

Urbanisation 1700-1870

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Unifying European Experience An Economic History of Modern Europe

I. Chap. 10

Urbanisation 1700-1870

In past agrarian civilizations, town and countryside represented two deeply different spheres both from the social and economic viewpoint. In the countryside of pre-industrial Europe, family ties and the integration into feudal relationships were the basis of human organization. In the cities, by contrast, social relations prevailed among individuals endowed with different economic capacities.¹ These past agrarian societies could be actually defined as dualistic systems. From the economic viewpoint, the division of labour and the efficiency of cooperation and cumulative knowledge gave rise to increasing returns in the towns even when technology was relatively stagnant. In pre-modern agriculture, however, the forces of decline and diminishing returns predominated when the number of workers rose. Modern growth has eliminated the differences between town and countryside. The 19th century marks in Europe the passage from a civilization based on agriculture and the countryside to a civilization based on industry, services and cities. Dualism begins to fade with the economic modernisation to then disappear.

Various definitions of city have been proposed by the scholars. Their differences depend on the several roles -social, political, religious, economic- played by the urban centres in the past and present. From the economic viewpoint, a city can be defined as *a stable settlement of population mainly devoted to industrial activities and services*. Yet, if the criterium to define a city is the higher percentage of employees in industry and services, it is hard to specify the urban character of a particular centre in past societies because of the scanty information on the professional structure of the population. We know that in some Northern European regions centres with about 2,000 inhabitants already presented an urban professional structure. The situation was different in the South, where sometimes even big centres of more than 10,000 people were inhabited by a majority of peasant families. The sizes of 5,000 and 10,000 inhabitants have often been adopted by the scholars when examining past urbanisation. They are a necessary simplification when we try to extend our inquiry beyond the regional borders and look for homogeneous estimates.²

¹ See the still useful Wirth (1938).

² Wherever, in the following pages, it is not otherwise specified, we will refer to centres with over 10,000 inhabitants.

While in the first part of this chapter, we will deal with the European urban geography and the distribution of cities in the continent, in the second we will examine the changes in the period between 1700 and 1870. In the third part, urbanisation will be connected to some main changes occurring in 19th century economies.

I

The geography of urbanisation

1. In past agricultural societies only a tiny minority of the population lived in the cities. In modern societies, by contrast, the wide majority is concentrated in big urban centres. In Europe, in the early Modern Age less than 10 percent of the population lived in cities with more than 10,000 inhabitants. At the end of the 20th century, the percentage was about 70.³

On the world scale, with a population around 1800 of 900 million, the centres with more than 10,000 inhabitants totalled some 1,500-1,700. Their overall population is supposed to be over 50 million. If we take the cities with over 5,000 inhabitants, their number was more than 4,000.⁴ Europe on the whole was among the most urbanized areas of the world, together with Japan and Middle East⁵ (Table 1). More or less one third of the World cities was European.

Table 1. Urbanisation rate in 1800 (cities with 10,000 inhabitants and over).

		%
1	China	3
2	Japan	12
3	Russia	3
4	Europe	8-9
6	Middle East	12
7	India	6
8	Rest of Eastern hemisphere	1.5
9	North America	3
10	South America	7
11	Central America-Caribbean	3.5
	World	5

Source: De Vries (1984), p. 349 (urbanisation rate for Europe has been replaced with that in the following Appendix).

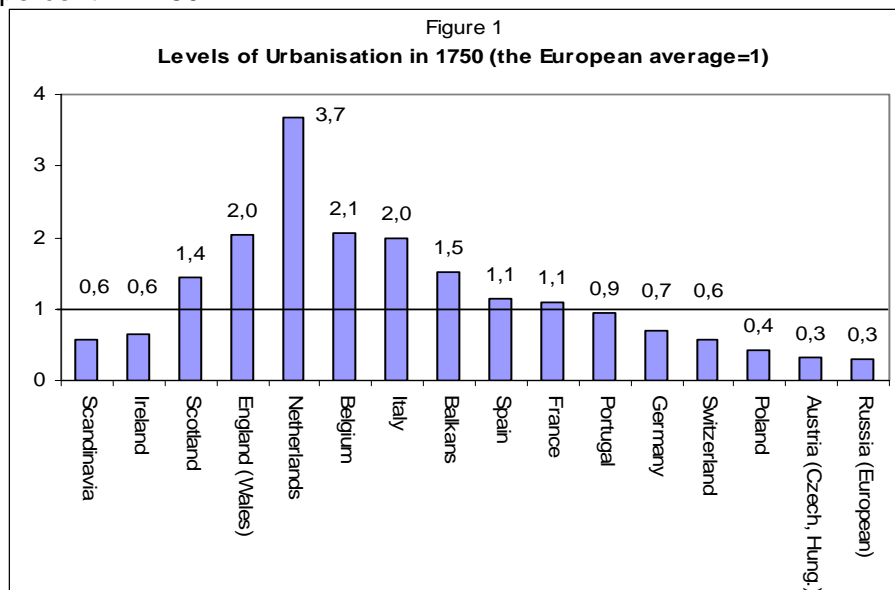
³ See the brief, but useful presentation of these changes in Bairoch (1992).

⁴ The figures here proposed on the number of cities on the world scale in 1800 exceed those presented by De Vries (1984), p. 349. They seem more plausible on the basis of the figures referring to Europe in our tables in the Appendix; higher than those by De Vries.

⁵ Including Egypt, Syria, Iraq and Turkey.

2. Europe, with its of 8-9 percent urban inhabitants in 1800, exceeded the World urbanisation rate, which was estimated to be about 5 percent. The European average was, however, the result of different regional levels. While in some Eastern regions of the continent urban population accounted for 3 percent of the total inhabitants, in some North-Western areas the level was hardly lower than 30 percent. If we divide the continent into 4 more or less homogeneous areas in terms of urbanisation, we find in 1700 the highest rates in the North -from the Flanders to Holland and England- and in the Mediterranean countries. In both areas the urban percentage was around 12-13 percent in 1700 and more than 15 in 1800. In the Central countries, such as France and Germany, it was lower than 10 percent.⁶ It was even lower in the East,⁷ where in 1700 and 1800 it did not attain 5 percent both.⁸

3. When we deepen our analysis of the country levels, we find the highest urbanisation along an imaginary line running from Southern England, through the Low Countries and Northern France, to Italy (Figure 1 and Map 1). West of this line, urbanisation rates, although high –in Spain and Portugal-, were, however, less than 10 percent in 1750.



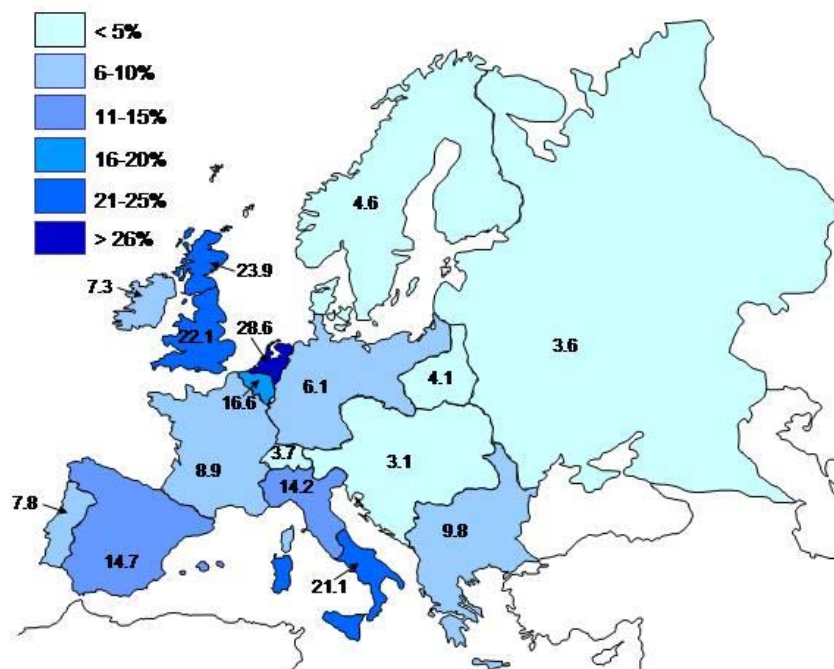
On the whole, the features of the European urban geography were not so different from those of the late Middle Ages. Between the 10th and the 14th century, that is during, the medieval growth,

⁶ For Germany I exploited also *Statistik des Deutschen Reichs* (1877).

