) are reported. Exponentiated coefficients give the change in odds resulting from a unit change in the independent variable. A value greater than 1 indicates that as the value of the predictor variable increases, the odds of the outcome occurring (for example the ownership of a mirror) also increases. A value of less than 1 indicates that as the predictor increases, the odds of the outcome occurring decrease. If non-Muslims and women were more inclined to own novel goods, we would expect the coefficients for these groups to be positive and statistically significant, and the odds to be greater than 1.

Table 11- Logistic regression results predicting ownership of selected goods from total wealth, gender, religious status and period

	TOWELS			HOUSEHOLD LINEN		
	Coef.	Std.Err.	Odds	Coef.	Std.Err.	Odds
CONSTANT	-3.514***	0.73		-3.203***	0.738	
MEN_NONMUSLIM	-0.019	0.325	0.981	0.256	0.344	1.291
WOMEN_MUSLIM	1.385***	0.287	3.996	0.877***	0.296	2.404
WOMEN_NONMUSLIM	1.034***	0.378	2.814	0.552	0.407	1.736
LNWEALTH	0.391***	0.089	1.479	0.500***	0.096	1.648
1730	-0.556	0.481	0.573	-0.812*	0.495	0.444
1760	0.167	0.37	1.182	-0.418	0.385	0.658
1790	0.667*	0.38	1.949	0.637	0.419	1.891
1820	0.572	0.381	1.771	0.156	0.414	1.169
1850	-0.661*	0.378	0.516	-0.366	0.391	0.694
N			380			380
PSEUDO R2			0.11			0.09

	CHEST			CLOCK		
	Coef.	Std.Err.	Odds	Coef.	Std.Err.	Odds
CONSTANT	-2.284***	0.692		-7.215***	1.146	
MEN_NONMUSLIM	-0.858***	0.331	0.424	-1.249***	0.441	0.287
WOMEN_MUSLIM	0.802***	0.276	2.231	-0.821**	0.356	0.44
WOMEN_NONMUSLIM	0.864**	0.387	2.372	-2.223***	0.659	0.108
LNWEALTH	0.240***	0.086	1.271	0.608***	0.118	1.838
1730	-0.978*	0.526	0.376	-0.756	1.226	0.47
1760	0.379	0.362	1.461	1.518**	0.7	4.564
1790	0.913**	0.376	2.491	2.277***	0.699	9.745
1820	0.676*	0.37	1.966	2.457***	0.668	11.664
1850	0.858**	0.373	2.359	2.086***	0.681	8.053
N			380			380
PSEUDO R2			0.11			0.26

	MODERN FURNITURE			CUTLERY AND SERVIETTES		
	Coef.	Std.Err.	Odds	Coef.	Std.Err.	Odds
CONSTANT	-5.757***	0.964		-4.393***	0.824	
MEN_NONMUSLIM	-0.655*	0.38	0.52	-0.208	0.338	0.812
WOMEN_MUSLIM	0.075	0.321	1.077	-0.524*	0.298	0.592
WOMEN_NONMUSLIM	-1.473***	0.468	0.229	-1.696***	0.458	0.183
LNWEALTH	0.447***	0.105	1.563	0.400***	0.095	1.492
1730		(omitted)		-0.863	0.731	0.422
1760	1.229**	0.56	3.419	0.920**	0.445	2.51
1790	2.302***	0.557	9.989	1.758***	0.453	5.799
1820	2.715***	0.539	15.109	2.084***	0.442	8.034
1850	3.158***	0.549	23.52	1.316***	0.442	3.727
N		349			380	
PSEUDO R2		0.24			0.19	

	MIRROR		
	Coef.	Std.Err.	Odds
CONSTANT	-9.183	1.369	
MEN_NONMUSLIM	1.539***	0.474	4.658
WOMEN_MUSLIM	1.581***	0.429	4.862
WOMEN_NONMUSLIM	1.216**	0.549	3.375
LNWEALTH	0.655***	0.134	1.926
1730	-0.906	1.205	0.404
1760	1.113	0.712	3.045
1790	0.922	0.743	2.514
1820	1.441**	0.692	4.227
1850	2.840***	0.67	17.119
N		380	
PSEUDO R2		0.23	

Notes: *, **, *** indicates significance at the 10 percent, 5 percent and 1 percent levels, respectively. 1700 is the omitted category.

As we would expect, all the exponential values for wealth are greater than 1 and are significant at the 1 percent level, indicating that an increase in wealth increases the likelihood that people owned selected goods, and the relationship is stronger for new goods. Among all the household goods included, a unit change in wealth has the greatest impact on possession of mirrors and clocks, both of which were new goods. These have the highest change in odds

for LNWEALTH (1.926 for mirrors, and 1.838 for clocks). Wealth is measured in log natural form, so throughout the period, an increase in the material wealth of the inventory by 100 percent will change the odds of a mirror being present by 1.926. On the contrary, wealth had little effect on the ownership of chests, one of the most common items in Ottoman houses, as the odds value (1.271) that is quite close to 1 indicates.

In general, estates that belonged to Muslim men were much more likely to include new material goods than those of Muslim women and non-Muslims. Modern furniture, cutlery and serviettes, and clocks, which symbolized the adoption of a Western lifestyle, were more commonly found in Muslim men's estates. The most striking example is the clock. In the logistic regression for clocks, the coefficients of the WOMEN_MUSLIM, WOMEN_NONMUSLIM, and MEN_NONMUSLIM variables, which show the difference in odds between other groups and Muslim men, are negative and statistically significant. In each case, the change in odds for non-Muslim men, Muslim women, and non-Muslim women is substantial (respectively 0.287, 0.440, and 0.108), meaning that Muslim men had a visible predominance in terms of ownership of clocks, the most popular Western good by far, together with watches (Göcek 1996). For modern furniture and cutlery and serviettes, the results are similar. An important exception seems to be mirrors. Compared to Muslim men, in the estates belonging to the other three groups, the likelihood of the appearance of mirrors is substantially higher. All three coefficients are positive and significant at the level of 5 percent. A Muslim women's inventory was 4.862 more likely to include mirrors than a Muslim men's inventory.

