“Urbanization” *The New Palgrave Dictionary of Economics*, Second Edition

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Abstract

Cities first arose in the Fertile Crescent a few thousand years after the discovery of agriculture. Yet, the history of urbanization is not one of steady progress. Pre-industrial urbanization rose with technological advances in agriculture and transportation which fostered population growth and trade, but fell with famine and disease. Just as important, cities rose and fell with the military fortunes of city-states, territorial empires and nation-states. With the industrial revolution, urbanization rose dramatically. As population shifted out of agriculture into manufacturing and services, cities became the dominant landscape of human civilization.

The first city in human history is believed to have emerged around 3200BC in Sumer, Mesopotamia, between the Tigris and Euphrates rivers, as a consequence of the Neolithic Revolution which saw a shift in food production from hunting and gathering to agriculture based on domesticated plants and animals (Childe (1950)). The emergence of cities in Sumer marked the beginning of an “urban revolution,” but the revolution came exceedingly slowly. Since agriculture began in the Fertile Crescent around 8500BC, the first city emerged several thousand years after the discovery of agriculture. Moreover, the emergence of cities was not unique to Mesopotamia. Interestingly, cities emerged independently in at least two other places, China and the New World, places where major domestication of plants and animals arose independently.

While it is extremely difficult to determine the causal factors for why cities arose in ancient times, scholars, such as Childe (1950) and Bairoch (1988), believe that agriculture caused cities to form because it increased population growth and provided surplus food for a non-agricultural population. Since demand for food is believed to be income inelastic, an increase in income from a rise in agricultural productivity will increase demand for secondary and tertiary products (Wrigley (1987)). The urban concentration of secondary and tertiary employment, such as craftsmen and merchants, enabled the exploitation of the division of labor, fostered technological innovations in many areas of the economy from irrigation, transportation, metallurgy to writing, and lowered the costs of coordinating long-distance trade.

Perhaps, even more importantly, cities were centers of states before the rise of territorial empires and nation-states. A city-state was composed of a governing city and its food-producing hinterlands. It was a distinct geographical, political and economic unit of organization. City-states, by establishing a body of formal and informal rules of property rights, provided their citizens with the incentives to improve productivity, or more fundamentally, to acquire more knowledge (North (1981)). Cities probably became centers of government because close face-to-face interactions of the ruling elite and its administration increased the efficiency of governing by lowering the costs of generating, collecting and processing information. In addition, dense, walled cities provided effective defense against raiders.

The cities that arose in Sumer, Mesopotamia were independent city-states. Archaeological evidence indicates that there may have been as many as fifteen city-states by 3000BC. A typical city-state may have contained populations of 25,000 with rural populations of about 500,000. Hammond (1972) suggests that the impetus for city-states in Sumer may have been the need to coordinate the provision of public goods such as large-scale irrigation, drainage, communal storage, and defense against other city-states. Over the following century, the number and size of cities grew in this region, some reaching populations of 100,000 or more.

When the Sumerian cities were conquered by Babylon by 1800BC, the era of early city-states gave way to the era of territorial empires such as Babylon, Egypt, Canaan and others. Scholars generally believe that urbanization suffered under these empires except for cities, like Babylon, that served as political and military centers. Babylon at its height may have reached populations of 200,000 to 300,000. While the exact causes of the rise of these territorial empires are not clear, reasons for their rise may have been due to the growing benefits of trade over longer distances and changes in military technology which allowed for the control of larger areas.

Of the major empires, cities declined most significantly in Egypt. Indeed, many scholars would argue that Egypt was an empire without cities. To the extent that cities existed in Egypt, they were centers of religious and administrative functions. The lack of cities in Egypt is often attributed to the Pharaoh’s centralized control of irrigation, trade and all other facets of the economy (Hammond (1972)). While cities also declined in the other territorial empires, their decline is thought to have been more modest as many remained relatively independent. Despite the general decline of urbanization during this period, a new type of city emerged in Phoenicia. These coastal cities, which grew in numbers around 1200BC, arose principally to trade goods throughout the Aegean and the Mediterranean.

