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THE PRICE REVOLUTION IN THE OTTOMAN EMPIRE RECONSIDERED

The Price Revolution of the 16th century has been the subject of one of the most enduring debates in European historiography and, more recently, in the historiography of the world economy. That European prices, expressed in grams of silver, increased by more than 100 percent—and in some countries, by more than 200 percent—from the beginning of the 16th century to the middle of the 17th century has been well established and broadly accepted. In countries that experienced currency debasements, overall inflation was proportionately higher, reaching, in some cases, 600 percent or more for the entire period.[1]

Because these price increases may appear limited in comparison with the standards of the 20th century, some have questioned the term "Price Revolution."[2] Yet to the contemporaries, these price increases seemed harsh and unprecedented in their severity. They were certainly not insignificant in relation to the ability of those societies, economies, and institutions to withstand them. As a result, the causes and consequences of the price increases have been intensely debated ever since the 16th century. The empirical study and bold arguments put forth by Earl J. Hamilton in the 1920s generated a great deal of new interest in the topic. Hamilton linked the price increases to the arrival of massive amounts of silver from the New World. Equally important, he argued that by redistributing income into the hands of new groups, the Price Revolution played a key role in the rise of capitalism in Europe.[3]

After the publication in 1949 of Fernand Braudel's major study of the Mediterranean economy in the 16th century, historians of the Ottoman Empire also began to inquire about the impact of the Price Revolution. As early as 1951, Halil İnalcık took up and developed some of the themes that Braudel had suggested for the eastern Mediterranean.[4] It was, however, the late Ömer Lütfi Barkan who undertook the most important study on the subject.

In an article first published in Turkish in 1970 and later translated into English after some revisions and published in this journal in 1975, he argued that the Price Revolution of the 16th century played a key role in the economic decline of the Ottoman Empire and, more generally, the Near East.[5] After presenting evidence from the Ottoman archives indicating that the prices of food and raw materials increased more than

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fivefold, Barkan argued that these increases were imported into the Ottoman economy through trade with Europe across the Mediterranean. Even more important, he claimed that "the decline of the established Ottoman social and economic order began as a result of developments entirely outside the area dominated by the Porte, and in particular, and as a consequence of the establishment in western Europe of an Atlantic economy of tremendous vitality and force." He then concluded that "this grave inflationary current . . . together with other more internal factors disturbed the social and economic security of the Empire, and in the end, proved to be irreversible. . . . The sixteenth century came to an end with the countries of the Ottoman Middle East falling into a grave economic and social crisis which presaged a decisive turning point in their history."[6]

Even though Barkan's arguments were widely read and even cited, they have generated only a modest amount of debate, and his conclusions have remained mostly unchallenged.[7] It is true that most historians lacked the technical expertise to evaluate the validity of these arguments. It should also be mentioned, however, that for those adhering to the thesis of Ottoman decline and for those looking for an external cause for Ottoman difficulties, Barkan's arguments offered an appealing explanation.

The debate about the causes and consequences of the Price Revolution in Europe and in the world economy has taken new directions during the past quarter-century. In this article, I will reconsider Barkan's arguments and inferences about the Price Revolution both in light of the recent developments in the literature and new empirical evidence from the Ottoman archives.

COMPETING EXPLANATIONS

The debate about the Price Revolution in Europe has not been about whether the price increases took place. Rather, it has focused on their causes and consequences. With respect to the causes, one side has argued, since Bodin in 1568 and even earlier, that the price increases were caused by an expansion in the money supply arising from the inflow of New World treasure into Spain.[8] In the 20th century, this argument has been elaborated by Hamilton and adopted by the Annales School, and has more recently been reformulated by economic historians adhering to the quantity theory of money.[9]

Hamilton's research in the archives of Seville generated a large body of new evidence in support of this linkage. Assuming a stable function of demand for money or velocity of circulation, he argued that the increase in the money supply first led to a rise in Spanish prices and then, through trade and the balance-of-payments deficits of that country, began to spread to others in Europe and eventually to the Near East and Asia.[10] Braudel gave the idea his blessing in his book on the Mediterranean: "there is no possible doubt about the effect of the influx of gold and silver from the New World . . . the coincidence of the curve of influx of precious metals from the Americas and the curve of prices throughout the sixteenth century is so clear that there seems to be a physical, mechanical link between the two. Everything is governed by the increase in stocks of precious metals."[11]

Dennis Flynn reformulated the quantity-theory explanation by adopting a theoretical framework known as the monetary approach to balance of payments. Emphasizing that a single price should prevail for each of the internationally traded goods, he

argued that price increases in Spain caused by the specie inflows then raised prices and increased demand for money in other countries through the balance-of-payments effects, even without the outflows of specie from Spain. Spanish inflation was thus transmitted to its trading partners whether or not bullion was actually exchanged. There was no need, therefore, to trace the volume and timing of the flows of silver from Spain and link those to the actual occurrence of inflation elsewhere.[12] Flynn used the same argument to explain why Potosi silver is not observed in the coinage of many states in the Old World.[13]

Recently, however, this long line of reasoning, based on various versions of the quantity theory of money, has been seriously damaged. New evidence recently compiled by Michel Morineau about the arrival of specie to the Old World from newspaper accounts in the Low Countries show that European receipts of New World treasure continued to increase during the 17th century, even after prices had started to decline. His detailed reconstruction indicates that European silver imports rose from 200 to 250 metric tons per year during the first half of the 17th century to more than 300 tons per year during the second half of the century. These data directly contradict Hamilton's estimates primarily because he grossly underestimated the extent of smuggling. Because prices in Europe actually declined during the 17th century, these findings cast serious doubt on the orthodox monetarist position linking bullion inflows or bullion stock directly to the price level. At the very least, they show that the same quantity-theory framework cannot be applied to the 17th century.[14]

In their recent work, Dennis Flynn, Arturo Giraldez, and Richard Von Glahn have introduced a new and more global dimension to the monetarist approach to the Price Revolution and flows of specie. They argue that precious-metal flows from Europe to Asia have long been attributed to Europe's trade deficits vis-à-vis Asia. In this framework, European demand for Asian products was dynamic while Asian demand for European products was weak or passive. Precious metals had to flow east as a result of the European trade deficit. In fact, they argue, it was not all precious metals, but only silver, that flowed consistently, not to Asia but specifically to China through both Europe and the Pacific and also from Japan. Gold flowed in the opposite direction during the same period. Such high volumes of silver flowed to China because its value was highest there. The high price of silver in China, by far the world's most populous country at the time, was due in turn to the conversion of the monetary and fiscal (taxation) systems in that country to silver during the 16th century.[15]

On the other side of the argument are those who have attempted to explain the price increases in terms of real factors—most notably, population growth and urbanization. From the very early stages of the debate, population growth has been proposed as one of the alternative explanations of the Price Revolution. It has been singled out primarily because agricultural prices rose much faster than the prices of manufactures during this period. The proponents of this explanation have then argued that as agricultural production failed to match the increase in population, the result was sharply higher food prices.[16]

There was a serious flaw with this argument, however. As Donald McCloskey has pointed out, all other things being equal, an increase in population should increase the volume of transactions and the volume of economic activity. Without a change in the velocity of circulation, this should lead to a decline, not an increase, in prices, as can

be followed from the basic quantity identity as developed by Fisher: $M \times V = P \times T$, where M stands for the money supply, V for the velocity of circulation, P for prices, and T for the volume of transactions. Even if relative prices should move in favor of agriculture because of the inelastic supplies in that sector, the general price level must fall while the volume of transactions rises together with population. While pointing out the basic flaw in this argument, McCloskey suggested that some other chain of reasoning could still be found to link population growth to rising prices in the 16th century.[17] Both sides thus agree that American silver supported the price increases during the 16th century, but disagree on whether it caused them. It makes a good deal of difference for monetary history and theory, of course, whether money caused or simply sustained the price increases.

