

Urban Real Wages in Constantinople-Istanbul, 1100-2000

(and more generally around the Eastern Mediterranean)

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I- Introduction

One of the more important questions regarding the world economy in the early modern era concerns the emergence and evolution of the gap in levels of real income between today's developed and developing countries. With the exception perhaps of a handful developed countries, estimates for per capita GDP for the period before 1820 are difficult to construct and not sufficiently reliable. Moreover, it has not been possible to construct detailed estimates for any of the developing countries for the period before 1820 or even 1870. An alternative approach for studying the gap in levels of per capita income or the standards of living has been to compare real wages of specific occupations, most often of skilled and unskilled construction workers in urban areas. Real wage data are of far better quality than per capita GDP estimates especially for the period before World War I for all of the developing countries and available for a wider sample. In fact, real wage series are virtually the only solid piece of information we have for the standards of living in the developing countries for the period before 1870 if not 1914. In short, real wages continue to be the most reliable source of information about the standards of living of at least part of the population. They also provide the most convenient vehicle for international comparisons of standards of living.

Although they can not be claimed to be "national" in any sense, urban real wage series exist for many regions and large inter-regional differences within the same country are not apparent in these series. Nonetheless, real wage series are open to valid objections. Even if we accept the representative wage as an adequate proxy for the annual per capita earnings of labor, this does not mean that it should be a good proxy for income per capita. That depends on the further assumption that factor shares

across countries are similar. In many parts of Europe and Asia during the early modern era and until World War I, incomes of households were often determined by changes in employment levels, participation ratios of men, women and children, and above all, by non-market incomes.

Despite these qualifications, the link between wages and the standards of living remains. A decline in real wages did result in a decline in the standards of living or welfare of the household because more labor had to be supplied to buy the same amount of goods thereby leading either to a decline in other types of income, or in the case where the household responded to the decline in real wages by working harder or longer, a decline in leisure time.

Utilizing a large volume of archival documents, this study examines the long-term trends in wages of skilled and unskilled construction workers in Istanbul, and to lesser extent in other urban centers in the Near East and the Balkans from about 1100 until World War I. Urban construction workers were a relatively homogeneous category of labor over time and space. Moreover, in contrast to the payments made to other employees, urban construction workers received a high proportion if not all of their pay in cash rather than in kind or in the form of shelter, food and clothing. As a result, their wages allow for useful inter-country comparisons between pre-industrial societies. These trends will also be inserted into a larger framework of price and wage trends in European cities during the same period. For the period since WWI, our real wage series for construction workers are linked to the average real wages of manufacturing workers in Turkey.

Urban real wages in Turkey and the Near East for approximately 1000 years ; three different sets of data ; comparative framework within the Mediterranean and Europe

II- Byzantine period, 1100-1450

Data : wages of skilled and unskilled workers construction workers, and more generally of skilled and unskilled workers

Deflated by prices of wheat and olive oil

Observations available for Constantinople and also for other urban centers

prices and nominal wages rising from 1000 due to fiscally motivated debasements

real wages roughly unchanged until mid-14th century

after Black Death (1340's) prices little changed, but nominal and real wages rise by at least 100 percent, as much as 150 percent

slave prices also increased by about 100 percent after Black Death (Morrison and Cheynet, 2002, pp. 847-50)

similar increases in real wages in both the Eastern Mediterranean (Egypt, Balkans) and the Western Mediterranean (Italy, Spain) (Ashtor, 1969, pp. 517-24.)

skilled-unskilled differentials appear to have declined after the Black Death

after Black Death real wages remain high but decline somewhat until mid-15th century

Constantinople and Cairo construction worker wages close to those in Italy and Spain during the 15th century (more on this in the last section of the paper)

III- Ottoman period, 1490-1914

Based on our previous study (Pamuk, 2001 and Ozmucur and Pamuk, JEH, 2002)

Data : wages of skilled and unskilled workers construction workers in Istanbul and other urban centers

deflated by the price level of a basket of consumer goods; food and other consumer goods; also available for other urban centers

The our price series in the Ottoman period, we utilized data on the prices of standard commodities (food and non-food items) collected from more than six thousand account books and price lists located in the Ottoman archives in Istanbul. Prices of non-food items obtained from a variety of sources, most importantly the palace account books, were then added to the indices. These commodities are soap, wood, coal, nails by weight (used in construction and repairs). In the second part of the study, daily wage data were gathered from more than five thousand account books of the construction and repair sites in Istanbul and other cities. These account books contain daily wages for both unskilled and a variety of skilled construction workers.