Women, and particularly Muslim women, were the leaders in more traditional goods, such as chests, household linen, and towels, which traditionally made part of the trousseau the bride brought to the household. In comparison to men, the likelihood of the presence of all three categories of goods was higher in Muslim women's estates. The coefficients of WOMEN_MUSLIM are positive and significant at the 1 percent level. Although not as high as in the case of mirrors, the difference in odds for these goods are still considerable (3.996, 2.404, 2.231 respectively for towels, household linen, and chests). Non-Muslim women were more likely to own towels and chests than Muslim men, while no statistically significant difference is detected in the likelihood of ownership of household linen. The incidence of ownership of

chests is lower with non-Muslim men than Muslim men, whereas the ownership of household linen and towels did not vary between these two groups.

If we look at the goodness of fit of these models, the low pseudo R^2 values for traditional goods (0.11, 0.09, 0.11 for towels, household linen, and chests) suggest that the equations account for a relatively small proportion of the variation in the ownership. Considering that such goods were essential items that were present in the houses of the poor as well as the rich throughout the period, the notion that wealth, gender, religious status, and time had a limited impact on their possession is reasonable. The R^2 values for the novel goods are consistently higher than those for the traditional chattels. The predictor variables in the equations explain 26 percent, 24 percent, 19 percent, and 23 percent of the variations in the ownership of clocks, modern furniture, cutlery and serviettes, and mirrors.

These results suggest several conclusions. First, the non-Muslim community in Üsküdar was not a pioneer in adopting novel goods associated with Westernization and a Western lifestyle during the 1700-1850 period. Muslim males were more inclined to obtain such goods. Whether these findings are particular to the town or can be generalized to elsewhere in the Ottoman realm is a question that requires further attention. Second, the higher index scores in women's, and particularly Muslim women's estates resulted from the possession of greater quantities of traditional goods, such as household linen, chests and towels, rather than a greater engagement with new consumer goods. This suggests both that the supposition that Ottoman women became active members of a consumer society and that non-Muslim Ottomans' were a vanguard for Western lifestyles were phenomena characteristic of the late nineteenth century – if at all. Third, for a variety of goods, gender and religious status had a statistically significant effect on the ownership of selected goods. Unlike the British and the American household, the chattels contained in the Ottoman households were a combination of male and female goods. This was a direct implication of the Islamic law, which recognised married women's right to ownership, and kept her property separate from her husband's. Particularly in Muslim households, the differentiation in the possessions between men and women is striking. The gender-based division of labour within the household was also reflected in the ownership of goods. There seems to be a complementarity between what women and what men possessed. In general, copperware, modern furniture, and other novel

goods belonged to men, whereas women owned great quantities of household linen, towels, and chests.

4. Explaining the difference across genders

The findings of this study show striking differences in the possession of household durables between men and women, particularly in the Muslim community. Domestic goods made up a significantly higher proportion in Muslim women's estates than in other categories, and their share did not decline as wealth rises. The stock of domestic goods possessed by Muslim women was not only more important relative to their overall assets, but was also worth more compared to all other three categories. This is consistent with the findings on the index scores, which demonstrated that when wealth is kept constant, Muslim women left a greater quantity and variety of household durables, if not more copperware⁷⁴. How can the differences between men and women be interpreted? Were Muslim women more eager consumers than men (and non-Muslim women), and were they the drivers of early-modern consumerism in the Ottoman realm? Or did the legal and social norms that restricted women's role in the economic sphere account for the greater place occupied by the domestic durables in the Muslim women's estates?

First, compared to the estates of men and non-Muslim women with the same level of wealth, the stock of household durables reported in the estates of Muslim women supplied a greater portion of the total wealth. Does this automatically mean that Muslim women had a higher propensity to consume household chattels? The relationship between total inventory values and the value of consumption goods might be misleading. One needs to be cautious when drawing conclusions about the consumer behaviour of different social groups based merely on the share of the consumer durables held within the total estate value. The proportion of material wealth accounted for by consumption goods might reveal more about the stock of capital, production goods, and real estate than it does about consumption; for example, Overton et al. (2004) found for England that geographical differences in the proportions were caused by variations in investment in capital goods.

74 As demonstrated in Chapter 4, women in the non-Muslim community owned about 43 percent less copperware than Muslim men of comparable wealth. No significant difference is detected between Muslim men and women in terms of the amount of copperware owned.

Similarly, when trying to explain higher proportions in Muslim women's inventories in Üsküdar, we need to take into account differences in the composition of estates across genders and religious groups. It should be noted that the main sources of Muslim women's property were inheritance from the family or the husband, the dowry paid by the husband to wife, and the trousseau donated by the bride's family (Establet and Pascual 2002; Maydaer 2006). According to Islamic law, when their husbands died, women were entitled to one-eighth of the estate if they had any children or grandchildren, and one-fourth if they did not have offspring (Maydaer 2006). When there were no other heirs, the state seized the remaining property after the women's share was awarded.

The married women also had absolute entitlement to *mahr*, the payment the husband accepted to make as part of the marriage contract (Imber 1997). The amount of the dowry to be paid depended on the socio-economic status of the bride and groom's families, and was fixed by an agreement among the parties. The minimum amount of *mahr*, as established by the Ottoman jurists, was equal to 32 grams of gold. Based on sixteenth-century Bursa court registers, Maydaer (2006) reports that 60 percent of the women mentioned in the registers were awarded a dowry up to 3,200 grams of gold. Higher amounts were recorded in marriages of the wealthy. The *mahr* was paid in two instalments. The first instalment was paid when the contract was concluded, and the second one was due in a later stage in life, or upon a divorce. When the husband died without paying this second portion of the dowry, the amount was deducted from his estate, to be paid to the wife, in addition to her own share of the estate. When the wife died before receiving this payment, it was included in her estate as part of the debts owed by others to the deceased. The high frequency of the appearance of the dowry in men's and women's estates imply that the settlement of the second instalment did not occur before one of the parties passed away. At least legally, women exercised full control over their dowry, and were free to dispose of it as they wished.

Wage incomes and returns on investments and credits were marginal as sources of wealth for Ottoman women. Although Ottoman women were not totally isolated from economic life – with numerous studies demonstrating that several women were involved in property transactions (Marcus 1983; Jennings 1975), operated as credit lenders, and engaged in commercial and manufacturing activities (Gerber 1980; Jennings 1975) in towns such as

Kayseri, Bursa, Damascus, and Istanbul – unequally distributed economic power within the household was a reality, particularly for ordinary Ottoman subjects from lower and middling groups, and waged work was largely inaccessible for these women .