More recently, the debate has shifted from increases in the money supply to changes in the demand for money and an increase in the velocity of circulation during the 16th century. One of the more important and insightful contributions came from H. A. Miskimin, who inquired as to whether there may be a more indirect causal connection between population growth and rising prices. Miskimin reasoned that an increase in population would put greater numbers of persons in closer contact with one another and may have enhanced trading opportunities and thus led to increased velocity of circulation.[18]

Jack Goldstone pursued this idea and developed a simple model of exchange to show how urbanization and increasingly more dense urban networks of exchange might permit small amounts of silver to sustain a growing number of transactions. He argued that a larger volume of monetary transactions triggered by rising population density and household specialization should bring about smaller cash balances, thanks to more frequent and smaller individual transactions, thereby increasing the velocity of circulation. In response, governments might have sought to catch up with rising prices by increased minting and currency debasement. Money supplies would thus be expected to lag behind rising prices. Bullion imports would help sustain this spiral but would not drive this demand. Once population growth ceased and urbanization slowed, however, velocity of circulation would fall.[19] Also pursuing the trail opened by Miskimin, Peter Lindert provided evidence that the velocity of circulation in England was not in fact constant, as the quantity-theory explanation insisted or assumed, but fluctuated broadly during the early modern era.[20] However, in a recent study on England until 1700, N. J. Mayhew has argued that while the velocity of circulation did show long-term fluctuations and while it increased during the 16th century, it did not rise with increasing urbanization and monetization.[21]

These efforts have shifted the focus from the supply of money to the demand for money, the inverse of the velocity of circulation. While earlier literature based on orthodox interpretations of the quantity theory of money assumed that demand for money or the velocity of circulation was constant or stable and that it could safely be ignored, it is thus becoming evident that the determinants of the demand for money need to be examined in a more general framework. This new framework needs to include not only the more obvious factors such as commercialization and monetization but also demographic changes and, more broadly yet, social and cultural factors. For this reason, it is simplistic to assume that demand for money would remain stable.

Even though we lack the quantitative data for money supply and the volume of

production or transactions that would be necessary for estimating the demand for holding money (or the velocity of circulation) for most societies, European and non-European, powerful arguments have been made as to why many of the variables cited earlier tend to vary temporally and from one society to another. As a result, it would be reasonable to expect wide inter-temporal and cross-societal variations in the demand for holding money.[22] Consequently, it is necessary to abandon the Eurocentric position with respect to the determinants of the demand for money and insert into this general framework the varying experiences of different areas of the Old World, from Western and Central Europe to India and China, as well as the Ottoman Empire.

Another aspect of the debate concerns the long-term consequences of the Price Revolution. Hamilton argued that by facilitating accumulation in the hands of those who were building a new order—or, at least, undermining the old—the price increases contributed to the transition to capitalism in Europe and were thus revolutionary in their impact.[23] It has since been shown, however, that agricultural prices and rents rose much faster than prices of manufactures and wages during this episode. The major beneficiaries of the price movements were, in fact, the landowners—hardly a revolutionary class. The manufacturers certainly did not benefit from the rising prices of raw materials and the lagging prices of their output. The real victims were the urban laborers, who witnessed a sharp reduction in their standards of living. At least in the European case, then, it would be difficult to show how the Price Revolution accelerated the decline of the old order and the transition to industrial capitalism. More generally, in comparison with the grand visions and bold claims of the earlier generation about the long-term consequences of the Price Revolution, contemporary historians of Europe have been downplaying such long-term consequences.[24]

NEW EVIDENCE AND A REVIEW OF THE OLD

For a long time, it had been assumed that markets and the use of money in the Ottoman Empire was limited to long-distance trade and parts of the urban sector.[25] Recent research has shown, however, that the urban population and segments of the countryside were already part of the monetary economy by the end of the 15th century. Even more significant, a substantial increase in the use of money occurred during the 16th century, because of both the increased availability of specie and increasing commercialization of the rural economy. An intensive pattern of periodic markets and market fairs also emerged where peasants and larger landholders sold parts of their produce to urban residents. These markets also provided an important opportunity for the nomads to come into contact with both peasants and the urban population. Large sectors of the rural population came to use coinage, especially the small denominations of silver *akçe* and the copper *mangır*, through their participation in these markets.[26]

Second, small-scale but intensive networks of credit relations developed in and around the urban centers. Evidence from thousands of court cases in these towns and cities involving lenders and borrowers leave no doubt that the use of credit, small and large, was widespread among all segments of the urban society and parts of rural society. It is clear that neither the Islamic prohibitions against interest and usury nor the absence of formal banking institutions prevented the expansion of credit in Otto-

man society.[27] Thanks to these recent studies, we are more aware today than we were a quarter-century ago that prices and inflation had an impact on virtually all groups in Ottoman society, and in turn, each group took a position. Most men and women, both urban and rural, were clear about the consequences of different ways of dealing with prices and money, and about who gained and who lost.

It is against this background that Barkan's empirical study of the Price Revolution needs to be situated. Barkan attempted to measure both the rate of overall inflation and its timing by making use of the account books of several leading hospices (*imaret*s) in Istanbul from 1489–90 to 1655–56. He constructed weighted price indexes based on purchases of firewood and sixteen standard items of food in twenty-four different years during this interval. However, Barkan could locate in the Ottoman archives only one such account book for the period before 1585–86, when the government undertook a major debasement that had a great impact on prices. That single account book belonged to the year 1489, the base year for his study. To make up for this deficiency, he included in his series account books from the palace kitchen for the years 1555–56 and 1573. He also examined the account books of hospices in the cities of Edirne and Bursa for the same period.[28] Thanks to the large volume of material available from the Ottoman archives in Istanbul, the price data utilized by Barkan were much more detailed than those available for any part of Asia and many of the European countries for this period. Nevertheless, questions were raised about his study regarding the limited nature of his price observations and whether prices paid by the hospices closely tended by the government could be considered representative.

I have recently completed a large study of prices and wages in Istanbul—and, to a lesser extent, in other leading cities of the Ottoman Empire—from the 15th to the 20th centuries.[29] This study used data on the prices of standard commodities collected from more than 6,000 account books and price lists located in the Ottoman archives in Istanbul. In the first stage of the study, three separate food-price indexes were constructed. One of these was based on the account books and prices paid by the many pious foundations (*vakıf*), both large and small, and their soup kitchens. Another index was based on the account books of the Topkapi palace kitchen, and the third used the officially established price ceilings (*narh*) for the basic items of consumption in the capital city.[30]

To the extent possible, standard commodities were used in these indexes to minimize the effects of quality changes. Each of the three indexes included the prices of eight to ten leading items of consumption, such as flour, rice, cooking oil, honey, mutton, chick peas, milk, eggs, and olive oil for burning. The weights of each of these items in the overall index were based on the average shares of each in total expenditures of the respective institutions. These weights were kept constant for each year. In cases where the prices of one or more of these items were not available for a given year, the missing values were estimated by an algorithm that applied regression techniques to the available values.

The annual values of these three food-price indexes were quite close to one another. Nevertheless, because the prices paid by the palace kitchen and the official price ceilings might reflect official or state-controlled prices, for the final index I used the prices obtained from the account books of the pious foundations. Only for those years

of the 16th century before 1585, for which price data from this source were not available, I inserted into the index, like Barkan, food prices paid by the palace kitchen.

Based on the available evidence regarding the budget of an average urban consumer, the weight of food items in the overall index was fixed between 75 and 80 percent. The weight of each commodity in the overall index was then fixed according to its share in total food expenditures. For example, in the absence of a long series on bread prices, the weight of flour—mostly wheat flour—varies mostly between 32 and 40 percent of food expenditures and 24 to 32 percent of overall expenditures, depending on the fluctuations in prices. Similarly, the weight of meat (mutton) varies between 5 and 8 percent of the overall budget. It is likely that the diets of private households in the capital city differed from those offered by the soup kitchens. At this stage, however, it is not possible to approximate the private diets more closely.