⁷ With the exception of the Balkans; on which see the remarks in the following par.

⁸ See the following Table 4.

European urbanisation had assumed its original characteristics it still holds today, at least from a geographic viewpoint. The only difference between the early Modern age and the late Middle Ages, was the widening of urbanisation in the North from Flanders towards The Netherlands and England. In the 18th century, England and The Netherlands, two scarcely urbanised regions in the late Middle Ages, witnessed the highest levels: more than 20 percent. This was a feature of a more general change in the economic life of the continent and the displacement of the centre of gravity from South to North.⁹



Map 1. European Urbanisation 1800.

Italy and Spain, by contrast, although advanced in terms of urbanisation, were, however, fallen behind compared to the late Middle Ages both in relative and absolute terms. In both cases, furthermore, figures on urbanisation are, at least in part, deceiving, given the wide presence of peasant families in the cities in the Southern regions of these two countries. In 1800 Spain, the urbanisation rate was around 14 percent in the centres with over 10,000 inhabitants, and 24 percent in those with over 5,000. Excluding the peasant families, these figures fall respectively to 11

⁹ De Long, Shleifer (1993) attempt the hard task of connecting this change with the features of the different institutions in the North and South.

and 14 percent.¹⁰ In Southern Italy, the presence of agrotowns had also been a widespread phenomenon dating as far back to ancient times.¹¹ Taking the cities with over 5,000 inhabitants, Sicily in 1800 would account for an urbanisation rate of 66 percent, perhaps the highest in the World. If urbanisation witnesses wealth and progress, Sicily would result as the most advanced region on the world scale; much more advanced than England, whose urbanisation rate was, in the same year, a mere 30 percent. Data on cities need to be looked at carefully in order to avoid simplifications and mistakes.

4. The urbanised West of Europe was surrounded by much less urbanised regions. North of Holland, big centres were rare in Denmark and Scandinavia.¹² Their inhabitants hardly reached 5 percent of the whole population. The urban percentages were even lower in Eastern Europe; from Austria through Bohemia, Slovakia, Hungary,¹³ Poland until Russia. The Balkans, by contrast, witnessed relatively high urbanisation, at least since the 16th century. In the 18th century, out of a total population of 8,5-12 million inhabitants, urban populations exceeded 12 percent.¹⁴ More than half of the urban population of this area lived, however, in one single city: Constantinople. This was the biggest European centre, with 685,000 inhabitants in 1700 (only in the European part, which was, in any case, much bigger than the Asian one).¹⁵ Constantinople, however, was the capital of a big Asian empire. Without it, the urban percentage in the Balkans falls to a mere 6 percent. London, the second city in the continent, then numbered 575,000 inhabitants, overtaking Constantinople-Istanbul only around 1750. It was the biggest city in 1800, when Paris was the second, with 580,000, and Constantinople the third with 560,000. The next largest cities in 1800 were Naples (320,000), Moscow (300,000), Vienna (231,000), Saint Petersburg and Amsterdam (both around 220,000), and Madrid, Lisbon, Dublin, Berlin (between 150 and 200,000).

5. What was the distribution of cities within the several regions of the European continent? Geographers and demographers have

¹⁰ These figures, however, provided by Llopis Agelán, Gonzáles Mariscal (2006), are higher than those presented in the App. 2. Also higher are the figures proposed by Alvarez Nogal, Prados De La Escosura (2007), who derive their series from Bairoch, Batou, Chèvre (1988). A good basis for Spanish urbanisation is Carreras, Tafunell (2005). We followed their data on urban population in 1800 Spain.

¹¹ See Malanima (1998), (2002), (2005).

¹² Data on Scandinavian cities have been revised through Galletti (1822).

¹³ To single out Eastern cities under the sovereignty of Austria we utilized Sommer (1839).

¹⁴ Data on cities and population in the Balkans are from Mc Gowan (1981), Palairat (1997) and Todorov (1983). We thank S. Pamuk for the many suggestions both on population and urbanisation in the Balkans.

¹⁵ In the Asian part of Istanbul lived 15-20 percent of the all urban population (*Meyers Konversations-Lexikon* (1885-90)).

shown that today, in some regions, the urban distribution follows the so-called rank-size rule,¹⁶ which can be summarized by the equation:

$$S_r = \frac{S_1}{r} \quad (1)$$

where S_r is the size (that is population) of a particular city; S_1 the size of the first, that is the main city in the region; and r the rank (represented by the series of natural number from 1 –the main city- to n). According to this distribution, the city of rank 2, would have half the inhabitants of the first (that is the ratio between the population of the first city S_1 –the size- and 2 –the rank-); the third city one third; and so on. If, in past agrarian societies, the spatial distribution of the cities in a special region followed the same pattern, an estimate of the urban population could be easily obtained, by knowing only the size of the first city. We could merely use the equation (1) and increase the rank until the result for S_r is 10,000 or 5,000 (according, that is, to the threshold chosen). Then we could sum up the population of any city in order to obtain the number of the inhabitants of a special area.

Although the rank-size rule has been verified for some modern urban regions (with many exceptions, however), it does not work in pre-modern agrarian world. In any region, the first 5-10 cities do not follow closely the rank-size pattern in the distribution. Cities below 2,000 inhabitants do not follow any statistical rule either. It has been verified, by contrast, that the intermediary cities –between that is about the 5th main city and centres of 2,000 inhabitants- are distributed according to a particular pattern easily represented in a double-scale logarithmic graph through an interpolating straight line.¹⁷ The higher the slope of the interpolating curve, the more the cities' distribution is hierarchical –that is with some big cities, surrounded by smaller centres-. The slope is lower wherever the urban hierarchy is less evident and the urban system is more polycentric. In any case, defining the extent of the region, for which the rule is tested, in a non-arbitrary way is extremely difficult where pre-modern Europe is concerned. For example, while treating a country such as England or Italy as one region seems to be an obvious choice, there is no reason why Germany – a country with no clearly defined geographical borders – should be treated in the same way. One might just as well treat the several German states as individual regions in their own right. If this is done, the results differ hugely from those one obtains when one defines all Germany as one region. The result is, in fact, influenced by the width of the region we are dealing with: ordinarily the smaller the region, the higher the slope.

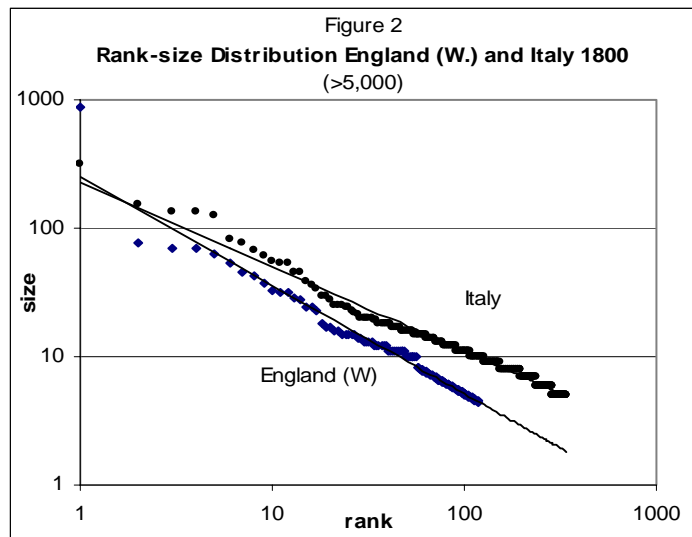
Dispersion and hierarchy depend on the functions any city develops, the geography and the transport costs for the individuals in

¹⁶ The rank-size rule has the object of many debates. Scholars do not agree on the presence of this pattern of distribution in modern world. The topic is discussed in a historical perspective by De Vries (1984), pp. 49 ff.