Cities first emerged in the Middle East, but reached their greatest heights in the Mediterranean in the ancient era. Most likely, cities arose later in time in the Mediterranean because agriculture arrived in this region a century and a half after its discovery in the Fertile Crescent. Because of favorable geography and climate which provided an abundance of indigenous species suitable for domestication, agriculture arose first in the Fertile Crescent (Diamond (1997)). From there, agriculture spread about 0.7 miles per year and reached the Mediterranean region sometime between 7000-6000BC. By 2000-1450BC, the Aegean civilization seems to have constructed small city-states with relatively limited agricultural hinterland and trade. However, under the Greek and Roman civilizations, as the Mediterranean Sea became the highway of transport and communications, urbanization flourished.

The Greeks formed small, independent city-states composed of a coastal city and its adjoining farmlands between 800-146BC. Its largest city, Athens, may have reached 100,000 in population, but most other cities rarely exceeded 40,000. Bairoch (1988) estimates that perhaps as much as 15-25% of the Greek population lived in cities whose sizes were above 5,000 inhabitants. Because the Greeks possessed relatively poor soil, a large portion of its population was engaged in local and long-distance trade in the Mediterranean. The Greek invention of coined money facilitated market exchanges. The Greek cities are also known for their political innovations. While most city-states and territorial empires, with the exception of the Phoenician city-states, were ruled by monarchy or aristocracy, democracy arose in many Greek cities.

The formation of the Roman Empire between 146BC and 300AD represented the largest political and economic integration of territory in the ancient world. Rome, as the center of the military and administrative organization, grew to an astonishing size, surpassing 800,000 inhabitants and perhaps reaching a million by 2AD. Unlike the earlier territorial empires such as Egypt, cities prospered under the Roman Empire. In their political functions, cities became military and administrative centers and collected taxes from the surrounding countryside for Rome; in their economic functions, cities acted much like independent city-states. By providing peace and uniform law over its empire, cities rose in great numbers as commercial activity increased. Bairoch (1988) estimates that about 8-15% of the population resided in cities. While most cities were small, 20 or more cities may have reached 20,000 or more inhabitants.

When the Roman Empire disintegrated around 476AD, it signaled the decline of the Mediterranean world. In the resulting Dark Ages, between 500 and 800AD, urbanization fell as frequent wars and invasions contributed to economic insecurity. In the two centuries following this period, however, there arose a period of urban renaissance. By this time, Europe was divided into two regions. The southern half of the Mediterranean was conquered by Arab Muslims while the Northern half was composed of Christian Europe. In Muslim Spain, the urban population rose rapidly. In Christian Europe, urbanization grew in some places for defensive reasons, but in Italy, commercial city-states rose to great heights (Bairoch (1988)). Ruled by merchant elites, Italian city-states engaged in extensive long-distance trade using newly developed technology such as the compass, but cities like Venice also grew because their naval powers provided protection of their ships in the Adriatic Sea and beyond (Lane (1973)).

The period called the Middle Ages, between 1000 and 1500, marked the beginning of the rise of western Europe. Because this region was further away from and possessed a very different climate than the Fertile Crescent, agriculture arrived between 6000-2500BC, much later than in the Mediterranean (Diamond (1997)). In the Middle Ages, technological advances such as the heavier plow, horse collar, and the three field system increased the agricultural productivity of western Europe significantly. Between 1000 and 1340, there was a strong growth in urbanization based on feudal city-states. Under feudalism, a lord provided protection using a castle and knights; in exchange for protection, slaves, serfs and free laborers offered free labor.

The rise of western Europe was interrupted between 1300 and 1490 as famine, disease, and wars led to major losses of population and de-urbanization. Famines between 1315-1317, the plague and the Black Death between 1330-40 and 1380-1400, and series of wars, civil wars, feudal rebellion and banditry afflicted much of Europe and contributed to the decline of the medieval economy (Palmer and Colton (1965)). Urbanization fell as feudal city-states crumbled. North (1981) argues that a series of major technological advances in military warfare, such as the introduction of the pike, longbow, cannon, and eventually the musket, as well as a growing market for mercenaries, contributed to the decline of feudalism since a feudal lord could no longer provide adequate protection for his manor against these new military developments.