In the second stage, prices of non-food items obtained from a variety of sources—most important, the palace account books—were added to the indexes. These commodities are soap, wood, coal, and nails by weight (used in construction and repairs). A cost-of-living index should also have included cloth prices and rental cost of housing, but adequate series for these are not available at this stage.[31]

As a result, detailed and reliable price series for these four-and-a-half centuries were obtained for the first time for the Middle East—in fact, for the first time for anywhere in the non-European world. These indexes now make it possible to compare Barkan's results with a much larger body of evidence also drawn from archival sources. The consumer price index I have calculated for the period 1469 to 1700, as well as the index originally calculated by Barkan for the period 1489 to 1655, are shown in Figure 1 and Table 1. These two series are broadly similar. As a whole, they

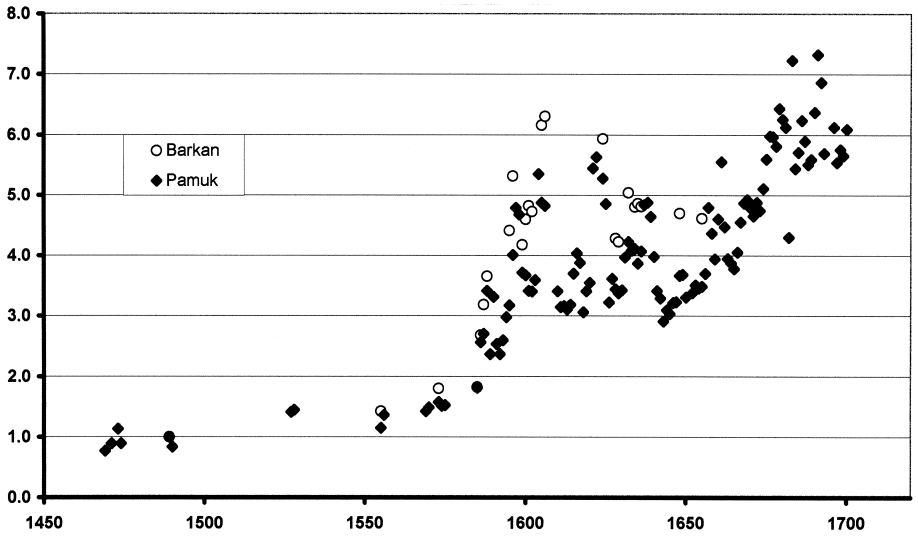

FIGURE 1. Consumer prices in Istanbul, in *akçe*s, 1469–1700 (1489 = 1.0)

TABLE 1 *Consumer price indexes for Istanbul, 1469–1700*

	Prices in *akçes*[a]		Silver Content of *akçe* in Grams	Prices in Grams of Silver[a]	
	Barkan	Pamuk		Barkan	Pamuk
Year	1a	1b	2	3a	3b
1469		0.77	0.86		0.98
1471		0.89	0.84		1.10
1473		1.14	0.84		1.41
1474		0.89	0.84		1.11
1489	1.00	1.00	0.68	1.00	1.00
1490		0.84	0.68		0.84
1527		1.41	0.66		1.38
1528		1.45	0.66		1.41
1555	1.42	1.15	0.66	1.35	1.12
1556		1.36	0.66		1.33
1569		1.43	0.61		1.29
1570		1.48	0.61		1.35
1573	1.80	1.58	0.61	1.60	1.43
1574		1.52	0.61		1.38
1575		1.53	0.61		1.39
1585	1.82	1.81	0.61	1.62	1.64
1586	2.68	2.56	0.34	1.34	1.30
1587	3.19	2.70	0.34	1.59	1.37
1588	3.65	3.42	0.34	1.83	1.73
1589		2.37	0.34		1.20
1590		3.31	0.34		1.68
1591		2.54	0.34		1.29
1592		2.37	0.34		1.20
1593		2.60	0.34		1.32
1594		2.98	0.34		1.51
1595	4.42	3.18	0.34	2.21	1.61
1596	5.32	4.01	0.23	2.66	1.34
1597		4.79	0.23		1.60
1598		4.68	0.23		1.56
1599	4.18	3.72	0.23	2.09	1.24
1600	4.60	3.67	0.29	1.94	1.57
1601	4.82	3.42	0.29	2.03	1.46
1602	4.73	3.41	0.29	1.99	1.45
1603		3.60	0.29		1.53
1604		5.35	0.29		2.28
1605	6.16	4.87	0.29	2.59	2.08
1606	6.31	4.82	0.29	2.65	2.06
1610		3.41	0.29		1.46
1611		3.15	0.29		1.34
1612		3.16	0.29		1.35
1613		3.11	0.29		1.33
1614		3.19	0.29		1.36
1615		3.70	0.29		1.58
1616		4.04	0.29		1.72
1617		3.88	0.29		1.66
1618		3.06	0.28		1.27

(*continued*)

TABLE 1 *Continued*

Year	Prices in *akçes*[a]		Silver Content of *akçe* in Grams	Prices in Grams of Silver[a]	
	Barkan	Pamuk		Barkan	Pamuk
1619		3.41	0.28		1.41
1620		3.55	0.28		1.47
1621		5.45	0.28		2.25
1622		5.64	0.23		1.88
1624	5.93	5.28	0.12	2.50	0.92
1625		4.86	0.28		2.01
1626		3.23	0.28		1.33
1627		3.62	0.28		1.50
1628	4.28	3.44	0.23	1.71	1.15
1629	4.23	3.38	0.23	1.69	1.13
1630		3.43	0.23		1.14
1631		3.97	0.23		1.32
1632	5.05	4.23	0.23	2.01	1.41
1633		4.08	0.20		1.20
1634	4.81	4.11	0.20	1.92	1.21
1635	4.87	3.88	0.18	1.93	1.03
1636	4.81	4.07	0.18	1.92	1.09
1637		4.84	0.18		1.29
1638		4.88	0.18		1.30
1639		4.64	0.18		1.24
1640		3.99	0.16		0.96
1641		3.42	0.28		1.41
1642		3.29	0.28		1.36
1643		2.91	0.28		1.20
1644		3.10	0.28		1.28
1645		3.03	0.28		1.25
1646		3.22	0.28		1.33
1647		3.23	0.28		1.34
1648	4.70	3.67	0.28	1.87	1.52
1649		3.69	0.28		1.52
1650		3.31	0.28		1.37
1652		3.38	0.28		1.40
1653		3.51	0.28		1.45
1654		3.46	0.28		1.43
1655	4.62	3.49	0.28	1.84	1.44
1656		3.70	0.28		1.53
1657		4.80	0.28		1.98
1658		4.37	0.28		1.81
1659		3.94	0.23		1.37
1660		4.61	0.23		1.60
1661		5.55	0.23		1.92
1662		4.47	0.23		1.55
1663		3.95	0.23		1.37
1664		3.88	0.23		1.34
1665		3.78	0.23		1.31
1666		4.05	0.23		1.41
1667		4.56	0.23		1.58

(*continued*)

TABLE 1 *Continued*

Year	Prices in *akçes*[a]		Silver Content of *akçe* in Grams	Prices in Grams of Silver[a]	
	Barkan	Pamuk		Barkan	Pamuk
1668		4.87	0.23		1.69
1669		4.93	0.21		1.51
1670		4.79	0.21		1.47
1671		4.66	0.21		1.43
1672		4.88	0.21		1.50
1673		4.75	0.21		1.46
1674		5.11	0.21		1.57
1675		5.60	0.21		1.72
1676		5.98	0.21		1.83
1677		5.97	0.21		1.83
1678		5.81	0.21		1.78
1679		6.43	0.21		1.97
1680		6.26	0.21		1.92
1681		6.13	0.21		1.88
1682		4.31	0.21		1.32
1683		7.23	0.21		2.22
1684		5.44	0.21		1.67
1685		5.71	0.21		1.75
1686		6.24	0.21		1.91
1687		5.90	0.21		1.81
1688		5.51	0.21		1.69
1689		5.59	0.21		1.72
1690		6.37	0.13		1.23
1691		7.33	0.13		1.41
1692		6.87	0.13		1.32
1693		5.69	0.13		1.10
1696		6.13	0.13		1.19
1697		5.54	0.13		1.08
1698		5.76	0.13		1.12
1699		5.66	0.13		1.10
1700		6.09	0.13		1.19

Sources: Barkan, "The Price Revolution"; Pamuk, *Five Hundred Years of Price and Wages*; also see the text.
[a]1489 = 1.00.

indicate that prices in Istanbul increased by approximately 500 percent from the end of the 15th to the end of the 17th century. They also show that prices in the capital city need to be examined in two distinct periods: until the debasement of 1585–86, when the *akçe* was relatively stable, and after 1586, when monetary instability played havoc with prices. It is also worth noting that the debasement of 1585–86 led to a doubling of consumer prices within a period of three years, which is confirmed by both indexes.