¹⁷ On the Rank-size distribution and its use in the chapter, see the Appendix.

order to exploit these urban functions. While agglomerating forces tend to develop hierarchical structures, transport costs imply, on the other hand, the dispersion of the functions. The 19th century transport revolution played an important role in pushing the European urban systems towards more hierarchical structures.

6. Italy and England in 1800 are clear examples of two extremes; the other European regions being intermediary cases (Figure 2). Since the late Middle Ages, England is a region of relatively few modest cities with a big capital, London.¹⁸ In 1700, although England and Italy share the same urbanisation rate –about 13 percent-, in England the second largest city is Norwich with 29,000 inhabitants (20 times less than London) and towns with over 10,000 inhabitants number 11, while in Italy they are 66, and there are many big cities, but not a true dominant one.¹⁹



This distribution does not change much in the following centuries. The slope of the interpolating curve in 1800 England is high: 0.84.²⁰ Italy, by contrast, again since the late Middle Ages, is a region of many relatively big cities without any strong hierarchy, even when, as in 1800, Naples was one of the biggest European cities. The slope of its urban system in 1800 is among the lowest in Europe: 0.66. Germany is nearer to Italy (0.67); France and Spain occupy a intermediary position (0.77 and 0.79), while Austria-Hungary (0.81),

¹⁸ On the relationship between London and the English economy on the whole, see Wrigley (1967).

¹⁹ English population is, however, less than half the Italian population (see the Appendix).

²⁰ Whenever London is included in the regression, as in the following Figure 2. If London is excluded the slope falls to 0.65. Here we always refer the absolute values of the coefficient (the slope) in the equation of the rank-size distribution. The coefficient is always negative (see Appendix).

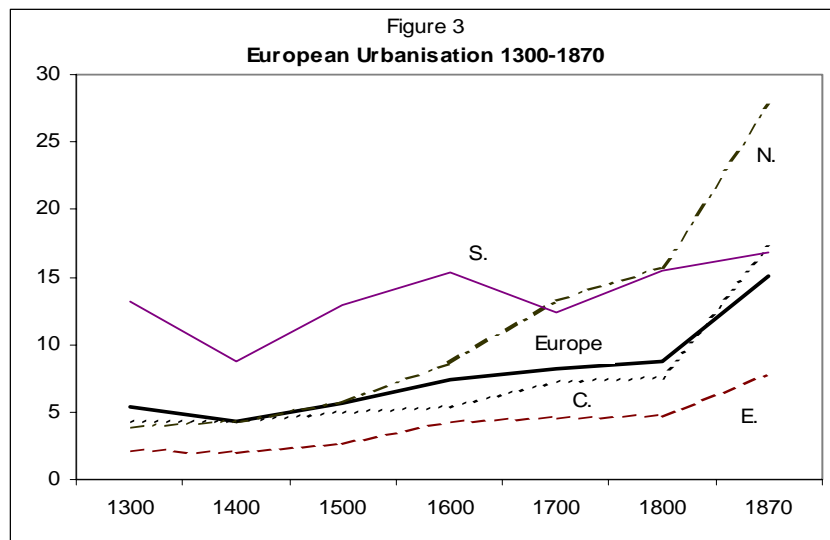
the Balkans (0.86), Poland (0.86), the Netherlands (0.87) and Russia (0.88) are closer to England.

The pre-modern European urban landscape is made up of hierarchical structures on one hand and clusters of big cities on the other.

II

The chronology of urbanisation

1. We know that urbanisation in Europe progressed during the high Middle Ages. Urban population in centres with more than 5,000 inhabitants rose from 6-8 percent in the 9th century, on a European scale, until about 10 in 1300.²¹ Urban populations were then more severely struck by the Black Death in 1348 than the countryside (especially in the Mediterranean regions). Urbanisation declined, as a consequence. A recovery took place from 1400 until 1600. The following two centuries were characterized by a slow rise. In the 19th century, the pace of urbanisation grew fastly. From 1800 until 1870, the proportion of the urban population compared to the total number of inhabitants of the continent almost doubled, when we refer to centres with over 10,000 inhabitants and rose by little less than 60 percent when we take the centres with over 5,000 (Figure 3).²²



²¹ Bairoch (1988), pp. 118 and 137. On the late Middle Ages see the still useful Russell (1972).

²² The sources of this Table and the following are presented in the Appendix. In this Table 2 and in the Appendix we presented some series excluding England, in order to isolate the role of the English urbanisation in the European urbanisation on the whole.

Note: the thick curve refers to the whole of Europe. N. (North), S. (South), C. (Centre), E. (East), include the regions specified in the *Note* to the following Table 4.

The long-term trend of the European urbanisation could therefore be divided into three distinct phases:

1. *high medieval growth*: 900-1300;
2. *relative stability*: 1300-1800;
3. *modern growth*: 1800-2000.

The urban percentages attained at the end of the 20th century are unlikely to be exceeded in the future. Once a certain threshold has been reached, the pace of urbanisation must inevitably slow down and finally stop.

The epoch we are dealing with, from 1700 until 1870, can be divided, then, into two different periods (Table 2):

1. the last epoch of *pre-modern stability* between 1700 and 1800;²³
2. the start of *modern urban transition*, from 1800 until 1870.

Table 2. European urbanisation 1700-1870 (cities with >10,000 and >5,000 inhabitants and indices).

	Europe (>10,000)	Index (>10,000)	Europe without England (>10,000)	Index without England (>10,000)	Europe (>5,000)	Index (>5,000)
1700	8.2	1.00	7.9	1.00	11.4	1.00
1750	8.0	0.97	7.6	0.96	11.7	1.03
1800	9.0	1.10	8.3	1.05	12.4	1.09
1870	15.0	1.83	12.8	1.62	19.4	1.70

2. During the first of these two phases (1700-1800), the slow urban growth could even be weaker if we were to subtract the rise in agricultural populations living in the big centres of Southern Spain and Southern Italy. On the other hand, we know that both in the 18th and 19th century more and more proto-industrial activities developed in the countryside.²⁴ The stability of the urban percentage from 1700 until 1800 depended certainly on the spread of industry outside the city walls, while the 19th century urban growth could be also faster, the cities remained the main seats of non-agricultural activities as in the late Middle Ages. We know, on the contrary, that the first phase of industrialization did not involve only the cities, although the cities played a major role.

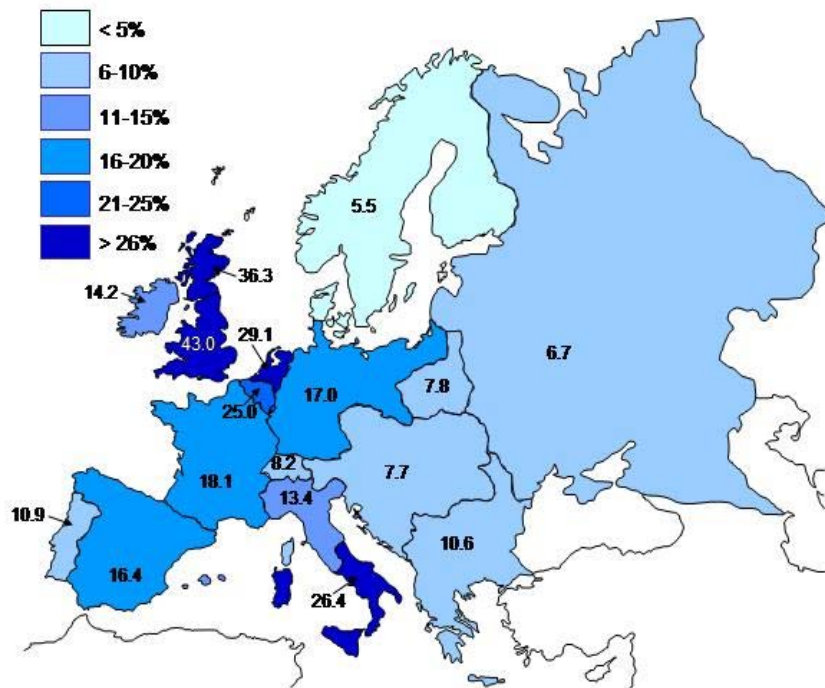
The lack of growth in urbanisation during the 18th century is not only a European phenomenon. On the World scale urbanisation diminished in this century by about 10 percent. China and India were

²³ On this phase see the remarks by Wrigley (2004).