Ottoman real wages in late 15th century higher than Byzantine wages, especially for skilled construction workers

16th century decline in real wages well known elsewhere in Europe ... by as much as 40 percent in Ottoman cities..

with a long term perspective from 13th through 17th centuries .. looks like a symmetrical move : up and down large part of the wage increases after 1350 due to Black Death disappear by the end of the 16th century

After remaining roughly unchanged until the middle of the eighteenth century, Ottoman urban real wages increased by about 20 to 30 percent from late eighteenth until mid-nineteenth century and then by another 40 percent during the late nineteenth and early twentieth century. On the eve of World War I, real wages of unskilled construction workers were about 10 to 20 percent above their levels in 1500. Because relative prices shifted in favor of goods consumed by higher income consumers during these centuries and because the skill premium began to rise late in the nineteenth century, real wages of skilled workers in 1914 stood at more than 50 percent above their levels in 1500.

When we take into account the differential impact on the skilled and unskilled workers of the items excluded from our price indices and the differential impact of the more rapid rise in the prices of essentials as discussed in the preceding section, we need to adjust upwards by a total of 10 percent the cumulative price increases faced by and lower the real wages of unskilled workers for 1914 for in comparison to the indices presented here in Graph 1. Similarly, we would have to adjust downwards the price increases faced by skilled workers and adjust their real wages in 1914 as given in Graph 1 upwards by a total of 10 percent.

Other items in the price indices :

The inclusion of cloth, sugar, coffee and rents in our consumer budget does not change our consumer price indices significantly because individual effects tend to work in opposite directions. However, the inclusion of these items in the consumer budgets would change much more significantly the relative prices faced by lower and higher income consumers. Since cloth, sugar and coffee had larger shares in the budgets of higher income consumers, the decline in their prices should reduce prices faced by these more than others. On the other hand, the inclusion of rent payments would tend to raise

prices faced by lower income groups more than those faced by higher income groups since the latter are likely to own their dwellings. We thus estimate that the inclusion of these four items would shift relative prices in favor of higher income consumers. With respect to the two groups whose incomes will be examined in the next section, for example, we expect that the inclusion of these four items in the price index would widen the difference between the purchasing power of skilled and unskilled workers approximately by about 10 percent for the entire period.

When we combine the differential impact on the skilled and unskilled workers of the items excluded from our indices with the differential impact of the more rapid rise in the prices of essentials, we arrive at a cumulative difference of about 20 percent between the prices faced by skilled and unskilled workers during these four and a half centuries. In other words, we estimate that the overall rate of inflation faced by the unskilled workers was 10 percent higher and the overall inflation faced by skilled workers was 10 percent lower than the averages provided by our consumer price index.¹

After declining during the sixteenth and seventeenth centuries, the wage differential began to increase in the second half of the eighteenth century, reaching its peak on the eve of World War I. Not only changing demand but also decline in supply due to the emigration of skilled construction artisans must have contributed to this trend.

Data were also collected on the daily wages of construction workers, both skilled and unskilled, in other Ottoman cities around the Eastern Mediterranean including the Balkans for the same period, 1490 to 1914. These observations were obtained from the account books of the pious foundations operating in these cities and are available from the Ottoman archives in Istanbul. These series show clearly that nominal wages in other Ottoman cities showed similar trends during these four centuries.