Regarding the period before 1585, my comparison of the prices paid by the palace kitchen with the prices paid by the hospices indicates that they were quite similar. For

this reason, Barkan's insertion of some prices from the palace kitchen into the series from the hospices did not cause serious problems. More serious in its implications is the apparent error in Barkan's calculation of his index for the years 1555 and 1573. The index values for these years are important because they give us the only measures of the extent of inflation prior to the debasements of 1585–86—hence, the only measure of silver inflation until that date. Because Barkan independently published the full texts of the account books he used for 1489, 1555, and 1573, I attempted to replicate his calculations for these years, especially because his index appeared unusually high, especially in 1555 and 1573, in relation to my palace-kitchen index using the same set of prices.[32] One problem arises from the fact that the palace kitchen's account books for these two years actually provide prices for no more than eleven of the seventeen items in Barkan's basket. Moreover, even though Barkan's calculations suggested that food prices paid by the palace kitchen in 1573 were 79.97 percent higher than the prices paid in 1489 by the hospice of the mosque built for Sultan Mehmed II, none of the items appearing in the original documents in fact showed price increases approaching this overall rate. My calculations based on the prices available from the documents used by Barkan indicate that his index in 1555 and 1573 should stand at approximately 125 and 150, respectively—not at 142.26 and 179.97. My own index provides slightly different values because additional data was used for these years (see Table 1).

Economic historians studying the Price Revolution have found it useful to make an analytical distinction between price increases in nominal terms and those expressed in grams of silver. The latter index is derived by multiplying the price indexes calculated in nominal *akçe*s with the silver content of the *akçe* expressed in grams of silver for each year. It then becomes possible to break down the total increase in prices into its two components. The changes in the index measuring prices in grams of silver may be taken as an indicator for the price level in the absence of debasements. Because prices in grams of silver would tend to converge between countries under open-economy conditions—especially for the port city of Istanbul—the difference between the silver-price index and the other in nominal *akçe*s would reflect the extent of price increases due to the debasement of the currency. This second component of price increases was not necessarily independent of the Price Revolution, however, because the latter created—or, at least, contributed to—the fiscal pressures leading to debasements. The price indexes for Istanbul, including that of Barkan, expressed in grams of silver are presented in Figure 2 and Table 1.

Between 1489 and 1585, the *akçe* was quite stable, losing 12 percent of its silver content in two minor debasements undertaken in 1491 and 1566. Because Barkan's calculations indicated a 79.97 percent increase in nominal food prices until 1573, his food-price index expressed in grams of silver rose by 60 percent during the interval from 1489 to 1573. On the basis of this result, Barkan argued that the impact of the Price Revolution was being felt strongly in the Ottoman economy before the past quarter of the 16th century. He then linked the Ottomans' fiscal difficulties and the debasement of 1585–86 to these price increases by arguing that the inflation-adjusted revenues of the treasury declined during this period because the government failed to adjust many of the fixed taxes upward. After my correction of Barkan's price index for the year 1573, however, the price increases between 1489 and 1573 expressed in

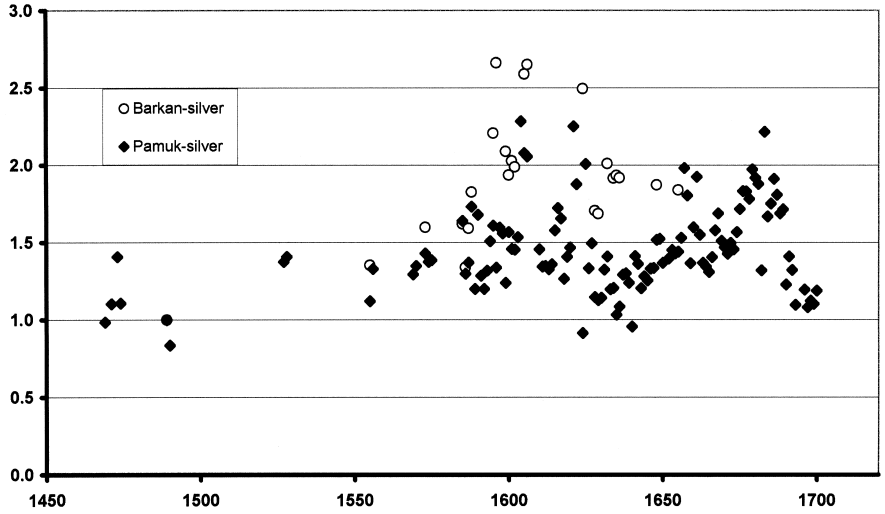

FIGURE 2. Consumer prices in Istanbul, in grams of silver, 1469–1700 (1489 = 1.0)

grams of silver is reduced to 43 percent, indicating a more modest rate of silver inflation. My calculations point to an even lower rate of silver inflation for the other years before 1585 for which data is available (see Figure 2 and Table 1). With this correction, it becomes more difficult to explain Ottoman fiscal difficulties primarily in terms of the Price Revolution, or imported inflation, as Barkan put it.

After the debasement of 1585–86, in which the *akçe* lost 44 percent of its silver content, the Ottoman currency entered a period of extreme instability.[33] Its silver content declined further while fluctuating sharply and frequently until the middle of the 17th century. Substandard *akçe*s circulated widely during this period. As a result, most of the increases in food prices after 1585 were due to the deterioration of the currency.[34] Unfortunately, we do not have the mint records or records of government orders to the mints to establish the precise standards of the *akçe* for each year of the period after 1585. Because the available series on the silver content of the *akçe* reflect only the official standards, and because substandard coinage often dominated the markets, we should recognize that Figure 2 probably overstates the extent of silver inflation for the period from 1586 to 1650 and again for 1670 to 1690.

After making some adjustments for the deficiency cited earlier, the indexes presented in Figure 2 suggest that prices expressed in grams of silver reached their peak in Istanbul during the first quarter of the 17th century, at approximately 80 to 100 percent above their levels in the base year of 1489. It is worth noting that food prices in Istanbul expressed in grams of silver declined during the last decades of the 17th century. By 1700, they were only 20 percent higher than their levels in 1489–90. This latter trend could not be observed in the indexes constructed by Barkan since his series ended in mid-century.

Overall, then, these findings agree with those of Barkan regarding the extent of

nominal price increases in Istanbul from the end of the 15th to the end of the 17th century. As for the breakdown of this overall increase, however, my series, which is based on a greater variety of sources and more realistic estimates for the silver content of the *akçe*, diverge from those of Barkan. They show that silver inflation accounted for a smaller part, and Ottoman debasements for a larger part, of these increases than what Barkan suggested a quarter-century ago.

Istanbul was chosen primarily because the data were most detailed for the capital city. However, price data from the account books of the pious foundations is available for other cities of the empire, as well. In fact, Barkan provided some evidence from Edirne to suggest that prices in other Ottoman cities showed similar trends during this period.[35] As part of my price and wage study, I gathered price observations from a shorter list of commodities to construct separate food-price indexes for Edirne and Bursa, both in the Marmara basin, and Damascus for the interval from 1490 to 1700. These indexes are summarized in Figure 3. They indicate that changes in food prices in other Ottoman cities were broadly comparable to the price trends in the capital city from 1490 to 1700. The price data gathered by Ljuben Berov suggest that the Balkans experienced similar increases in nominal prices during this period.[36] The evidence thus points to similar price trends for the *akçe* region as a whole, stretching from the Balkans through Anatolia to Syria. For Egypt, where the local silver currency *para* or *medin* was not subjected to the same rates of debasements as the *akçe*, we can hypothesize that increases in nominal prices were more limited, but the rise in prices expressed in grams of silver must have been comparable to those in the *akçe* region. The well-developed maritime transportation and commercial networks around the eastern Mediterranean must have ensured the broad convergence of these price trends.