²⁴ See the general overview by Cerman, Ogilvie (eds.) (1994).

more urbanized in 1700 than in 1800. Only in Northern America it was increasing by 7-8 percent. Overall urbanisation of the future developed world remained stationary.²⁵

During the 19th century, urban populations rose by 27 million and the number of cities with over 5,000 inhabitants grew from 1,600 to 3,419 in 1800-1870. In the future developed world urbanisation rates tripled in the 19th century: from 10 percent to 30.²⁶ It was a rate of urban growth unknown in the history of mankind (Map 2).



Map 2. European Urbanisation 1870.

Even though urbanisation rates do not rise in the 18th century, it is important to notice the increasing role the cities play in the continent even during this century and, naturally, to a greater extent later. In the European space the number of cities is, in fact, rising fast even when, as regards the total population, the number of urban inhabitants is falling or remaining stable. Taking the centres with over 5,000 inhabitants, their number is 86 percent higher in 1800 than it was in 1700 and this figure increased 4 fold by 1870. If we look at the ratio between urban population and space the result is increasing. Urban

²⁵ Bairoch (1988), p. 495.

²⁶ Bairoch (1988), p. 495.

culture was much closer to any European inhabitant in 1800 than in 1700 and much more so in 1870.

3. In order to specify this 18th urban century stability and subsequent 19th century growth, it is convenient to divide the process of urban development into its two components –the rise in urban population within the already existing cities and the rise in the number of cities-; urbanisation depending always on the increase in the size and/or the number of urban centres. The distinction is useful since ordinarily the first or the second component prevails. In some periods cities become bigger and bigger, their number remaining almost the same, whilst in other periods the population of the existing cities is stable whereas their number is rising.

In Table 3 both changes are reported for the period we are dealing with on the basis of a threshold of 10,000 inhabitants and for all of Europe.

Table 3. Number of the European centres with 10,000 inhabitants or more and urban percentage of a sample of 147 cities always exceeding the threshold of 10,000 inhabitants in the period 1700-1870.

	Number	Urban percentage (147 cities)
1700	287	6.2
1800	585	4.6
1870	1,299	5.8

Note: in column 3 only the rate of urbanisation has been considered of cities always with over 10,000 inhabitants between 1700 and 1870.

We could summarize the results of the Table by saying that, between 1700 and 1800, the decline in the urbanisation rates was counterbalanced by the growth in the number of the urban centres and that from 1800 until 1870 both the urbanisation rate and the number of the cities increased and that the overall rise of the urban percentage depended rather on the variations in the cities' number than on the growth of the existing centres. There were 862 cities with over 5,000 inhabitants in 1700, 1,170 in 1750, 1,600 in 1800 and 3,419 in 1870. While urban population was rising hardly more rapidly than the whole population, many more centres were playing the role of cities.

4. A division of the continent into four large areas provides a clearer view of these two periods in the chronology of the European urbanisation (Table 4).

Table 4. European urbanisation rate in 1700-1870 per area (cities with 10,000 inhabitants and more).

1700	1750	1800	1870
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North	13.3	13.3	15.8	27.7
Centre	7.3	7.4	7.5	17.2
South	12.3	12.8	15.5	16.8
East	4.6	4.4	5.0	7.8
EUROPE	8.2	8.0	9.0	15.0

Note: North: Scandinavia, England and Wales, Scotland, Ireland, The Netherlands, Belgium.

Centre: Germany, France, Switzerland.

South: Italy, Spain, Portugal.

East: Austria, Bohemia, Hungary, Poland, Balkans, Russia.

In relative terms, 19th century growth (1800-1870) was higher in the Centre -129 percent-, which started from a lower basis, and the North -75 percent-. It was lower in the East -56 percent- and even lower in the South –a mere 8 percent-.

The 19th century was the last phase of a redistribution of the European urbanisation, which had already begun the late Middle Ages. The South accounted for 52 percent of the European urban inhabitants in 1300, 40 in 1400 and 42-43 in 1500 and 1600. It was only 30 percent in 1700 and 17.2 in 1870. The euro-mediterranean continent was becoming less and less Mediterranean (Table 5).

Table 5. Percentage of the European urban population per area in 1700-1870 (cities with 10,000 inhabitants and more).

	1700	1750	1800	1870
North	21.8	21.2	24.6	31.7
Centre	28.6	27.7	24.5	29.8
South	30.1	30.5	28.8	17.2
East	19.5	20.5	22.1	21.3

Note: see the note to the previous Table 4.

5. On a regional scale, we can identify several remarkable deviations from the European average. These deviations concern specific regions, which had developed a central role –as leading economies- in the past and which in the period we are interested in were declining. With the exception of the South of the peninsula, the rise of whose urbanisation depended on the growth of many agrotowns, Italian urbanisation was stationary around 13-14 percent (but declining if we refer to the late Middle Ages, when urbanisation was 18 percent).²⁷ The Netherlands were also declining from 1700 until 1750, while they remained more or less stable later. Spain was diminishing as well regarding the 16th century and then recovering, while Portuguese urbanisation was lower in the 18th century than in 1600, when it was 11.4 percent, only slightly progressing in the 19th

²⁷ I refer here only to Northern and Central Italy (excluding the South in order to avoid the effect on the urbanisation of the increasing number of Southern agrotowns).

century.²⁸ In the Balkans urbanisation declined in 1700-1870. The wide Austrian empire's urbanisation, starting from the very low level of 4 percent, was progressing at a faster rate than England, even though, still in 1870, its urban percentage was half the average European level.

However the rise in England, Scotland, Ireland, Belgium, Germany and France is much higher than the average. The geography of urban growth is the same as the first European wave of industrialization. England, Scotland and Ireland account for 26 percent of all of the European urban growth between 1800 and 1870.

6. It is often assumed that urban transition resulted in a more hierarchical rank-size distribution in any state or area. The new techniques of transportation allowed a higher mobility of population and consequently the concentration of functions in bigger cities, often the capitals. The forces of agglomeration were stronger than the forces of urban dispersion. This trend has been often confirmed by research on specific regions during the 19th century. In the first phase of modernization we are dealing with the situation was different. The slope of the urban distribution was declining in several European regions between 1700 and 1870, which meant a tendency towards dispersion rather than towards centralization. We are not surprised by the discovery of a decline in these 170 years in regions stationary from an urban viewpoint such as Italy (0.71, 0.67),²⁹ Spain (0.81, 0.74), the Balkans (1.12, 0.80), Russia (1.08, 0.79), or even Belgium (0.92, 0.82). However the decline concerned England (1.42, 1.03) as well.³⁰ Only The Netherlands (0.84, 0.91), France (0.73, 0.88), Germany (0.66, 0.75) and Poland (0.67, 0.96) reveal a clear trend towards a stronger hierarchy in urban distribution in the European space.