A thorough investigation into Muslim women's involvement in the economic life of Üsküdar is beyond the scope of this study. To what degree Muslim women were engaged in business investments and had control over capital, or what their role was in the network of debt relations in the town, are important questions that cannot be answered here. However, as demonstrated above, Muslim women in Üsküdar were significantly poorer than men, and owned considerably less real estate compared to the latter. Women owned immovable property usually through inheritance, and they took part in the transactions as sellers rather than buyers (Marcus 1983; Jennings 1975). It is evident that in the absence of immovable property – and possibly of producer goods – household durables became more emphasised among the components of wealth. Put differently, most Muslim women in our case were personally excluded from agricultural and commercial investments and were thus squeezed into domestic consumption. As the linear relationship between wealth and household durables stock shows, this did not change in the upper wealth segments.

Unlike Muslim women, the non-Muslim women in our sample were no poorer than non-Muslim men even though men owned more real estate. There was no significant difference between men and women in this community in terms of index scores or the value of the domestic durables stock possessed at constant levels of wealth. Similarly, the share of household goods held within the overall estate was no higher in female inventories. As women's control over resources increased, and as women's assets diversified, the dominance of household durables within the overall patrimony disappeared. Despite the relatively more equitable distribution of resources between non-Muslim men and women in our sample, the shape of the relationship between wealth and value of domestic durables possessed is not the same for men and women. For both Muslim and non-Muslim women, the linear form best explains the relation between the value of the domestic durables possessed and total estate value. At higher ladders of wealth, the relative importance of household durables did not stabilize but remained constant. This linear relationship that characterised the composition of

female estates from both communities makes the value of the domestic durables stock a more accurate indicator and a measure of wealth for women.

However, this is only part of the story, and the higher value of household durables stock in Muslim women's estates and higher index scores leave no doubt that within the household, Muslim women were predominant in terms of chattel ownership. Gender roles, as well as the gendered division of labour within the household, played an important role. *Çeyiz*, the property which a wife brings to the conjugal home and which rightfully belongs to her (Daghestani 1932), constituted the main component of women's household property. This trousseau especially included textile furnishings (mattress, cushions, slipcovers, sheets, and curtains) and handicrafts. Just as in Turkey in the early twentieth century, the wife came to the marriage with her "bedroom" that she had made herself (Sauner-Nebioglu 1995). When the simplicity of the average Ottoman house is taken into consideration, the occupation of bedding and household linen of an important place among the domestic chattels would be more understandable. The disappearance of Muslim women's dominance in the shift to copperware and new goods supports this view.

It seems that limited control over resources and fewer investment opportunities combined with gender roles, which assigned women to the home and made the creation of a comfortable domestic environment a prime female responsibility, led ordinary Muslim women to own predominantly domestic goods. An important implication is that the stock of household durables in the estates of Muslim women cannot be taken as a reflection of women's economic choices in the market. In most cases, these household goods were not acquired through the purchase of finalised goods, but were tailored in the house, and/or were a gift from the bride's family to the new couple. Rather than individual consumer choices, cultural norms and customs that regulated the role and position of Muslim women in the economic sphere and in the household explain why the value of the domestic goods stock was greater – both in absolute terms and relative to all assets – for this group, and why traditional goods dominated their estates.

Considering that Muslim women were the poorest group in the society, and that in most cases, they were deprived of immovable property, including the agricultural land that appeared frequently in the estates of men in the town, it would be misleading to see them as

independent economic actors who had the ability to express themselves through consumption. This is particularly true for the ordinary women from the lower and middling groups. Overall, these findings do not support the view that women were drivers of early modern consumerism in the context of the Ottoman Empire. These women's association with traditional household durables, and especially household textiles, rather than novel goods, also support this argument. Having said that, although exceptional, Ottoman women with considerable wealth and prestige had the material means and independence to make their own decisions in the market place within a legal system that recognized women's property rights.

Finally, all of these calculations still do not enable us to arrive at definite conclusions about how Ottoman women related to the material world in the eighteenth and early nineteenth centuries. Ultimately, understanding whether Ottoman women possessed the resources or the independence to acquire what they wanted or satisfy their tastes, and whether women had different attitudes towards and desires for certain material goods, requires a different investigation that goes beyond the capacity of this study. In addition to the presence and frequency of goods, the quality of the domestic durables, as well as the type of the textiles, ornaments, and colours, also reveals important clues regarding differing tastes between men and women. Changing meanings ascribed to domestic goods and to domesticity need to be explored. Furthermore, differences among women from different economic and social statuses should also be taken into consideration. Most of the female estates included in this study belonged to women who controlled very limited resources. The role of the small group of economically active and even independent women in the rising consumer culture of the eighteenth century, and how their ownership patterns diverged from those of men from the same class, is worthy of further investigation.

5. Conclusion

This chapter has investigated how gender and religious status was related to the ownership of household durables in eighteenth- and nineteenth-century Üsküdar using evidence from inheritance inventories. The evidence suggests that throughout the period, Muslim women were significantly poorer than Muslim men in the town. Muslim females and their non-Muslim counterparts were also in a disadvantageous position in terms of the

ownership of immovable property. This notwithstanding, Muslim females at the same wealth level not only owned a greater quantity and variety of household effects than Muslim males, but the overall value of the consumer durable stock in their estates was higher. Furthermore, unlike men's estates, the share of this value within Muslim women's total estates did not decline as wealth rose. These findings reveal that Muslim women were distinctive in terms of the composition of their estates.

When we consider the likelihood of the appearance of the new, Western goods in the estates from different gender and religious groups, our results contradict the arguments that non-Muslim Ottomans and/or Ottoman women were leaders in the consumption of novel goods associated with westernization. Instead, it was Muslim males in the town who were more inclined to acquire such goods. Muslim women's ostensible supremacy in terms of the ownership of household effects resulted from the possession of greater quantities of more "traditional" goods, such as household linen, chests and towels. These findings also are in accordance with Establet and Pascual (2002), who demonstrated that Damascene women dominated the textile interior of the home, while men owned on average more pieces of copperware.

One can conclude that the higher shares of household goods in the estates of Muslim women compared to Muslim men at the same wealth level reflects the limited control over resources and the fewer investment opportunities enjoyed by women in Ottoman society, as well as the gender roles that consigned women to the home and made the creation of a comfortable domestic environment a prime female responsibility, rather than a sign of greater interest in the new consumer regime.