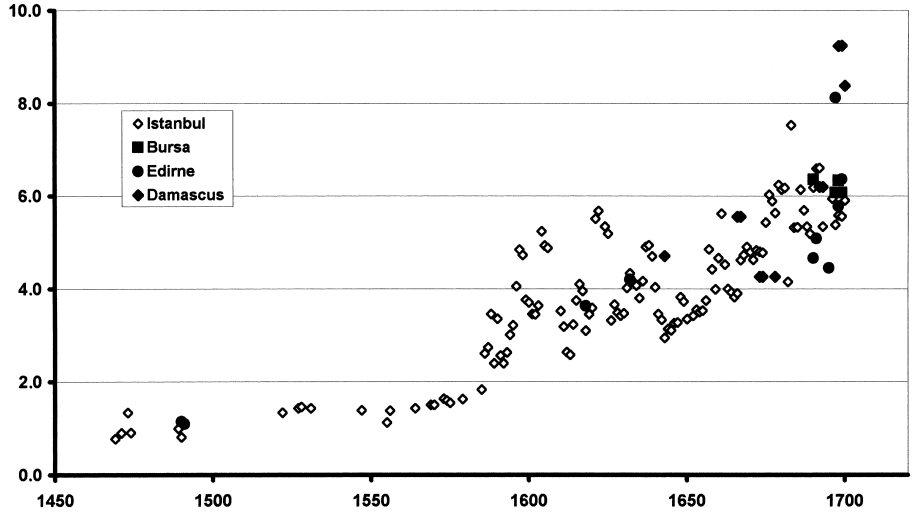

FIGURE 3. Food prices in Ottoman cities, in *akçe*s, 1469–1700 (Istanbul, 1489 = 1.0)

WHY DID PRICES RISE IN THE NEAR EAST?

In the English version of his article, Barkan is careful not to discuss directly the causes of the Price Revolution in Europe. In that version, he emphasizes that the Ottomans sought to establish a self-sufficient and tightly regulated economic system and argues that inflation, "the product of contact with the Atlantic economy," was an imported phenomenon for the Ottoman Empire. "The (inflation) in Europe gradually began a process by which those commodities were sucked out of Ottoman markets. Wheat, copper, wool, and the like, which had been the bases of the Ottoman economic strategy, now came in short supply and . . . here . . . developed a rapid inflation of prices which soon endangered the equilibrium and security of the closed (Ottoman) economic system."[37]

For Barkan's earlier ideas on the origins or causes of the Price Revolution, one has to go back to the Turkish version of his article, published five years earlier.[38] This piece presented the same empirical evidence, but also included a discussion on the origins of the Price Revolution. Presenting a graph borrowed from a text by Herbert Heaton, Barkan explicitly made the link between the arrival of specie from the New World and the price increases in Europe. He argued that the calculations by Hamilton show a "complete parallelism" between the volume of specie imports into Spain and the commodity-price level in that country.[39]

One section of that article, however, was titled "Other Causes of the Price Increases." There, Barkan showed that he was aware of the debates regarding the causes of the Price Revolution. Stating that "it would not be correct to link price increases solely to the accumulation of large stocks of gold and silver from Africa and America and to rely only on the quantity theory of money in the explanation of price formation and inflation," he went on to produce a long list of other possible causes, which included debasements, population growth, changes in the velocity of circulation of money, and the emergence of other forms of money such as letters of credit and bills of exchange. Aside from a detailed discussion of debasements, however, Barkan did not offer a critical examination of these explanations coming from very different theoretical origins.[40]

This is a good opportunity to take another look at the Ottoman case in light of the recent debates in the literature. Most important, recent debates confirm that explanations other than that based on the simple quantity-theory framework deserve greater consideration than has been given by Barkan or others since. In this respect, the arguments by Miskimin, P. H. Lindert, and J. A. Goldstone, which emphasize long-term changes in the velocity of circulation and the demand for money, appear quite plausible in the Ottoman context.[41] It has already been pointed out that the 16th century was a period of population growth, urbanization, growing economic linkages between rural and urban areas, commercialization, and monetization in the Ottoman Empire.[42] The spread of local and regional markets and fairs in the Balkans and Anatolia provide strong evidence for the spread of commercialization and the money economy during this period. During the 16th century, a significant increase occurred in the use of money, both because of the increased availability of specie and the growing economic linkages between the urban and rural areas. Large sectors of the rural population came to use coinage, especially the small denominations, through

their participation in markets and because of state taxation of a wide range of economic activities. In addition, small-scale but intensive networks of credit relations developed in and around the urban centers in the Balkans and Anatolia. Ottoman price increases expressed in grams of silver may thus be due to the rise in the velocity of circulation arising from these changes, as Miskimin, Lindert, and Goldstone argued for other countries. Although increased availability of specie is not seen as the cause of price increases in this perspective, the former are seen as supporting and sustaining the latter. Moreover, this focus on the changing velocity of circulation during the 16th century does not necessarily imply that the price increases expressed in grams of silver were a local phenomenon. On the contrary, this perspective would imply that the long-term developments in the Ottoman Empire with respect to population growth, urbanization, and commercialization were part of a more general pattern in Europe and Asia during the 16th and early 17th centuries.

At the same time, increases in the velocity of circulation should not preclude the possibility that Ottoman price increases expressed in grams of silver were also due partly to the transmission of the European price increases through trade. The price rises in Europe and the ongoing trade with the West may have contributed to the ongoing inflation by creating strong demand for Ottoman agricultural products, as argued by Barkan. In other words, price increases in grams of silver may have been imported from Europe through trade and trade deficits and, at the same time, caused by changes in the velocity of circulation.

LONG-TERM CONSEQUENCES OF THE PRICE REVOLUTION

While the recent debates about the Price Revolution in Europe and the world economy have focused on the causes of the price increases, for historians of the Ottoman Empire the long-term consequences have attracted more attention. One important reason for this was Barkan's thesis that the price increases constituted a negative turning point and a leading cause of the "Ottoman decline" at the end of the 16th century. These arguments also deserve closer scrutiny.

Barkan identified three key areas in which the Price Revolution showed its adverse effects: state finances, agricultural organization, and industry. With respect to the first, he provided detailed evidence from his own research into Ottoman budgets to show that the revenues of the central government failed to keep pace with price increases and rising expenditures. The healthy surpluses of the earlier period had turned into deficits by the last decades of the 16th century.[43] Because some of the government revenues were fixed in nominal terms and the government failed adjust these upward, he argued, the Price Revolution did contribute to Ottoman fiscal woes. My price series showed that this effect was more modest than that suggested by Barkan. Further, there were other, more important causes of Ottoman fiscal difficulties. It was, above all, the growing need for maintaining larger central armies, as well as the increasing frequency of long and exhaustive wars in both the East and the West, that gave rise to the budget deficits and eventually led to the debasements.