III

The urban transition

1. The urban transition is an important aspect in the big change often referred to as *modern growth* and, in particular, in the structural change which accompanied the strong increase in the productive

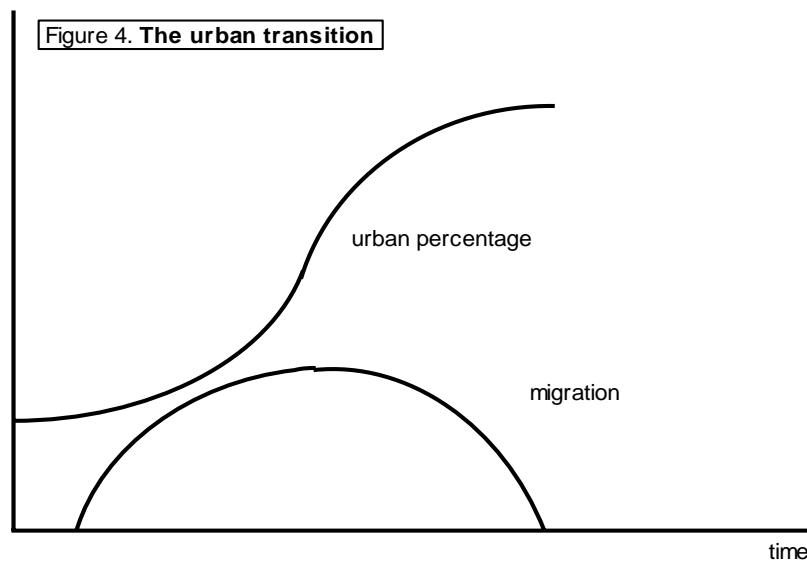
²⁸ Data on Portuguese cities are from Valerio (2001).

²⁹ The first figure between brackets concerns 1700, the second 1870. All the figures are computed through the regressions according to the equation presented in the Appendix. All the figures are negative. Here we present only the absolute value of the slope.

³⁰ In the coefficients of the regressions, London is included, while in data presented in the Appendix it is excluded (see the Appendix). The inclusion or exclusion of London implies big changes in the coefficients.

capacity of modern economies.³¹ Although even in past agrarian economies we come across examples of urban transition, and then immigration towards the cities –e.g. during the medieval growth-, in the 19th and 20th centuries this phenomenon acquired an intensity unknown in the past. Urban population, always a tiny minority of the European population on the whole, rose rapidly from less than 10 percent in 1800 to 25-30 percent in 1900 and 60-80 in 2000.³² The developing countries outside Europe promptly caught up at the end of the 19th century and reached similar rates in the second half of the 20th century. On the World scale, urbanisation was about 5 percent in 1800, 15-20 in 1900, 40 in 2000.³³

Urbanisation is a special case of internal migration. Since in the period we are interested in mortality was higher in the cities than in the countryside, due to worse hygienic conditions, only through a flow of population from outside, could urban population rise in absolute and relative terms. So migration from the countryside has been, in past societies, the immediate cause of any urbanisation. In 19th and 20th centuries growth of the urbanisation rates and migration followed the trend represented in Figure 4. While urbanisation rates were describing a logistic curve from the low level of the pre-modern world, to the high rise during the first phase of modern growth, to the stability during the last decades of the 20th century, migration drew a parabola or an inverted U.³⁴



Only from the late 19th century did hygienic conditions improve in the cities and a natural increase of the urban population began to outstrip that in the countryside. As a consequence, the flows of

³¹ Hohenberg, Lees (1985) still provide a good reconstruction of the European urban transition in Chaps. VI-VIII.

³² De Vries (1984), pp. 45-8.

³³ Bairoch (1988), p. 405. See also, more synthetically, Bairoch (1992).

³⁴ De Vries (1990), p. 54.

immigration were only adding population to the internal demographic rise.

2. As regards the determinants of migration from the countryside, they can easily be represented through models often used in economics in order to explain migratory flows. Our departure point is a *dualistic economy*, such as the pre-modern one, where:

- a. the countryside is characterized by the production of food and raw materials and the city by industries and services. This dualism is a useful approximation when we look at past societies. We know, however, that reality is much more complex: industrial production and services are not exclusive of the cities and, on the other hand, agricultural workers often live in urban centres;
- b. primary goods produced in the countryside are characterized by a low income elasticity, while secondary goods and services have a high income elasticity. A lasting rise in per capita income results, then, in a lower and lower relative demand of primary goods and in a displacement of the economy on the whole towards the production of secondary goods and services.

3. Production functions in the countryside and in the city are different. In agriculture, goods are produced using labour (L_a) and natural resources (R), while in industry they are produced by means of labour (L_i) and capital (K). The only *mobile* factor is L , while resources are *immobile* and capital is a *specific* factor (connected as it is to a particular usage, it can not be converted to a different kind of production and then is, in a sense, immobile as well).

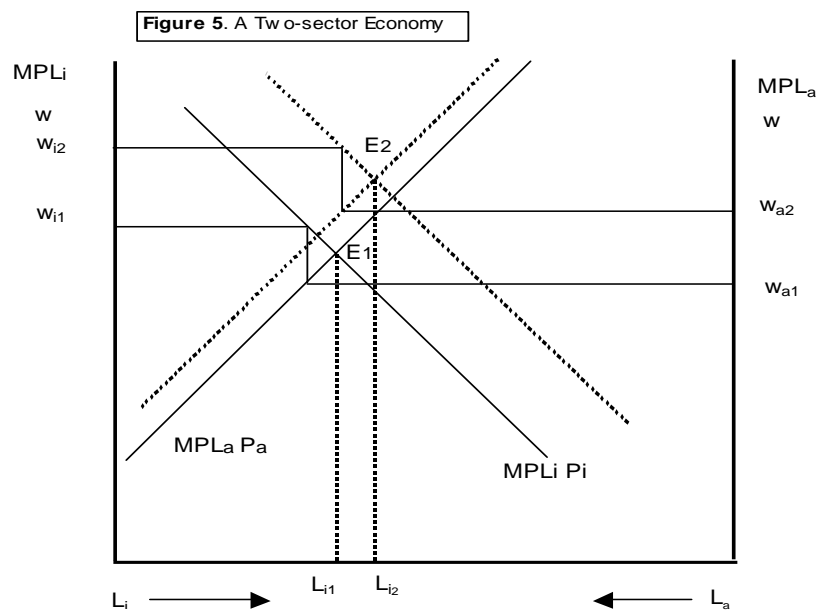


Figure 5 represents the marginal labour productivity (and wage) in both sectors as a function of the percentage of labour employed. On the right hand, we find, on the vertical axis, the agricultural sector, while on the left is represented industry. Before modern growth we have a wider percentage of workers in agriculture than in industry (as we see on the horizontal axis). MPL_a is the physical marginal output per worker in the primary sector. Multiplied by an index of agricultural prices P_a , the result is the value of marginal product. The same applies to the secondary sector, where marginal labour productivity is multiplied by the index of industrial prices (MLP_iP_i). Both curves decline as soon as the input of labour increases (as the consequence of the diminishing returns to labour). In other words, labour productivity is inversely related to the labour force employed in the sector. In E_1 the economy is in equilibrium. The level of wages is not the same in both sectors. In E_1 it is equal to w_{a1} in agriculture and w_{i1} in industry. Ordinarily a city-countryside wage differential exists and it represents the force of attraction of peasant population to the urban centre.

4. Let us assume now that a flow of innovations allow to raise the level of productivity first in industry and then in agriculture. This is what just happened at the start of the 19th century. Whenever we focus on urbanisation, we can assume it as an exogenous factor. In this case the curve of marginal productivity in industry moves towards the right, in the direction of the dotted line, and that in agriculture towards the left. A higher percentage of workers are now employed in the cities (the seats of industry) than before. The process can continue and employment in the primary sector can diminish more and more. The capacity to produce increases and, since primary goods are inelastic to income growth, the increase in agricultural productivity results in diminishing occupation in the countryside. Urbanisation rises while the density of population in the countryside is shrinking. Migratory flows originate in the countryside and move towards the cities. The centre of gravity of the economy gradually shifts from the agricultural to the industrial sector.