Our real wage series also point to the existence of a modest but statistically significant upward trend in Ottoman

¹ A recent study on prices and inequality in Europe since 1500 similarly argues that relative price movements favored higher income groups and increased income inequality in Western Europe from 1500 to 1800. Hoffman, Jacks, Levin and Lindert, "Prices and Real Inequality".

urban wages dating back to the sixteenth century suggesting a modest but steady rise in demand for labor. It is not easy to interpret this result because the existing literature does not point to the existence of long-term growth trend, especially for the period before 1850. In light of the new evidence, we now need to consider the possibility of a slow and modest rise in productivity around the Eastern Mediterranean in the era before the Industrial Revolution. Learning by doing and/or the diffusion of new technology from Western Europe may help explain this trend.

These results indicating that Ottoman standards of living did not decline but actually improved after the sixteenth century are consistent with the recent arguments in Ottoman historiography that the Ottoman empire did not simply and irreversibly decline after 1600. Recent literature has emphasized that Ottoman state and society showed considerable ability to reorganize as a way of adapting to changing circumstances from the seventeenth through the nineteenth centuries. With pragmatism and flexibility, the Ottoman state adapted not only the military technology but also its fiscal, financial and monetary institutions during this period. This pragmatism and flexibility combined with the economic record may help explain the durability and longevity of the Ottomans.

Long term comparisons : Real wages in the Eastern Mediterranean, 1300, 1500, 1700 vs. 1914 ; unskilled, skilled

For unskilled workers : sharp rise around 1350 (double or more), still high around 1500; decline to 1600, still lower in 1700; long, steady rise to 1914; real wage levels in 1914 roughly comparable but higher than 1500;

For skilled workers : sharp rise around 1350 (double), still high around 1500; decline to 1600, still lower in 1700; long, steady rise to 1914 with skill premiums increasing in the nineteenth century; real wage levels in 1914 were 40 to 50 percent above those of 1500

IV- Comparative perspective 1300 to 1914

Combining with Robert Allen study for Europe (Explorations in Economic History, 2001)

within the Mediterranean and Mediterranean vs. Northwestern Europe

In a recent study of prices and wages in European cities from the fifteenth century to World War I, Robert Allen utilized a large body of data most of which was compiled during the early part of this century by studies commissioned by the International Scientific Committee on Price History founded in 1929. In order to facilitate comparisons, he converted all price and wage series into grams of silver and chose as a base the index of average consumer prices prevailing in Strasbourg during 1700-49.²

Allen argues that even though wages in a single city may be accepted as a barometer of wages in the whole economy, international comparisons need to be made between cities at similar levels in the urban hierarchy. Since his study uses data from cities at the top of their respective urban hierarchies such as London, Antwerp, Amsterdam, Milan, Vienna, Leipzig and Warsaw, it would make sense to insert Istanbul, another city at the top of the urban hierarchy of its region, into this framework. It is not very difficult to do so since prices and wages were already expressed in grams of silver in the present study. However, it was still necessary to express Istanbul prices in terms of the Allen base of Strasbourg 1700-49=1.0. For this purpose, Ottoman commodity prices for the interval 1700-49 were applied to Allen's consumer basket with fixed weights. A second and equally useful method of linking Istanbul's price level to those of other European cities in the Allen set was to employ the detailed annual commodity price series gathered by Earl Hamilton for Valencia and Madrid for 1500 to 1800 and compare them with the Istanbul prices for the same commodities.³ Since Valencia and Madrid prices were already calibrated into the Allen set, it was then possible to determine the Istanbul price level vis-a-vis European cities for each interval. The price series for flour, mutton, olive oil, cooking oil, onions, chickpeas, pepper, sugar and wood were used in these calculations. The two procedures produced results that were quite similar.

Our indices show that daily wages in Istanbul and other Eastern Mediterranean cities expressed in grams of silver were comparable to many other locations in northern and southern Europe in the early part of the sixteenth century. However, because Istanbul prices were higher than all other cities in Allen's sample, real wages in Istanbul

² Allen, "The Great Divergence".
Hamilton, American Treasure and War and Prices.

varied between 60 and 90 percent of real wages in other cities during that period. (Graph 2a) It is interesting that while real wages continued to decline after 1600 in southern and many parts of Europe, they remained little changed in Istanbul during the seventeenth and until late in the eighteenth century leading to greater convergence with other parts of Europe except the northwest. A wage gap of one-third to one-half between Istanbul and the leading cities in northwestern Europe continued until the Industrial Revolution.