During the earlier part of the 16th century, new territories, including Hungary, Syria, Mesopotamia, and Egypt, had been incorporated into the empire. State finances had benefited from these successful campaigns and the inflow of annual remittances

from these provinces—most important, from Egypt. The territorial expansion of the empire reached its limits, however, after mid-century. At the same time, the changing technology of warfare began to raise military costs for the central government. Around the middle of the 16th century, when the *timar*-holding *sipahi*s formed the backbone of the Ottoman army, 30 to 40 percent of military expenses were met by revenues collected in rural areas by the *sipahi*. As the traditional cavalry, armed with conventional weapons of bow and arrow, lance, and sword, proved ineffective against the Austrian musketeers, however, the central government was forced to increase the number of janissaries, the standing infantry corps, from 13,000 in the 1550s to 38,000 in the 1600s. The additional costs of this shift fell upon the central treasury.[44]

The protracted and costly wars with the Safavids in the east and the Habsburgs in the west during the second half of the century thus began to drain the enormous financial reserves of the imperial treasury accumulated during the earlier period. With the outbreak of another war with Iran in 1578, the treasury began to experience shortages of silver for payments to the soldiers. In this respect, too, the Ottoman difficulties were part of a pattern that was repeated across Europe and parts of Asia during the 16th and 17th centuries.[45]

With respect to agriculture, Barkan argued that the Price Revolution and the debasement of 1585–86 played a key role in the disintegration of the *timar* system of land tenure.[46] The *timar* system had relied on the agricultural taxes collected from peasant producers to equip locally a cavalry-based force that joined the imperial army at wartime. Aside from the tithe, which was collected in kind, most of the other dues and taxes collected from the peasant households by the *sipahi* were fixed in terms of the *akçe*. Because the latter revenues failed to keep up with the increased cost of living and the necessary costs of armament, many *sipahi*s refused to join the army and began to leave their *timar*s after the debasement of 1585–86.[47]

The central government could have adjusted these dues upward, thereby increasing the incomes of the *sipahi*s. Instead, it left their nominal levels unchanged but chose to levy a series of extraordinary taxes, called *avarız-ı divaniyye* and *tekalif-i örfiyye*, on the rural population in order to bring cash directly into the treasury. This move further undermined the *sipahi* and the provincial army. The government soon abandoned the *timar* system and shifted to tax-farming, auctioning off the collection of rural taxes to the highest bidders.[48] This broad shift toward the collection of the agricultural taxes at the center was due to the changing techniques of warfare and the need to maintain larger permanent armies. The decline of the *timar* system, then, was due more to military considerations than the adverse consequences of the Price Revolution.[49]

One aspect of the Price Revolution in the Ottoman Empire that has not drawn any attention has been its distributional consequences. Because the prices of agricultural goods tended to rise faster than other prices during this period, the more market-oriented segments of the agricultural population—those in control of marketable surpluses such as medium-size landholders and estate owners—tended to benefit from the Price Revolution. On the other hand, it was the urban working groups—the artisans as well as the consumers—who carried the burden of the price increases. Because food prices rose in urban areas, detailed wage data recently collected from the Ottoman archives show that nominal wages failed to keep up with prices. The purchasing power

of urban wages declined by 30 to 40 percent during the 16th century, and they remained roughly unchanged at those levels during the 17th century.[50]

Regarding the consequences on Ottoman industry, Barkan argued that the exportation to Europe of the basic raw materials arising from West–East price differentials created severe shortages for Ottoman guilds. When these price effects combined with the increasing competitiveness of European industry and the inability of Ottoman manufacturers to keep up with them, Barkan insisted, an irreversible crisis developed for Ottoman industry. He thus placed the decline of Ottoman guilds in the face of European competition firmly in the 16th century.[51]

It is true that Ottoman industry was adversely affected by the price movements. Ottoman guilds, especially those in coastal regions, were hurt by the shortages arising from the exportation of raw materials to Europe. In a similar vein, Murat Çizakça has argued that in the case of the silk industry from 1550 to 1650, even though wages lagged behind price increases, profit margins were squeezed between the stagnating prices of output and the rapidly rising prices of raw materials.[52] However, there is a good deal of evidence that these shortages were not permanent and that the guilds later recovered.[53] Moreover, this line of reasoning cannot explain why European manufacturers, which faced similar price movements, did much better than their Ottoman counterparts. If the 17th century, or most of it, was a period of stagnation for Ottoman guilds, the reasons must be sought elsewhere, not in the adverse price movements associated with the Price Revolution. In fact, the volume of trade with Europe remained limited, and Ottoman manufactures were not subjected to any serious competition from European industry, until the 19th century. The imports during this period were mostly luxury goods and items such as colonial wares. Recent research has also shown that the 18th century until the 1780s was a period of stability and expansion for the Ottoman economy, including manufacturing.[54]

One reason that the debate on the Price Revolution in Europe originally attracted so much attention had to do with the rash claims of Hamilton and his followers that by redistributing income into the hands of new groups, the price increases paved the way for the rise of capitalism. The international literature on the Price Revolution has since rejected this argument. It is interesting that Barkan similarly interpreted the price increases as a turning point and a leading cause of the "Ottoman decline" at the end of the 16th century. With the help of new evidence about Ottoman prices, we have shown in this study that the impact of the silver inflation on the Ottoman economy and finances was more limited than what Barkan suggested a quarter-century ago. The Ottoman system undoubtedly faced severe fiscal and economic difficulties at the end of the 16th and during the first half of the 17th centuries. However, these difficulties related more to other causes than to the impact of silver inflation per se. In retrospect, Barkan's as well as Hamilton's claims and the attempt to single out the Price Revolution as a key event appear exaggerated if not unfounded.

NOTES

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[1]See, for example, the collection of essays by P. H. Ramsey, ed., "Editor's Introduction," *The Price Revolution in Sixteenth Century England*, (London: Methuen and Company, 1971); F. Braudel and F. Spooner, "Prices in Europe from 1450 to 1750," in *The Cambridge Economic History of Europe*, ed. E. E. Rich and C. H. Wilson (1967), 4:374–486; and P. Vilar, *A History of Gold and Money, 1450–1920*, (London: New Left Books, 1976), chaps. 16–21. Much less is known, however, about trends in prices elsewhere in the Old World—most important, in India and China. For India, see I. Habib, "Monetary System and Prices," in *The Cambridge Economic History of India*, ed. I. Habib and T. Raychaudhuri (1982), 1:360–81; S. Moosvi, "The Silver Influx, Money Supply, Prices and Revenue Extraction in Mughal India," *Journal of the Economic and Social History of the Orient* 30 (1987): 47–94; and S. Subrahmanyam, "Precious Metal Flows and Prices in Western and Southern Asia, 1500–1750: Some Comparative and Conjunctural Aspects," *Studies in History* 7 (1991): 79–105. And for China, see W. S. Atwell, "International Bullion Flows and the Chinese Economy circa 1530–1650," *Past and Present* 95 (1982): 68–90.

[2]C. Cipolla, "La pretendue revolution des prix," *Annales, Economies, Societes, Civilisations* 10 (1955): 513–16.

[3]E. J. Hamilton, "American Treasure and the Rise of Capitalism (1500–1700)," *Economica* 9 (1929): 338–57; and idem, *American Treasure and the Price Revolution in Spain, 1501–1650* (Cambridge, Mass.: Harvard University Press, 1934).

[4]Fernand Braudel, *La Mediterranee et le Monde Mediterraneen a L'Epoque de Philippe II* (Paris, 1949); Halil İnalcık, "Osmanlı İmparatorlugu'nun kuruluş ve inkişafı devrinde Türkiye'nin iktisadi vaziyeti üzerine bir tetkik münasebetiyle," *Belleten* 15 (1951): 656–90. A decade later, Bernard Lewis also emphasized the contribution to the Ottoman decline of the developments unleashed by the arrival of American silver: B. Lewis, *The Emergence of Modern Turkey* (London and New York: Oxford University Press, 1961), 29–30.

[5]Ö. L. Barkan, "The Price Revolution of the Sixteenth Century: A Turning Point in the Economic History of the Near East," trans. Justin McCarthy, *International Journal of Middle East Studies* 6 (1975): 3–28; see also idem, "XVI. Asrın ikinci yarısında Türkiye'de fiyat hareketleri," *Belleten* 34 (1970): 557–607.

[6]Barkan, "The Price Revolution," 5–7.