Wages record the rise in urban labour productivity and the differential between urban and rural wages widens. The demand for labour in the most innovative sectors and the migratory flows towards these are followed by further migration towards the depending activities. Through the employment multiplier, the effect of growth in one or several urban sectors spreads and involves new urban activities (building, services, administration etc.). The attraction of rural workers from outside the city walls is the consequence of the inner, new dynamism of the urban economy and the demand for labour. Total employment grows. The effect of the exogenous shock on the city's economy on the whole can be represented as:

$$\Delta T = \frac{T}{B} \cdot \Delta B \quad (2)$$

where ΔT is the change in total employment; ΔB is the change of employment in the innovating sector and T/B is the employment multiplier.³⁵ Nineteenth-century urbanisation implied deep transformations in the urban environment: building of houses to accommodate the rapidly rising population, new urban infrastructures, the widening of sewages and water supply...

If agricultural productivity does not follow the rising path of the industrial one, the process can not continue (unless there is a remarkable importation of food). Agricultural prices increase as soon as agricultural workers are not able to support the rising urban demand. The value of the agricultural labour productivity ($MLP_a P_a$) rises and so do rural wages. Migratory flows towards the cities stop and sometimes people starts to abandon the cities. De-urbanisation is the inevitable consequence.

There are many examples, in past societies, of de-urbanisation caused by the inelasticity of agricultural product to follow rising productivity in the more advanced and innovative urban centres. We have seen how during the first modernization of the European economy, some European regions did not follow at all or followed with some delay the rising path of some North European economies. It was, at least in part, a consequence of the stationary nature of the primary sector. The novelty of the modern growth, which has taken place from the first decades of the 19th century is the rise of productivity in the primary sector together with those in industry and services. To the contrary, in past agrarian economies, while innovations were frequent in the cities, agriculture remained stationary for long epochs. This stationary nature is an obstacle to the development of the economy on the whole and to the structural change.³⁶ Things changed rapidly from the 19th century onward and urbanisation was one among the main effects of this overall economic expansion.

5. In England and Wales,³⁷ in the period of the rapid 19th century industrialization, wages rose together with productivity in industry, while, however, agriculture progressed likewise. Builders' wages increased compared to those in agriculture. In real terms the difference town-countryside in wages has been estimated to be then around 30 percent. Rural migration towards the industries dramatically rose from 1820 on: between 0.9 and 1.6 percent per year (while in the 1960-80 Third World they never exceeded 1.2 percent per year).³⁸

³⁵ See the useful analysis by O'Sullivan (2003), pp. 119 ff.

³⁶ The problem was particularly stressed by Bairoch (1995).

³⁷ Useful for data on urban inhabitants in England is *House of Commons* (1968).

³⁸ Williamson (1987), p. 50; Williamson (1991), ch. 2. See also Clark (2005), (2007) for the series on industrial and agricultural wages.

Italy represents, by contrast, the example of a declining economy where the ratio urban-rural wages diminished with respect to the end of the 16th century.³⁹ The declining trend was correlated with the diminishing importance of the cities in the economy as a whole until the 1880s.⁴⁰

6. Urbanisation is then a dynamic process correlated with growth. Since growth results in a diminishing importance of the agricultural product when incomes are rising, a structural change follows. On the other hand, however, we could also change the direction of this relationship and consider growth as the result of the coming to fruit of useful knowledge based on the human interchange possible only within the cities. Yet the possibility of testing the growth-urbanisation relationship is far from easy. Until the end of the 19th century, in fact, data on structural change are lacking or unreliable and even output estimates for the decades 1800-70 can only suggest the directions of the changes in progress and some big differences among groups of countries. Additionally, data on urbanisation are far from perfect.

Among the explanatory variables of urban progress, population rise does not reveal any meaningful importance, at least in the period we are dealing with; in contrast to what has been often suggested.⁴¹ Some correlation between density of population and urbanisation in long-term processes is likely to exist. During the first phase of modern growth there is no correlation between demographic growth and urbanisation. We have seen that while population is rising during the 18th and 19th centuries in any European region, the progress of urbanisation is different both in intensity and direction.⁴²

Attempts at checking the determinants of past urbanisation have already revealed that several variables such as cereals imports, progress in transportation, industrialization and exportation contribute to the explanation of urban growth, while the main determinant is labour productivity.⁴³ Since per capita product is a summary index for the processes of growth relative to all the economic sectors, a check of its correlation with urbanisation is quite obvious. The result is that a correlation exists in the period 1800-1870 and that the correlation is stronger whenever we include among the determinants the level of urbanisation in 1800. While we discover a positive relationship urbanisation-growth, the relationships with the level of urbanisation at the beginning of the century is negative: the higher the level of urbanisation in 1800, the lower the rate of annual increase.⁴⁴

³⁹ Malanima (2007).

⁴⁰ Malanima (2005) and Federico-Malanima (2004).

⁴¹ For instance by Boserup (1993).

⁴² Population movement is not significant when included in the following regression.

⁴³ Bairoch, Goertz (1986), and Bairoch (1990).

⁴⁴ We have tested the relationships among the variables influencing urbanisation through the following regression:

7. Whereas during the last epoch of the traditional European agrarian economy urbanisation was stationary, modern growth engendered a fast change in urbanisation, first in Europe and later in the rest of the world. As in many other economic variables, inequalities in urbanisation also rose on a world scale (Table 6).

Table 6. Levels of urbanisation in the continents and the World in 1800-1980 (cities with more than 5,000 inhabitants).

	1800	1900	1950	1980
Europe	12	30	43	64
America	12	29	48	64
Africa	4	5	12	25
Asia	9	9	15	26
World	9	16	26	38

Source: Bairoch (1988), p. 495 (with some changes).

While in 1800 the level of urbanisation in Europe was hardly higher than the world average, in 1900 it was double. Europe and America were at the same level; the level of Asia and Africa was 3-6 times less. As we see, later inequality diminished again (at least in terms of urbanisation per continent).

We know that, in the first phase of the economic modernisation, inequalities rose within all countries both in the availability of personal income and among the regions composing within any country. In urbanisation, by contrast, things went otherwise. If we take the 17 regions in which we divided the continent and the 4 areas (North, South, Centre, East) inequality diminished as from the late Middle Ages (Table 7).

Table 7. Inequality in urbanisation in Europe 1300-1870 (cities with more than 5,000 inhabitants).

	17 regions	4 areas
1300	0.95	0.77
1400	0.90	0.56

$$\ln u = \alpha + \beta_1 \ln y + \beta_2 \ln U_{t1} + \varepsilon$$

where u , y , U_{t1} are the annual rates of growth of urbanisation (u between 1800 and 1870), of per capita product (y) and the level of urbanisation (U_{t1}) at the beginning of the period we are interested in (in our case 1800). For Italy we have used per capita GDP estimate by Malanima (2006), while the other data are from Maddison (and refer to the decades 1820-70).

The result of the regression is:

$$\ln u = 1.28 + 0.84 \ln y - 0.81 \ln U_{t1}$$

P-Value (0.000028) (0.027)

F-Value=0.00003

R2=0.80.

1500	0.86	0.66
1600	0.80	0.57
1700	0.71	0.42
1750	0.68	0.45
1800	0.69	0.53
1870	0.67	0.48

Note: see the Appendix on the method used to compute inequality in urbanisation.