Price and nominal wage indices for western Netherlands recently constructed by Jan Luiten Van Zanden present another opportunity to investigate the real wage gap between the Eastern Mediterranean and northwestern Europe before the Industrial Revolution.⁴ Measured in grams of silver, nominal wages of skilled and unskilled construction workers were quite comparable in the two regions during the first half of the sixteenth century. However, our direct comparison of the consumer price levels in the two regions based on the prices of more than half a dozen commodities which are available for both regions indicate that in grams of silver terms Istanbul prices were higher by about 60 to 80 percent during the same period. During the next two centuries, or until the first half of the eighteenth century, prices and nominal wages in western Netherlands measured in grams of silver rose by about two and a half times, with the nominal wages lagging somewhat behind prices. In Istanbul, on the other hand, prices in grams of silver remained roughly unchanged and real wages declined slightly. Our preliminary comparison of the two series thus suggests that real wages in Istanbul remained one-third to one-half below real wages in western Netherlands until the era of the Industrial Revolution. Yet another direct comparison between Istanbul, Madrid and Sevilla price and wage series for 1500-1550 and 1700-1750 is also consistent with the real wage trends outlined in Graph 2.⁵ (see Table 1 for a detailed summary)

Origins of the South-North Wage Gap within Europe ?

⁴ The Van Zanden indices are available from www.iisg.nl/hwp/; for prices and real wages in Netherlands during the early modern era, see also de Vries and van der Woude, *The First Modern Economy*, pp. 607-54.

⁵ Commodity price and nominal wage series for Spain are available from E. Hamilton, *American Treasure and War and Prices*, Appendices.

Allen results indicating higher wages for northwestern Europe in comparison to the rest of the continent including southern Europe at or before 1500 are inconsistent with the recent estimates for per capita GDP offered by Angus Maddison which suggest higher per capita incomes for Italy in comparison to Netherlands, England and rest of Europe in 1500 (Maddison, 2001 and 2003)

Extrapolating the Allen series backwards towards 1300 by utilizing the available wage and price data suggest that English real wages were higher than southern Mediterranean real wages as early as the fourteenth century. (see Graph 2, based on Ashtor, 1969, for southern Europe, Phelps-Brown and Hopkins, for England and Pamuk calculations summarized above in Graph 1 for Byzantine Empire)

(this comparison still preliminary, needs further study)

V- Manufacturing wages in modern Turkey, 1914-2000

Data : average nominal wages in manufacturing industry (national series) deflated by urban CPI (from Pamuk, 2001, pp. 77-85)

thus arriving at real wage series for the last millennium.

Turkish average manufacturing wages were linked to Ottoman construction wages at 1914 = 1,28 (where wages of unskilled construction workers in 1489-90 had been set at 1,0) based on the level of nominal wages in the two categories in 1914 as given in the Ottoman Industrial Census of 1913-15.

After remaining below their pre-WWI levels until after WWII, manufacturing wages in Turkey increased by about 300 percent from 1950 until the end of the century. This rate of increase is below the increase in per capita GDP for the same period. Real wages lagged behind increases in per capita GDP from 1914 until 1950 and also during the second half of the twentieth century. This was in part due to the extraordinary increases in urban real wages before WWI and in part due to the decline in the share of wages in GDP in the recent "era of globalization" since 1980.

VI- Conclusion

The complete series shows very clearly that the most important real wage increases in Turkey (the Near East and more generally the Eastern Mediterranean) during the last millenium occurred after 1950.

Two events with most significant impact on urban real wages during the last 1000 years : Black Death and modern economic growth

For most of the eastern Mediterranean ... modern economic growth arrived after 1950 ... ther was economic growth and increases in both real wages and per capita income before 1950 but these were limited in magnitude.

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