[7]One important exception is H. Sundhaussen, "Die 'Preisrevolution' im Osmanischen Reich während der zweiten hälfte des 16. jahrhunderts," *Südost-Forschungen* 42 (1983): 169–81. See also the detailed empirical study by Ljuben Berov, *Prices in the Balkans during the 16th–19th Centuries and the European Revolution of Prices* (in Bulgarian), (Sofia: Publishing House of the Bulgarian Academy of Sciences, 1976); a summary is available in idem, "Changes in Price Conditions in Trade Between Turkey and Europe in the 16th–19th Century," *Etudes Balkaniques* 3 (1974): 168–78; M. Çizakça, "Osmanlı ekonomisinde akçe tagşişinin sebebleri üzerinde kısa bir inceleme," *Bogaziçi University Journal, Administrative Sciences and Economics* 4–5 (1976–77): 21–27; and idem, "Price History and the Bursa Silk Industry: A Study in Ottoman Industrial Decline, 1550–1650," *Journal of Economic History* 40 (1980): 533–49, which argued that the inter-sectoral price movements led to the decline of Ottoman silk industry during this period. C. Kafadar, "Les troubles monetaires de la fin du XVIe siecle et la prise de conscience Ottomane du declin," *Annales, Economies, Societes, Civilisations* 2 (1991): 381–400, returned to the subject from the perspective of the history of mentalities. Subrahmanyam, "Precious Metal Flows," 79–105, attempted a comparative perspective with South Asia, but his analysis of the Near Eastern or West Asian case remained thin.

[8]On the strength of his *Response* to the *Paradoxes sur le faict des Monnoyes* of M. de Malestroict, Bodin has been designated the "discoverer" of the Quantity Theory of Money; J. A. Schumpeter, *History of Economic Analysis* (Oxford University Press, 1954), 311–12.

[9]Hamilton, "American Treasure," and idem, *American Treasure and the Price Revolution*; Braudel, *La Mediterranee*, and idem, *The Mediterranean and the Mediterranean World in the Age of Philip II*, 2 vols. (London: William Collins Sons, 1972), 1:462–542; F. C. Spooner, *The International Economy and Monetary Movements in France*, (Cambridge, Mass.: Harvard University Press, 1972). For a recent restatement of the monetarist position, see D. O. Fisher, "The Price Revolution: A Monetary Interpretation," *Journal of Economic History* 49 (1989): 883–902; see also D. O. Flynn, "Use and Misuse of the Quantity Theory of Money in Early Modern Historiography," in *Minting, Monetary Circulation and Exchange Rates*, ed. E. van Cauwenberghe and F. Irsigler (Trier: Verlag Trier Historische Forschungen, 1984), 383–417; and idem, "The Microeconomics of Silver and East–West Trade in the Early Modern Period," in *The Emergence of a World Economy, 1500–1914*, ed. W. Fischer and R. M. McInnis (Wiesbaden: Franz Steiner Wiesbaden, 1986), 37–60.

[10]Hamilton, "American Treasure," 338–57, idem, *Price Revolution in Spain*.

[11]Braudel, *La Mediterranee*, 426.

[12]D. O. Flynn, "A New Perspective in the Spanish Price Revolution: The Monetary Approach to the Balance of Payments," *Explorations in Economic History* 15 (1978): 388–406; Carlo Cipolla had argued earlier that in Italy, the price increases came long before the arrival of Spanish silver. Therefore, he reasoned, Italian inflation was due to non-monetary, internal causes: Cipolla, "La pretendue," 513–16.

[13]Flynn, "Use and misuse," 401. It had been shown, on the basis of neutron-activity analysis, that Potosi silver was used in Spain's coinage but, surprisingly, not in the coinage of many other states in the Old World, including France, England, Persia, and the Ottoman Empire: A. A. Gordus, J. P. Gordus, E. Le Roy Ladurie, and D. Richet, "Le Potosi et la physique nucleaire," *Annales: E.S.C.* 27 (1972): 1–35; and A. A. Gordus and J. P. Gordus, "Potosi Silver and Coinage of Early Modern Europe," in *Precious Metals in the Age of Expansion*, ed. Hermann Kellenbenz (Stuttgart: Klett-Cotta, 1981), 225–41.

[14]M. Morineau, *Incroyables Gazettes et Fabuleux Metaux: Les retours des tresors Americains d'apres les gazettes Hollandaises (XVIe–XVIIIe siecles)* (New York: Cambridge University Press, and Paris: Editions de la Maison des Sciences de l'Homme, 1985), 564. Arthur Attman and Ward Barrett's recent surveys of the current research on the intercontinental flows of specie confirm that Morineau's argument is essentially correct: A. Attman, *American Bullion in the European World Trade, 1600–1800* (Goteborg: 1986); and W. Barrett, "World Bullion Flows, 1450–1800," in *The Rise of Merchant Empires*, ed. James D. Tracy (Cambridge University Press, 1990), 224–54.

[15]D. Flynn and A. Giraldez, "Born with a 'Silver Spoon': The Origin of World Trade in 1571," *Journal of World History* 6 (1995): 201–21; idem, "Arbitrage, China and World Trade in the Early Modern Period," *Journal of the Economic and Social History of the Orient* 38 (1995): 429–48; and R. von Glahn, *Fountain of Fortune, Money and Monetary Policy in China, 1000–1700* (Berkeley and Los Angeles: University of California Press, 1996), chaps. 1, 4, 7.

[16]Y. S. Brenner, "The Inflation of Prices in Early Sixteenth-Century England," *Economic History Review* 14 (1962): 225–39; and idem, "The Inflation of Prices in England, 1551–1650," *Economic History Review* 15 (1963): 266–84.

[17]Donald McCloskey, "Review of P. Ramsey, ed., *The Price Revolution in Sixteenth Century England*," *Journal of Political Economy* 80 (1972): 1333.

[18]H. A. Miskimin, "Population Growth and the Price Revolution in England," *Journal of European Economic History* 4 (1975): 179–86.

[19]J. A. Goldstone, "Urbanization and Inflation: Lessons from the English Price Revolution of the Sixteenth and Seventeenth Centuries," *American Journal of Sociology* 89 (1984): 1122–60. In a subsequent book, Goldstone went on to explain the pattern of social unrest, rebellion, and revolution in Europe and Asia—from England to China—during the early modern era in terms of population growth, rising prices, and fiscal crises: J. A. Goldstone, *Revolution and Rebellion in the Early Modern World* (Berkeley and Los Angeles: University of California Press, 1991). In a separate article, Goldstone then linked the long-term cycles in European and Asian population during the early modern era to climate, meteorological series, and solar activity: idem, "The Causes of Long Waves in Early Modern Economic History," in *Research in Economic History, Supplement 6*, ed. Joel Mokyr (Greenwich, Conn.: JAI Press, 1991), 64–68. Unfortunately, some of the evidence he employed to fit the Ottoman case to his framework simply does not exist. For example, contrary to his assertion, there is no reliable evidence at the moment suggesting that Ottoman population and real wages declined during the second half of the 17th century: idem, "Causes of Long Waves," 55.

[20]P. H. Lindert, "English Population, Wages and Prices, 1541–1913," *Journal of Interdisciplinary History*, 15 (1985): 609–34.

[21]N. J. Mayhew, "Population, Money Supply and the Velocity of Circulation in England, 1300–1700," *Economic History Review* 48 (1995): 238–57.

[22]F. Perlin, "Money-Use in Late Pre-Colonial India and the International Trade in Currency Media," in *Imperial Monetary Systems in Early Modern India*, ed. J. F. Richards (Delhi: Oxford University Press, 1987), 232–373; and Subrahmanyam, "Precious Metal Flows," 79–105.

[23]Hamilton, "American Treasure," 355–56; I. Wallerstein, *The Modern World System, Capitalist Agriculture and the Origins of the European World Economy in the Sixteenth Century* (New York: Academic Press, 1984), 70–85.

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[24]See the introductory essay in Ramsey, *The Price Revolution.*

[25]F. Braudel, *Civilization and Capitalism, 15th–18th Century, Vol. III: The Perspective of the World* (New York: Harper & Row, 1984), 471–73.