In the late Middle Ages, in the Euro-mediterranean world, the Southern part was considerably more advanced. This was the legacy of the late antiquity, when, that is, civilization –and then the cities– characterized the South, while the North was backward and scarcely urbanized. In 1300 it was still so. Beyond the Alps and Pirenees cities were modest and few. The inequality of development within the continent was notable and inequality in urban distribution suggests the inequality in economic levels. In the early Modern Age some convergence began to take place. Previous sharp contrasts faded gradually. The period we dealt with in this chapter was the last phase of the old agrarian world and the beginning of the new economy. Already around 1700 urbanisation in the South had been overcome by that in the North. During the 19th century, urbanisation progressed more in the North and the Centre. Europe was becoming more and more continental and less and less Mediterranean. In any case the differential in urbanisation was then lower than 5 centuries before.

8. *From stability to growth and from inequality towards convergence:* thus we could succinctly recall the main changes in 18th-19th centuries European urbanisation. The geography and the levels of the European urbanisation were in 1800 still similar to those of the late Middle Ages, the main changes being the rise of England and Scotland and the spread from the Flanders towards the Netherlands in the early modern age. Inequality between North and South had diminished for this very reason.

In 1870, by contrast, both the level and geography of urbanisation were deeply different. Then a clear prevalence of the North-European countries on the Mediterranean regions and a fast rise in urbanisation rates were the main differences with the past. Urbanisation rise had occurred within the great transformations of the European economy during the first epoch of modern growth. Since, after all, modern growth took place primarily in the cities and was based on the application to the economy of that useful knowledge developed in the urban centres since the far past, we can finally wonder if structural change and urban development were the consequences of the undergoing economic changes or if urban life has to be seen as the main determinant of modern growth. The decision about the direction of the causal link, in this case as well as in many others, is not straightforward.

Appendix

The series presented in this appendix are new. They are based on a revision of both data on urban inhabitants and the population of Europe per country. The series refer to all of Europe (within the present borders of the continent). The starting bases for the urban populations have been the revision and merging of the urban databases by Bairoch, Batou, Chèvre (1988), De Vries (1984). The new database has then been checked through the more recent literature on the subject (quoted in the footnotes and in this Appendix). The necessity of a new urban database for the period 1700-1870 depends on the fact that the existing ones do not cover the whole continent and do not include the 19th century (see the note to the Appendix 2).

1. European population

European Population (000) per country or area and their extent in sqkm

	<i>Sqkm</i>	1700	1750	1800	1870
1 Scandinavia	<i>1,198</i>	2,900	3,600	5,250	13,300
2 England (Wales)	<i>151</i>	5,450	6,300	9,250	23,000
3 Scotland	<i>79</i>	1,200	1,260	1,630	3,420
4 Ireland	<i>84</i>	1,900	3,120	5,200	5,800
5 Netherlands	<i>33</i>	1,950	1,950	2,100	3,650
6 Belgium	<i>30</i>	2,000	2,200	2,900	4,900
7 France	<i>544</i>	21,500	24,600	29,000	38,000
8 Italy	<i>301</i>	13,500	15,500	18,100	28,000
9 Spain	<i>505</i>	7,400	9,300	10,500	16,200
10 Portugal	<i>92</i>	2,000	2,600	2,900	4,300
11 Switzerland	<i>41</i>	1,200	1,300	1,700	2,700
12 Austria (Hungary)	<i>626</i>	15,500	18,300	24,300	35,700
13 Germany	<i>543</i>	14,100	17,500	24,500	41,000
14 Poland	<i>240</i>	2,800	3,700	4,300	7,400
15 Balkans	<i>516</i>	8,550	9,900	12,000	23,700
16 Russia (European)	<i>5,400</i>	13,000	22,000	35,000	63,000
EUROPE	10,383	114,950	143,130	188,630	314,070
EUROPE (without Russia)	4,983	101,950	121,130	153,630	251,070

Note: data in the Table refer to the European population within the 1870 political borders. The extent of any country or area is recorded in the first column. Poland is in 15th century borders. Austria includes: Hungary, Bohemia, Croatia, Slavonia, Transylvania. Balkans include: Greece, Serbia, Montenegro, Bosnia-Herzegovina, Rumania, Bulgaria, Crete, the European part of Turkey. Iceland, Malta and some minor islands are excluded.

Sources: among the following works, only Uralis provides data on a country basis for all our period and for any country: Reinhard, Armengaud, Dupâquier (1968) (all countries); Uralis (1941), p. 414; Wilson, Parker (eds.) (1977)(some countries; early Modern); De Vries (1984), pp. 36-7 (Western Europe); Wrigley, Schofield (1981) (England from 1700-1870); Beloch (1937-61) (Italy 1700-1800), Bardet, Dupâquier (eds.) (1997) (several countries); Maddison (2001) (2003)(several countries); De Vries, Woude (1997)(the Netherlands); Valerio (2001)(Portugal); Mc Evedy, Jones (1978)(several countries); Glass, Grebenik (1965) (several countries); Woods (1989)

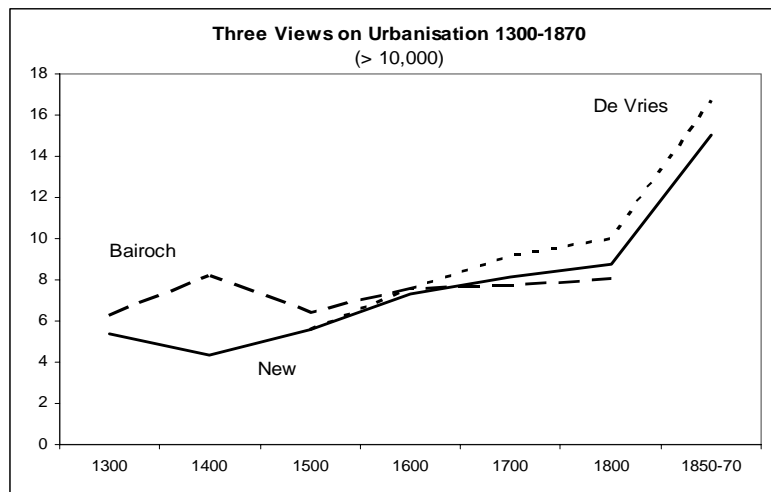
(early Modern United Kingdom); Carreras, Tafunell (2005) (Spain); Palairet (1997) (Balkans).

2. Different estimates of the European urbanisation (1700-1870)

Three estimates of urbanisation in Europe from 1700 to 1850-70 (cities with more than 5,000 inhabitants and cities with more than 10,000 inhabitants).

	Bairoch >5,000	Index	Bairoch >10,000	Index
1700	11.4	1.00	7.8	1.00
1750	12.0	1.05	8.1	1.04
1800	11.9	1.04	8.1	1.04
1850	18.9	1.66		
	De Vries >5,000	Index	De Vries >10,000	Index
1700	11.9	1.00	9.2	1.00
1750	12.4	1.04	9.5	1.03
1800	13.0	1.04	10.0	1.09
1850			16.7	1.81
	New >5,000	Index	New >10,000	Index
1700	11.4	1.00	8.2	1.00
1750	11.7	1.03	8.0	0.97
1800	12.4	1.09	9.0	1.10
1870	19.4	1.70	15.0	1.83

Sources: Bairoch, Batou, Chèvre (1988); Bairoch (1988), p. 216 (for >5,000 in 1850); De Vries (1984); present Appendix.



As we see, the differences among the three curves are relatively modest from an aggregate viewpoint (at least for the period we are dealing with in the present chapter). Much stronger are the differences both in population and urbanisation on a regional basis. The coverage of the three series is also different. While in the following series the whole continent is covered, Bairoch dealt with Europe as a whole, but without the European

Turkey and did not elaborate data for the 19th century Europe in Bairoch, Batou, Chèvre (1988). Data on European 19th century urbanisation were, however, provided by Bairoch (1988). De Vries (1984) provides a database concerning Western Europe (with Poland) and from 1500 until 1800. Data on urban inhabitants after 1800 are not presented in the database, although summary series are provided in the book.