CHAPTER 7

CONCLUSION

This thesis has examined three phenomena in the context of the Ottoman Empire that are associated with the growth path of pre-industrial Europe: integration in commodity markets, the introduction of new consumption patterns, and the decline in the relative prices of consumer goods. The major motivation of this thesis was to understand whether these phenomena were a peculiarity, an indicator and a potential cause of pre-modern economic growth in the West, or whether they were also observable in a non-Western context.

These three phenomena are central to three important accounts of pre-industrial economic growth that have far-reaching implications not only for economic history but also for economic development in a more general context: (1) the trade-led growth theory focusing on the division of labour and specialisation facilitated by the rise of efficient and integrated markets (De Vries and van der Woude 1997; Epstein 2000; Persson 1988, 1999; (2) the demand-led growth theory emphasising the role of demand shifts triggered by sociocultural transformations (Gilboy 1932; Sombart 1967; De Vries 1994, 2001, 2003, 2008; Horrell 1996); and (3) the innovation-led growth theory stressing the impact of productivity gains in non-agricultural sectors that occurred due to technical and institutional innovation even prior to industrialisation (Clark 2004; Broadberry and Gupta 2006; Allen et al. 2004).

Questioning European “distinctiveness” in the early-modern era in terms of market development, consumption, and the price-product structure is crucial for understanding whether Europe was already more advanced than the rest of the world well before the Industrial Revolution and, if so, what the sources of such early divergence in economic performances were. In an effort to understand the extent to which these European experiences were unique, I address the following questions in separate papers: (1) Did Ottoman commodity markets experience long-term and sustainable integration so as to produce regional patterns of specialisation? (2) Did the Ottomans enjoy a greater variety and quantity of goods despite stagnant real wages, as was the case in eighteenth-century Europe? (3) Did manufactured

goods become cheaper relative to agricultural goods between 1700 and 1840? As the first long-term quantitative study on Ottoman commodity markets, consumerism, and relative prices, this research has provided an empirical basis for discussing these topics on a solid foundation.

This research relies on evidence from Ottoman inheritance inventories. In examining these questions, it is necessary to first establish the potential of these inventories to expand Ottoman price history, a field severely limited by the availability and quality of primary sources from which historical prices can be compiled. Inventories have been widely employed in the relevant scholarship to study questions related to wealth (for across-space and across-time comparisons, inequality, wealth accumulation, composition of personal wealth, etc.), credit relations, and material culture. However, the information about market prices contained in these sources, which are available for several Ottoman towns and continued for long, continuous periods, has attracted scant attention. In chapter 2, I demonstrated that inventory valuations were generally consistent and were closely related to the conventional prices of the time and, thus, can be reliably employed to study historical prices. In so doing, I have highlighted the new opportunities in the employment of these invaluable primary sources.

Establishing credible prices for goods is essential if we are to understand trade. Prior to this research, foreign trade in the Ottoman Empire before the mid-nineteenth century had been studied with reference to trade volumes alone, while in the absence of such data, domestic trade was almost entirely neglected. Although market integration and the scale of trade are clearly related, they are not always perfectly correlated, and for a more comprehensive picture of trade conditions, we must consider trade costs and trade volumes together. As Bateman (2010) emphasises, an increase in trade volumes between two markets does not necessarily entail greater integration. Trade volumes can change as a result of supply and demand shifts that can occur for any given level of market integration. I have provided empirical evidence to assess the development of wheat markets in the Ottoman Empire from the mid-sixteenth to the mid-nineteenth centuries. In doing so, my research has complemented the existing corpus of knowledge on the wheat trade both between the empire's provinces and with the neighbouring region of the Adriatic. Perhaps more importantly, it has shed light on the conditions and trajectory of domestic trade – which far

outstripped international trade during the period under study – but which has remained an almost untouched field for Ottomanists due to the extreme paucity of data.

How has this study on integration in domestic and international wheat markets in the Eastern Mediterranean contributed to our understanding of Ottoman trade? Perhaps the most striking findings concern the late eighteenth century and early nineteenth century, which are widely accepted as the era during which the Ottoman Empire was incorporated into the world economy. While this period witnessed a sharp rise in the value and volume of agricultural exports – including raw cotton and tobacco, as well as grains – trade costs rose instead of falling. The 1768-1774 Russo-Ottoman war seems to have particularly interrupted the sea trade in the Ottoman Eastern Mediterranean. Even in 1780-1840, which according to Quataert (1994) was an era of recovery and then growth in terms of the volume of international trade, shipping costs remained at substantially higher levels than they were during the 1750s, except in the first two decades of the nineteenth century, when there was a visible declining trend. This contrast between trade volumes and the costs of foreign trade during this period is a theme that requires additional research.

In the domestic arena, episodes of integration and disintegration generally coincided with ups and downs in the overall economy. From the 1720s to the 1760s, both the Mediterranean region and the long-distance Ottoman wheat markets became more integrated. Yet, under the pressure of war, drought, and disease; the third quarter of the eighteenth century was marked by fragmentation, from which Ottoman markets only modestly recovered in the subsequent 25 years. Of greater interest, however, are the developments in regional and interregional markets in the early eighteenth centuries. The upward shift in trade costs during this period suggests a serious degree of disintegration, particularly between the Balkans and the other regions of the empire.

Given that the Balkans witnessed a subsistence crisis during these years, as indicated by skyrocketing wheat prices, the question of why the grain surplus from other provinces did not flow to this region remains another important question requiring an answer. The findings of this thesis suggest, in line with Epstein (2000), that coordination failures resulting from the involvement of numerous local actors in the regulation of interregional and international wheat trade, as well as the conflicting interests of local power holders, led to extremely high

transaction costs. This impeded wheat from flowing from the Mediterranean coasts, where a marketable surplus was available, to the Balkans, which was struggling with shortages that occurred due to climatic factors and to the increased requirements imposed by the provisionist policies of the Ottoman state in the early eighteenth century.

Furthermore, the grain-trading network centred on Istanbul was no more integrated in 1774-1815, which Ağır (2013) argued to be an era of liberalisation in Ottoman grain policy, than it was in 1748-1774, which witnessed the implementation of a comparative quota system and the requirement of a licence to buy, transport, and sell grain. In this respect, the results provide support to Yıldırım's (2003) view that the established Ottoman provisionist policies remained in practice without any radical revision and that the state continued to exercise close control over grain markets until the adoption of a liberal economic view after 1838 under European influence.