[26]Soraiya Faroqhi, "The Early History of Balkan Fairs," *Südost-Forshungen* 37 (1978): 50–68; idem, "Sixteenth Century Periodic Markets in Various Anatolian *Sancak*s," *Journal of the Economic and Social History of the Orient* 22 (1979): 32–80; and idem, "Rural Society in Anatolia and the Balkans During the Sixteenth Century," *Turcica* 9 (1977): 161–96, and ibid. 11 (1979): 103–53. See also the studies on the rural economy that appeared in two collections: H. İnalcık, *The Middle East and the Balkans under the Ottoman Empire, Essays on Economy and Society*, Indiana University Turkish Studies and Turkish Ministry of Culture Joint Series (Bloomington, Ind., 1993); and S. Faroqhi, *Coping with the State, Political Con*flict *and Crime in the Ottoman Economy, 1550–1720* (Istanbul: ISIS Press, 1995).

[27]R. C. Jennings, "Loans and Credit in Early 17th Century Ottoman Judicial Records," *Journal of the Economic and Social History of the Orient* 16 (1973): 168–216; also H. İnalcık, "Osmanlı idare, sosyal ve ekonomik tarihiyle ilgili belgeler: Bursa kadı sicillerinden seçmeler," *Türk Tarih Kurumu, Belgeler* 14 (1981): 1–91.

[28]Barkan, "The Price Revolution," 8–17.

[29]Detailed results, including appendixes with annual price and wage series and lists of all source documents, will be published in Ş. Pamuk, *Five Hundred Years of Prices and Wages in Istanbul and Other Cities, 1469–1998* (Ankara: State Institute of Statistics, forthcoming).

[30]The account books of the pious foundations were obtained mostly from the Ottoman Archives in Istanbul, Başbakanlık Osmanlı Arşivi (hereafter, BOA), Maliyeden Müdevver and Evkaf Nezareti, Haremeyn Muhasebeciliği collections. The account books of the palace kitchen are available mostly from the BOA, Devlet Başmuhasebe, Matbah Emini collection. The *narh* prices were approved by the local judges and are available from the records of the Islamic courts in Istanbul, including those of Galata and Üsküdar. Some of these *narh* lists have been published—for example, M. S. Kütükoglu, *Osmanlılarda Narh Müessesesi ve 1640 Tarihli Narh Defteri* (Istanbul: Enderun Kitabevi, 1983).

[31]From the imperial palace's various account books, it is possible to obtain long-term price series on two types of woolen cloth: the locally produced *çuha* and the *çuha Londrine* imported from England. Their prices suggest, however, that they were not the varieties worn by ordinary people but, rather, expensive types of cloth purchased by high-income groups: Halil Sahillioglu, "Yeniçeri çuhası ve II. Bayezid'in son yıllarında yeniçeri çuha muhasebesi," *Güney-Dogu Avrupa Araştırmaları Dergisi*, vol. 2–3 (1973–74), 415–65. For this reason, cloth prices were not included in the overall index.

[32]Ö. L. Barkan, "Fatih camii ve imareti tesislerinin 1489–1490 yıllarına ait muhasebe bilançoları," *Istanbul Üniversitesi Iktisat Fakültesi Mecmuası* 23 (1962–63): 297–341; and idem, "Istanbul saraylarına ait muhasebe defterleri," *Türk Tarih Kurumu, Belgeler* 13 (1981): 108–49 (1–71 for 1555–56).

[33]The government ordered the mints to strike 800 *akçe*s from 100 *dirham*s of silver, whereas the earlier standard had been 450 *akçes* per 100 *dirham*s of 3.072 grams. For more details about the monetary history of this period, see Ş. Pamuk, "In the Absence of Domestic Currency: Debased European Coinage in the Seventeenth-Century Ottoman Empire," *Journal of Economic History* 57 (1997): 350–60.

[34]The deterioration of the *akçe* is clear from the market exchange rates of the Ottoman silver unit against both gold *sultani* and leading European coinage. For example, the exchange rate of the *akçe* declined from 120 in 1620 to as low as 400 per *sultani* in 1624 and then rebounded back to 120. This suggests that the silver content of the *akçe*s declined by as much as two-thirds or more during that interval: H. Sahillioglu, "XVII. asrın ilk yarısında Istanbul'da tedavüldeki sikkelerin raici," *Türk Tarih Kurumu, Belgeler* 1/2 (1965): 227–34. For the exchange rate of the *akçe* against the European currencies during this period, see Ş. Pamuk, "Money in the Ottoman Empire, 1326–1914," in *The Ottoman Empire: Its Economy and Society, 1300–1914*, ed. Halil İnalcık and Donald Quataert (Cambridge University Press, 1995), 963. Barkan was aware of the deterioration of the *akçe* and cites these exchange rates by referring to Sahillioglu's study, but he did not attempt to adjust his calculations accordingly: Barkan, "The Price Revolution," 14.

[35]Barkan, "The Price Revolution," 16; Ö. L. Barkan, "Edirne ve civarındaki bazı imaret tesislerinin yıllık muhasebe bilançoları," *Türk Tarih Kurumu, Belgeler* 2 (1964): 235–377.

[36]For detailed evidence of price increases in the Balkans during this period, see Ljuben Berov, "Changes in Price Conditions" in *Prices in the Balkans during the 16th–19th Centuries.*

[37]Barkan, "The Price Revolution," 3–6.

[38]Ö. L. Barkan, "Türkiye'de fiyat hareketleri."

[39]Ibid., 581–84.

[40]Ibid., 589–95.

[41]See pp. 71–73.

[42]For Ottoman population growth and urbanization in the 16th century, see Ö. L. Barkan, "Essai sur les donnees statistiques des registres de recensement dans l'Empire Ottoman aux XVe et XVI siecles," *Journal of the Economic and Social History of the Orient* 1 (1957): 9–36; M. A. Cook, *Population Pressure in Rural Anatolia, 1450–1600* (London, 1972); L. Erder, "The Measurement of Pre-Industrial Population Changes, the Ottoman Empire from the 15th to the 17th Century," *Middle Eastern Studies* 9 (1975): 284–301; L. Erder and S. Faroqhi, "Population Rise and Fall in Anatolia, 1550–1620," *Middle Eastern Studies* 15 (1979): 322–45; and R. C. Jennings, "Urban Population in Anatolia in the Sixteenth Century: A Study of Kayseri, Karaman, Amasya, Trabzon and Erzurum," *International Journal of Middle East Studies* 7 (1976): 21–57.

[43]Barkan, "The Price Revolution," 17–27.

[44]Halil İnalcık, "Military and Fiscal Transformation in the Ottoman Empire, 1600–1700," *Archivum Ottomanicum* 6 (1980): 289, 311.

[45]For the fiscal burden of the wars, see also Sundhaussen, "Die 'Preisrevolution,' " 179.

[46]İnalcık, "Military and Fiscal Transformation."

[47]Barkan, "Türkiye'de fiyat hareketleri," 23–24.

[48]İnalcık, "Military and Fiscal Transformation."

[49]Ibid.

[50]Pamuk, *Five Hundred Years of Prices and Wages*, chap. 4. Real wages also declined in Europe during the 16th century.

[51]"One can see clearly that the advent of the new European commerce began the stagnation of the Ottoman craft industry. . . . [F]aced with the continuously evolving European industry, Ottoman industry could not find the dynamism necessary to adapt to the new conditions of the world economy. As an ever wider gap between it and European industry opened, the Ottoman system was condemned to degeneration. . . . The new European commerce must be included as one of the main causes of the sixteenth century Ottoman economic stagnation": Barkan, "The Price Revolution," 7–8.

[52]Çizakça, "Price History and the Bursa Silk Industry," 533–49.

[53]S. Faroqhi, "Crisis and change, 1590–1699," in *The Ottoman Empire*, 433–73.

[54]Mehmet Genç, "L'Economie Ottomane et la guerre au XVIIIe siecle," *Turcica* 27 (1995): 177–96; M. Genç, "Ottoman Industry in the Eighteenth Century: General Framework, Characteristics and Main Trends," in *Manufacturing in the Ottoman Empire and Turkey, 1500–1950*, ed. Donald Quataert (Albany: State University of New York Press, 1994), 59–86.

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