3. Number of cities, urban inhabitants and urbanisation (10,000 inhabitants and above)

For the preparation of the database on which the following tables are based, for the year 1870 we exploited the geographic dictionary by Predari (1871), with information drawn from coeval statistical sources.

Number of cities (10,000 inhabitants and above)

	1700	1750	1800	1870
1 Scandinavia	3	3	7	21
2 England (Wales)	11	22	57	147
3 Scotland	3	7	14	23
4 Ireland	3	3	8	15
5 Netherlands	20	18	19	29
6 Belgium	13	14	20	45
7 France	62	63	88	161
8a Italy CN	34	40	51	66
8b Italy SI	32	49	75	136
9 Spain	25	30	60	107
10 Portugal	2	4	3	14
11 Switzerland	3	4	4	11
12 Austria (Hungary)	10	18	31	98
13 Germany	34	38	64	222
14 Poland	4	5	5	18
15 Balkans	20	24	43	65
16 Russia (European)	8	19	36	121
EUROPE	287	361	585	1,299

Urban inhabitants (000) (10,000 inhabitants and above)

	1700	1750	1800	1870
1 Scandinavia	125	167	251	727
2 England (Wales)	718	1,031	2,065	9,891
3 Scotland	64	145	390	1,242
4 Ireland	96	159	382	822
5 Netherlands	634	577	600	1,061
6 Belgium	404	363	482	1,225
7 France	1,877	2,136	2,592	6,881
8a Italy CN	1,043	1,264	1,447	2,131

8b Italy SI	873	1,203	1,658	2,893
9 Spain	714	846	1,542	2,649
10 Portugal	190	196	225	470
11 Switzerland	39	60	63	222
12 Austria (Hungary)	263	473	770	2,753
13 Germany	767	992	1,489	6,965
14 Poland	106	124	176	580
15 Balkans	1,195	1,214	1,536	2,519
16 Russia (European)	267	542	1,268	4,228
EUROPE	9,375	11,492	16,936	47,259

Urbanization rates (%) (10,000 inhabitants and above)

	1700	1750	1800	1870
1 Scandinavia	4.3	4.6	4.8	5.5
2 England (Wales)	13.2	16.4	22.3	43.0
3 Scotland	5.3	11.5	23.9	36.3
4 Ireland	5.1	5.1	7.3	14.2
5 Netherlands	32.5	29.6	28.6	29.1
6 Belgium	20.2	16.5	16.6	25.0
7 France	8.7	8.7	8.9	18.1
8a Italy CN	13.0	13.6	14.2	13.4
8b Italy SI	16.1	19.4	21.0	26.4
9 Spain	9.6	9.1	14.7	16.4
10 Portugal	9.5	7.5	7.8	10.9
11 Switzerland	3.3	4.6	3.7	8.2
12 Austria (Hungary)	1.7	2.6	3.2	7.7
13 Germany	5.4	5.7	6.1	17.0
14 Poland	3.8	3.4	4.1	7.8
15 Balkans	14.0	12.3	12.8	10.6
16 Russia (European)	2.1	2.5	3.6	6.7
EUROPE	8.2	8.0	9.0	15.0
EUROPE (without England)	7.9	7.6	8.3	12.8

4. Number of cities, urban inhabitants and urbanisation (5,000 inhabitants and above)

In order to calculate urbanisation rates for cities with over 5,000 inhabitants (in the following table) on the basis of direct data for the European cities with over 10,000 inhabitants, we start with the previous equation (1) (in the text):

$$S_r = \frac{S_1}{r}$$

This equation has to be modified in the following way:

$$S_r = \frac{S_1}{r^u} \text{ or } S_r = S_1 r^{-u}$$

where u is the slope of the curve. Both the constant term S_1 and the coefficient u can be computed through the following regression:

$$\log S_r = \log S_1 - u \log r$$

This regression has been used to calculate the population of the cities with more than 5,000 inhabitants presented in the Appendix. In order to work out data for 1700, 1750, 1800 and 1870, we have calculated the values of S_1 and u for any country on the basis of direct data on cities with over 10,000 inhabitants. Then, through the results of the regressions for S_1 and u it has been possible to complete the series with the calculated population of cities between 10,000 and 5,000 inhabitants. For any regression R^2 is always higher than 0.90. The regressions are always significant at 0.01. For England the regressions have been done excluding London. London is a special case. If we include her the coefficient (the slope) of the regression is too high, and, as a consequence, the number of cities between 5,000 and 10,000 too low. Only for Portugal did we used direct data on cities between 5,000 and 10,000 inhabitants.

Number of cities (5,000 inhabitants and above)

	1700	1750	1800	1870
1 Scandinavia	7	8	12	44
2 England (Wales)	26	84	174	374
3 Scotland	5	15	45	43
4 Ireland	7	8	17	28
5 Netherlands	57	48	49	74
6 Belgium	35	49	55	103
7 France	185	205	251	371
8a Italy CN	84	93	102	138
8b Italy SI	130	184	238	378
9 Spain	74	99	140	287
10 Portugal	5	22	28	35
11 Switzerland	21	19	11	41
12 Austria (Hungary)	17	37	63	270
13 Germany	123	173	205	637
14 Poland	29	29	25	39
15 Balkans	40	51	96	195
16 Russia (European)	17	46	89	362
EUROPE	862	1170	1600	3419

Urban inhabitants (000) (5,000 inhabitants and above)

	1700	1750	1800	1870
1 Scandinavia	150	204	266	872
2 England (Wales)	793	1,407	2,767	11,407
3 Scotland	76	193	597	1,370
4 Ireland	121	212	444	904
5 Netherlands	884	771	791	1,357
6 Belgium	551	596	702	1,576
7 France	2,653	3,067	3,613	8,190
8a Italy CN	1,363	1,576	1,788	2,590

8b Italy SI	1,520	2,138	2,756	4,489
9 Spain	1,034	1,302	2,025	3,995
10 Portugal	221	324	416	620
11 Switzerland	147	152	105	413
12 Austria (Hungary)	303	586	950	3,803
13 Germany	1,333	1,894	2,369	9,596
14 Poland	288	292	330	711
15 Balkans	1,324	1,388	1,834	3,366
16 Russia (European)	325	712	1,607	5,799
EUROPE	13,087	16,813	23,362	61,058

Urbanization rates (%) (5,000 inhabitants and above)

	1700	1750	1800	1870
1 Scandinavia	5.2	5.7	5.1	6.6
2 England (Wales)	14.6	22.3	29.9	49.6
3 Scotland	6.3	15.3	36.6	40.1
4 Ireland	6.4	6.8	8.5	15.6
5 Netherlands	45.3	39.5	37.7	37.2
6 Belgium	27.5	27.1	24.2	32.2
7 France	12.3	12.5	12.5	21.6
8a Italy CN	13.0	13.6	14.2	13.4
8b Italy SI	16.1	19.4	21.0	26.4
9 Spain	14.0	14.0	19.3	24.7
10 Portugal	11.1	12.5	14.3	14.4
11 Switzerland	12.3	11.7	6.2	15.3
12 Austria (Hungary)	2.0	3.2	3.9	10.7
13 Germany	9.5	10.8	9.7	23.4
14 Poland	10.3	7.9	7.7	9.6
15 Balkans	15.5	14.0	15.3	14.2
16 Russia (European)	2.5	3.2	4.6	9.2
EUROPE	11.4	11.7	12.4	19.4
EUROPE (without England)	11.2	11.3	11.5	17.1

5. Urban Inequality

Differentials in urbanisation have been calculated according to the following equation:

$$D = \sqrt{\sum_{i=1}^n \left(\frac{U_i}{U_a} - 1 \right)^2 \cdot \frac{p_i}{p_w}}$$

where:

- D differential in urbanisation;
- U_i urbanisation in a specific region or area;
- U_a average European urbanisation;
- p_i population of the region or area;
- p_w total European population.

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