The third section of the thesis provided an economic perspective on Ottoman consumerism, which has been examined within the rubric of social and cultural history in the existing literature. I explore the existence of a "consumer revolution" and trace the key features of the eighteenth-century European consumerism in a non-Western context, thereby contributing to the debates on the significance of market consumption for long-term economic development. In the absence of Asian counterparts to European probate inventories, the divergence in terms of consumption of durables across different parts of Eurasia prior to the nineteenth century has been primarily discussed on the basis of qualitative and anecdotal evidence. In this regard, Ottoman inheritance inventories provide us with a unique opportunity to bring quantitative insights into pre-industrial consumerism in a non-Western context.

Employing these sources, I have shown that from the second half of the eighteenth century onwards, Ottomans who were not richer and who were not better-positioned in the social hierarchy than their counterparts in 1700 owned a greater quantity and variety of domestic goods. The rising wealth or changing characteristics of the estate owners was not the major determinant of the growth of household goods in the course of the long eighteenth century. Instead, the structural changes that occurred on the production, distribution, and demand sides regarding price reductions, product innovations, enhanced distribution and retail networks, increased incomes that were not reflected in wealth, increased attention to

and information about material goods and the like, led and allowed the inhabitants of Üsküdar to possess more consumer goods. This picture is similar to those depicted by most studies on European probate inventories, which depict an increase in the ownership of household durables in the "long eighteenth century." As such, it supports Pomeranz's argument that improvements in the domestic environment were not a privilege reserved for members of European societies during the early-modern era.

Throughout the same period, the valuations of selected household goods, as well as the prices of several manufactured and traded goods, declined relative to agricultural products' prices. This decline was particularly visible in the 1730-1790 period, when the ownership of goods rose most rapidly. Although solely based on these results, it is not possible to conclude that the multiplication of household effects was a result of the cheapening of manufactured and traded goods rather than a reallocation of household resources as Clark (2004) has suggested; instead, it appears that the fall in relative prices was an important factor determining the ownership of consumer goods in the Ottoman realm. Putting it differently, from the second half of the eighteenth century onwards, individuals could own more goods without increasing their spending on domestic durables (via rising incomes, or by a reallocation of household resources). This indicates that Ottoman society also experienced a modest rise in living standards as a consequence of a greater consumption of cheaper manufactured and traded goods. These findings accord with the literature on European and American consumption that highlights the decline in the prices of luxuries and non-food items in the early-modern era as a crucial factor that permitted the spread of consumer goods (Clark 2004; De Vries 1994; Malanima and Pinchera 2012; Shammas 1994).

Moreover, Muslim men in the town, rather than the non-Muslim community or Muslim women, appeared to be inclined to acquire novel consumer goods associated with westernization, and western lifestyle, such as clocks, mirrors, and modern furniture. The ostensible supremacy of women – and particularly Muslim women – in terms of the ownership of household effects resulted from the possession of greater quantities of more "traditional" goods that were always part of the Ottoman inner house, such as household linen, chests, and towels. Rather than a sign of greater interest in the new consumer regime, the higher shares of household goods in the estates of Muslim women compared to Muslim men at the same

wealth level reflects both the limited control over resources and the fewer investment opportunities available to women in Ottoman society and the gender roles that relegated women to the home and made the creation of a comfortable domestic environment a prime female responsibility. The lack of evidence in favour of a distinctive female consumerism that can be associated with novel consumer patterns and observations on the composition of female estates lead us towards Weatherill (1986) and Shamma (1980), who rejected the idea that early-modern women were eager consumers and pioneers of the rising consumer culture.

Of course, as I have emphasised throughout, these findings should be interpreted with caution. The main source of inventories I have used, Üsküdar, was not an ordinary Ottoman town, and compared to other Anatolian towns, possessed several advantages in terms of the adoption of material goods. Its position at the crossroads of trade routes and its proximity to the capital would have facilitated access to several domestic and foreign products, as well as the acquisition of information about them. Another important characteristic of the town was the high level of market participation. Supplying the capital with fresh fruit and vegetables was an important economic activity in the town. Therefore, until similar research is conducted on other – and more remote – regions of the empire, we must be careful about assuming the improvements in terms of possession of household effects seen there occurred elsewhere in the Ottoman realm. It would not be unreasonable, however, to assume that improvements in the domestic environment observed in Üsküdar were shared at least by the regions that became increasingly more engaged in commercial agriculture throughout the eighteenth century, such as the coastal regions of Western Anatolia and parts of the Balkans. Further research is required to acquire a greater understanding of the regional diversity in the spread of consumer culture during the eighteenth and nineteenth centuries.

Having said that, it should also be recalled that as Overton et al.'s (2004) study on Cornwall and Kent has shown, regional differentiation in terms of the adoption of goods was a significant feature of European consumerism as well. The pace of the adaptation of consumer goods was strongly associated with the different paths of development towards capitalism in different regions within Europe. Hence, although the extent to which the results of this study can be applied to other parts of the Ottoman Empire remains an important question; none of the possible answers would weaken the significance of these findings.

Overall, this research has produced important implications for the "Ottoman decline debate." The premise of an absolute decline that began in the late-sixteenth century that culminated in the dissolution of the empire and which has been associated with decadence in all spheres of life – political, military, economic, social and cultural – has been severely challenged in recent decades. This study has contributed to the recent body of literature that inquire as to the actual nature of the changes occurring within the Ottoman world and which offer a more nuanced view of the Ottoman experience during the seventeenth and eighteenth centuries.

In the field of Ottoman economic history, the argument the economy went into a permanent downward slide that following the downturn during the late-sixteenth century from which it never recovered is no longer convincing. A more sophisticated account of Ottoman agriculture, manufacturing, and trade that attempts to capture the trajectory of the economy with its ups and downs, changes and stagnation has replaced the old paradigm. In line with this new stance, I have provided further evidence to reject the simplistic notion of a linear decay in all areas of the economy. By demonstrating that the Ottoman inner house significantly improved and that several traded and manufactured goods became more affordable, this study supports Kafadar's (1999: 68) argument that "in the eighteenth century, Ottomans lived better than their ancestors of the Suleimanic era, in terms of material culture and means, [although] their lot was not improving relative to the lot of those living in other parts of the world." Furthermore, this research has shown that Ottoman wheat markets, domestic and international, did not deteriorate in any sustained way between the mid-seventeenth and mid-nineteenth centuries as one would expect on the basis of the institutional dissolution depicted by the declinist literature. In fact, the episode of integration in the first half of the eighteenth century demonstrated that under favourable conditions, the dynamics of market development and growth could be and were in play in the Ottoman realm.

If we return to the three theories of divergence listed above, the findings of this research point to long-term market development (and its absence), rather than a change in attitudes towards consumption, and productivity gains in the non-agricultural sectors as a major source of divergence prior to the Industrial Revolution between parts of Europe and the Ottoman Empire.

Using quantitative evidence from these inventories, I have shown that Europe and the Ottoman Empire shared several characteristics of early-modern consumerism. The growth of consumer goods in the long eighteenth century, which De Vries identifies as a feature of Northwest Europe, also occurred in the Ottoman realm. The interiors of Ottoman houses grew richer and more varied throughout this period. In both regions, a decline in the real prices of consumer goods was a major factor, if not the only one, that triggered this change. The timing of the improvements in consumption in the Ottoman realm overlapped with the era in which the consumer boom became revolutionary in the West, namely the second half of the eighteenth century. Moreover, the analysis on prices and inventory valuations refutes Allen et al.'s (2004) argument that the decline in prices of non-food items was a distinctive pattern in Northwestern Europe in the pre-industrial era; instead, this was mirrored in the Ottoman Empire. Indicating that throughout the eighteenth century, the material environment in which the Ottomans lived improved while manufactured and traded goods became more affordable, this research has made a significant contribution to the revisionist literature, arguing that European experiences in the pre-modern era were not as unique as once thought but were, in some respects, shared by inhabitants of India, China, Southeast Asia, and the Ottoman Empire.

If the expansion in the consumption of durable goods was a common development that cut across Western and non-Western regions, then the argument that it fuelled the agricultural revolution and proto-industrialisation, and hence, set the stage for modern economic growth and the Industrial Revolution in Northwest Europe, should be revised. Since the improvement in consumption prior to industrialisation is not associated, in every historical case, with these long-term developments, the rising consumerism in the eighteenth century can at best be a "necessary but not sufficient" condition, rather than a direct cause. To shed further light on the link between consumerism and the emergence of the Industrial Revolution, we need to ask under what particular conditions and in which particular economic settings, consumption can trigger production-side changes.

Assessing the scale of progress in consumption in a comparative perspective is not a major focus of this study. However, observational evidence from inheritance inventories suggest that despite the multiplication of objects, as well as the refinement of the materials used to produce them, the Ottoman inner house remained quite modest compared to the

average British household throughout the period. On the other hand, prior research by Allen et al. (2004) has shown that during the same period, non-food industrial goods were much cheaper in certain regions of Europe than in the Ottoman Empire. Therefore, it would be more accurate to conclude that both regions witnessed the similar trends, albeit at different rates.

When it comes to market development, European distinctiveness is much more obvious. Around the mid-nineteenth century, domestic wheat markets in the Ottoman Empire were no better integrated than they had been in the second half of the seventeenth century. Neither the extended sample that incorporates coastal and landlocked regions and short-distance and long-distance markets, nor the one restricted to the littorals of the Ottoman Mediterranean, produced evidence to support a continuous and sustainable declining trend in trading costs prior to the mid-nineteenth century. In contrast, studies on Northern and Northwestern Europe unambiguously depict a growing integration of wheat markets and an increasing synchronisation of prices in the centuries prior to the Industrial Revolution (Jacks 2004; van Tielhof, 2002; van Bochove 2008; Gonzales, Garcia-Hiernaux and Guerrero 2012). If Europe as a whole did not become engrossed in a complete and overarching system of markets, some regions within the continent were becoming increasingly more integrated within themselves and among one another during the early-modern era. There is little sign that such a process of integration occurred even in the core areas of the Ottoman Empire.

Another important point of distinction concerns integration during industrialisation. Some studies (Chilosi et al. 2011; Shiue and Keller 2007; Studer 2008; Uebele 2009) suggest that European markets became quickly and significantly more efficient and better integrated between 1780 and 1820, even before the telegraph, steamship and railroads could reach their full cost-saving potential. Uebele (2009) insists that integration in world and national markets was stronger in the first half of the nineteenth century than in the second. Similarly, our analysis has shown that Adriatic wheat markets began integrating in the first half of the nineteenth century. During the same period, long-distance Ottoman markets, as well as the Ottoman Mediterranean coasts, reflected a decline in trade costs, although this decline was quite modest compared to Europe, and price differentials remained at levels substantially higher around the mid-nineteenth century than a century previously. More interestingly, this period was one of disintegration in Ottoman-Adriatic wheat markets, as discussed above. In short,

the results of this study demonstrate that the trajectory followed by Ottoman wheat markets between 1660 and 1840 was very different than that followed by European markets throughout this period.

The elimination/lowering of policy-promoted barriers to trade, and improvements in the institutional environment allowed by jurisdictional centralisation have been identified as the main sources of long-term market integration prior to the nineteenth-century developments in communication and transportation technology. In this respect, the lack of long-term integration in Ottoman markets directs our attention to policy-related factors and the institutional environment to account for the absence of sustainable growth in the long run.

In contrast to a number of recent studies suggesting that there were signs of liberalisation in the eighteenth-century Ottoman economic mind, the findings of this study support the view that pragmatism, rather than a comprehensive economic orientation, continued to guide policy choices until around the mid-nineteenth century. Although the Ottomans were not unaware of mercantilist thought and practice, trade continued to draw their interest primarily from the perspective of fiscal outcome and provisioning for the army and urban areas. Therefore, during times of war, fiscal bottlenecks, and declining agricultural and industrial output, as occurred in the late eighteenth century, the centre did not refrain from intervening in commodity markets, expanding internal tariff zones, or imposing export bans, thereby further exacerbating the overall economic conditions. This feedback mechanism between economic growth and state intervention in the context of the pre-industrial Ottoman Empire gives us further motivation to inquire into the real nature of the relationship between growth and market development and to consider supply levels as a variable in explaining the changes in the extent of integration in commodity markets.

On the other hand, in the case of the Ottoman Empire, the jurisdictional centralisation that Epstein argued enabled the rise of efficient and integrated markets in Western Europe was a phenomenon of the nineteenth century. It was the imperial reform edicts of 1839 and 1856 that eventually ended the political fragmentation and rivalry of the last two centuries and ushered in a centralised bureaucracy into power. Around the mid-nineteenth century, efforts at modernisation and centralisation were also accompanied by measures to promote domestic

and international trade, such as attempts to standardise local measurement units, and the establishment of gendarmerie units to provide safety on trade routes.

While considering seventeenth and eighteenth-century Ottoman decentralisation as an “alternative” and politically effective strategy towards the modern state, the revisionist literature has ignored the consequences of this alternative path in terms of its fiscal and economic outcomes. In fact, as Pamuk and Karaman’s (2010, 2013) study has shown, in terms of the state’s extractive capacity, the decentralised Ottoman tax collection system was much less efficient than the centralised tax regimes of the European states. In a similar vein, I have demonstrated here that under the decentralised political structure of the seventeenth and eighteenth centuries, transaction costs in the Ottoman region did not show a long-term and steady decline – something that effectively signifies improvements in the institutional environment.

The developments that we observe within Ottoman markets are in line with Studer’s (2008) analysis of pre-industrial India and Europe, which revealed that Europe experienced a gradual expansion of markets in the early-modern era and that this process accelerated with the onset of the Industrial Revolution, while Indian wheat markets remained largely isolated until the second half of the nineteenth century. As such, they offer additional evidence in support of the argument that unequal market development might have been a significant source of divergence in economic performances across different parts of the world prior to the Industrial Revolution. Having said that, it should be also noted that unequal market development during – as well as before – industrialisation is an important factor that might aid us in explaining the divergence of growth paths in the long run.

PRIMARY SOURCES

Inheritance inventories from four Ottoman towns – Istanbul, Manisa, Ayntab, and Trabzon – constitute the main data source of this study. These sources are included in the *şerîye* registers (judicial court registers), which are available in digital format at the Turkish Religious Foundation Center for Islamic Studies (ISAM) Library. The details of the court registers consulted are given below.

CHAPTER 2

The data underlying the tables and figures presented in chapter 2 are collected from inheritance inventories included in the following court registers:

Figure 2.3- Istanbul wheat prices from inventories

Istanbul Üsküdar Court Registers No. 231, 327, 357, 365, 410, 420, 442, 457, 485, 515, 520, 529, 564, 579, 582, 585.

Figure 2.4- Trabzon copperware prices from inventories

Trabzon Court Registers No. 50, 51, 52, 54, 55, 56, 57, 58, 59, 60, 61, 62, 64, 64, 65, 66, 67, 69, 70, 71, 72, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133.

Figure 2.5- *Beledi* mattress and *beledi* duvet valuations from Manisa inventories

Manisa Court Registers No. 167, 168, 169, 171, 172, 173, 174, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 188, 190, 191, 192, 193, 195, 197, 198, 199, 200, 201, 202, 204, 205, 206, 207, 208, 209, 211, 213, 214, 215, 218, 219, 220, 221, 222, 224, 225, 226, 227, 229, 233, 234, 236, 238, 240, 242, 243, 244, 245, 247, 249, 251, 252, 253, 254.

Table 2.4- Valuations of silk and cotton sheets from Üsküdar inventories

Istanbul Üsküdar Court Registers No. 316, 317, 318, 319, 320, 321, 322, 325, 326, 327, 328, 330, 331, 332, 333, 522, 524, 526, 528, 529, 532, 535, 538, 539.

Table 2.5- Valuations of selected household goods, and total estate values from Üsküdar inventories

Istanbul Üsküdar Court Registers No. 316, 317, 318, 319, 320, 321, 322, 325, 326, 327, 328, 330, 331, 332, 333, 522, 524, 526, 528, 529, 532, 535, 538, 539.

Table 2.6- Valuations of copperware and total estate values from Manisa, Trabzon, and Istanbul inventories

Manisa Court Registers No. 167, 168, 169, 171, 172, 173, 174, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 188, 190, 191, 192, 193, 195, 197, 198, 199, 200, 201, 202, 204, 205, 206, 207, 208, 209, 211, 213, 214, 215, 218, 219, 220, 221, 222.

Trabzon Court Registers No. 50, 51, 52, 54, 55, 56, 57, 58, 59, 60, 61, 62, 64, 64, 65, 66, 67, 69, 70, 71, 72, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 117, 118, 119, 120.

Istanbul Üsküdar Court Registers No. 325, 326, 327, 328, 330, 331, 332, 333, 335, 338, 340, 341, 342, 343, 345, 347, 349, 351, 352, 354, 355, 356, 357, 358, 361, 362, 363, 365, 366, 368, 369, 371, 374, 375, 376, 377, 378, 380, 381, 384, 385, 386, 388, 390, 392, 394, 396, 397, 400, 401, 402, 403, 404, 405, 407, 409, 410, 413, 414, 415, 416, 420, 421, 422, 423, 424, 425, 428, 431, 432, 433, 435, 437, 438, 440, 441, 442, 444, 451, 454, 465, 467, 474, 475, 476, 477, 478, 482, 485, 487, 489, 490, 491, 492, 494, 497, 498, 499, 501, 502.

Table 2.7- Wheat prices and total estate values from Manisa and Ayntab inventories

Manisa Court Registers No. 167, 168, 169, 171, 172, 173, 174, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 188, 190, 191, 192, 193,.

Ayntab Court Registers No. 35, 36, 37, 38, 39, 43, 44, 45, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72/A, 72/B, 73, 74, 76, 77, 78, 79, 80, 82, 83, 84, 85, 86, 87, 89, 90, 91, 92, 93, 94, 97, 98, 99, 101, 102, 103, 104, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 116, 117, 118, 119, 121, 122, 123, 124/B, 125, 126, 127, 128, 136, 142, 143.

CHAPTER 3

The Manisa and Ayntab wheat price series employed for market integration analyses in chapter 3 are constructed based on inventories included in the following court registers:

Ayntab Court Registers No. 26, 27, 28, 29, 30, 35, 36, 37, 38, 39, 43, 44, 45, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72/A, 72/B, 73, 74, 76, 77, 78, 79, 80, 82, 83, 84, 85, 86, 87, 89, 90, 91, 92, 93, 94, 97, 98, 99, 101, 102, 103, 104, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 116, 117, 118, 119, 121, 122, 123, 124/B, 125, 126, 127, 128, 136, 142, 143.

Manisa Court Registers No. 124, 125, 126, 127, 128, 130, 132, 134, 135, 37, 139, 141, 143, 144, 147, 148, 149, 150, 151, 152, 154, 157, 158, 159, 160, 161, 162, 163, 165, 166, 167, 168, 169, 171, 172, 173, 174, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 188, 190, 191, 192, 193, 195, 197, 198, 199, 200, 201, 202, 204, 205, 206, 207, 208, 209, 211, 213, 214, 215, 218, 219, 220, 221, 222, 224, 225, 226, 227, 228, 229, 230, 232, 233, 235, 237, 239, 240, 241, 242, 243, 244, 245, 246, 248, 250, 258, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 273, 274, 275.

CHAPTERS 4, 5, 6

The analyses in chapters 4, 5, and 6 rely on a sample of 380 inventories from Üsküdar. These inventories are taken from the following court registers:

1695-1705

Istanbul Üsküdar Court Registers No. 316, 317, 318, 319, 320, 321, 322, 325, 326, 327, 328, 330, 331, 332, 333.

1725-1735

Istanbul Üsküdar Court Registers No. 378, 380, 381, 384, 385, 386, 388, 390, 392, 394.

1755-1765

Istanbul Üsküdar Court Registers No. 440, 441, 442, 451, 454, 465, 467.

1785-1795

Istanbul Üsküdar Court Registers No. 522, 524, 526, 528, 529, 532, 535, 538, 539.

1815-1825

Istanbul Üsküdar Court Registers No. 588, 589, 590, 591, 592, 594.

1845-1855

Istanbul Üsküdar Court Registers No. 606, 608, 613, 616, 618, 621, 623, 626, 629, 630.

CHAPTER 5

Data underlying Figure 5.4 comes from inheritance inventories in the following court registers:

Figure 5.4- Valuations of *beledi* mattresses from Manisa

Manisa Court Registers No. 164, 165, 167, 168, 169, 188, 190, 191, 208, 209, 211, 213, 225, 226, 227, 229, 233, 247, 249, 251, 252, 253, 254.

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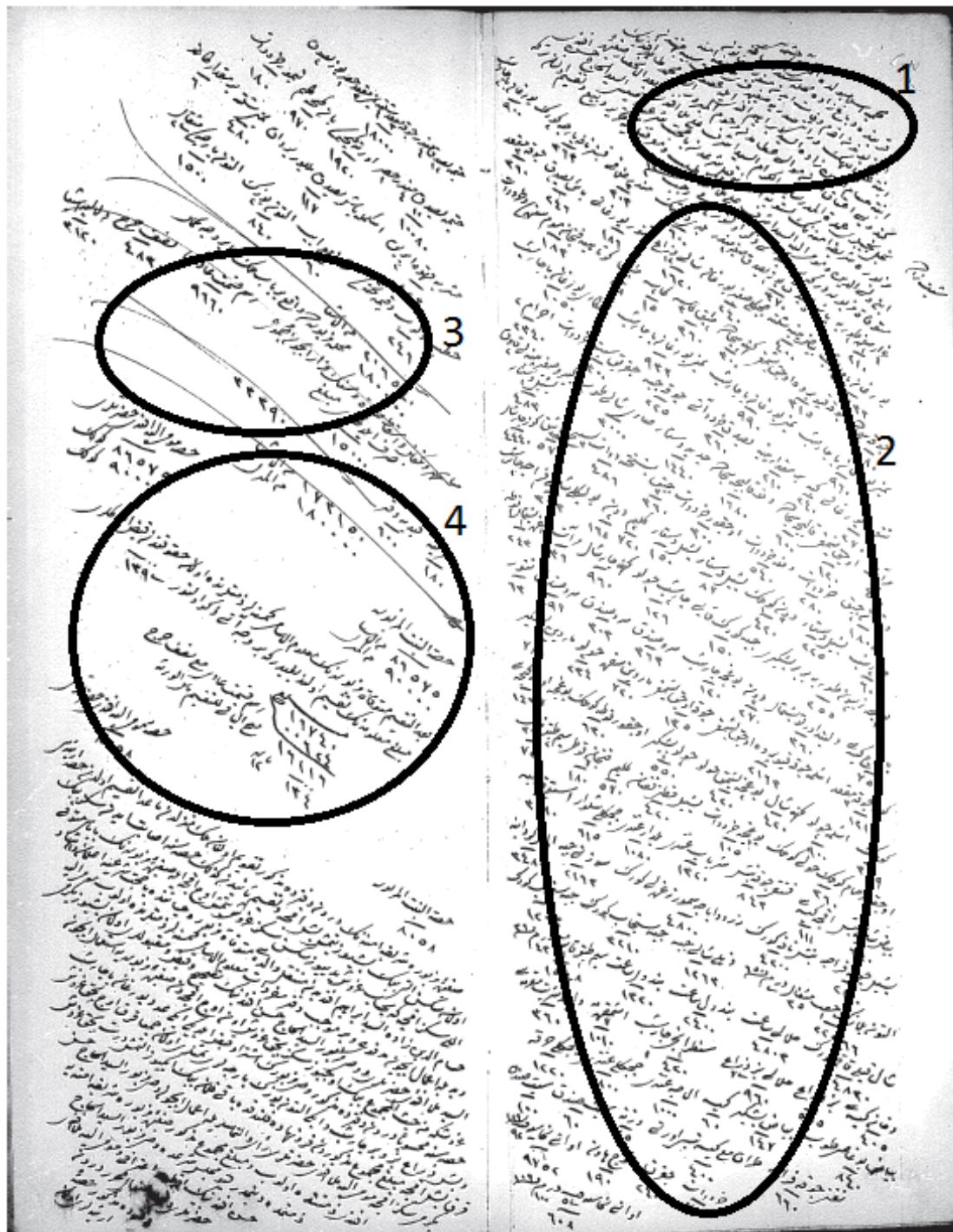
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APPENDIX

Sample inheritance inventory

Inheritance inventory of Munevvere Hatun, daughter of Abdullah, and inhabitant of *Debbagzade* neighbourhood in Istanbul. The inventory dates 1787.



Source: Bozkurt (2011: 392)

1. *Introductory protocol* : identification of the deceased by given name and father's name and place of residence (by neighbourhood or village and the city); the names and degree of affinity of the legatees, and the date of portioning.
2. *Inventory of movable and immovable property of the deceased*: Buildings (houses, shops, watermills), vineyards, trees and crops, livestock, personal and household goods, stores, commercial goods, as well as outstanding loans and the name of the borrower. The valuations are recorded below each item.
3. *Personal liabilities* : debts incurred by the deceased (düyun), such as an outstanding bride price to the wife, claims on the estate, bequests, and sundry expenses (medical expenses, funeral costs, the cost of the inheritance registry process, and taxes).
4. Portioning of the net amount of the assets among the heirs.