The modern period in history begins with the year 1500. Between 1500 and 1800, the opening of Atlantic commerce and the formation of nation-states fundamentally transformed Europe and the world. Advances in ocean shipping, which led to the discovery of maritime routes to the Americas and Asia, ushered in a new era of international trade. Although cities in the Mediterranean remained important, the focus of urbanization shifted toward the Atlantic as urbanization grew rapidly in nations with easy access to the open ocean such as Portugal, Spain, United Kingdom and the Netherlands. In addition, nation-states based on monarchies arose throughout Europe and established colonies in Africa and the New World. These new nation-states were supported by an unprecedented growth in military and government civil administration financed by taxes and debt (Brewer (1988)).

The rise of western Europe and globalization were accompanied by a significant growth in urbanization. In Europe, while the upward trend was not uniform over time, Vries (1984) finds that the number of cities with populations of at least 10,000 rose from 154 to 364 between 1500 and 1800. The growth in urbanization was concentrated in the very largest cities whose main functions were either to serve as a government capital or as a port city (Vries (1984) and Bairoch (1988)). The concentration of merchants in cities lowered the costs of financing and coordinating trade around the globe. Likewise, governments became concentrated in cities since the efficiency of military and government operations involved the collection and processing of an enormous amount of information (Brewer (1988)).

The pre-industrial cities in the Middle East and Europe possessed a variety of political regimes across space and over time. Most often, city-states were ruled by kings with absolute power, but in some instances, they were ruled by merchant elites. While the rulers of city-states provided order and stability, they also imposed heavy tax burdens on their subjects. Between 1000 and 1800, De Long and Shleifer (1993) find that city-states that were ruled by absolutist governments grew much less significantly than those governed by merchants or assemblies.

The Industrial Revolution, which began in England around 1700, transformed the modern world in a short period of time. In pre-industrial times, which spanned over thousands of years from the ancient and medieval periods to the first two centuries of the modern era, cities became important centers of government, trade and artisan manufacturing, but most of the population lived in rural farms and villages. Yet, within a little over a century after the onset of the Industrial Revolution, the majority of people in England lived in cities. As industrialization spread to other European nations and the United States in the nineteenth century, and eventually to an ever growing list of nations in the twentieth century, world urbanization rose rapidly.

The Industrial Revolution's transformation of the urban order began in the rural country-side. The early factories arose in rural villages and towns rather than in established major urban centers and less urbanized places industrialized more rapidly in Europe and in the United States (Bairoch (1988)). However, as industrialization matured, it was significantly correlated with urbanization. The rise of the manufacturing sector was not only responsible for the emergence of new industrial cities, but it also contributed to the growth of traditional urban centers. Between 1800 and 1900, the share of urban population in industrialized countries almost tripled from 11 to 30% (Bairoch (1988)).

The reasons for why early industrialization was rural or why late industrialization was urban are still unclear. Scholars generally believe that early factories chose rural locations because of the availability of water-power, coal or unskilled labor (Bairoch (1988)). Because early factories used women and child labor intensely, Goldin and Sokoloff (1982) believe that, in the United States, early industrialization arose in rural New England rather than in the rural South since relative labor productivity of women and children compared to men was less in the former region. For Rosenberg and Trajtenberg (2004), industrialization caused urbanization as firms adopted the Corliss steam engine as their primary power source.

Kim (2005a,b) suggests that causal explanations for why industrialization led to urbanization are likely to rest on the rise of division of labor and the labor market. Prior to industrialization, goods were produced by self-employed artisans who made the entire product. With industrialization, factory owners hired workers in a labor market and employed them in specialized tasks. Because early industrialization was concentrated in a limited number of industries and was limited in scale, firms located in rural places since the costs of recruiting workers were relatively modest. However, as industrialization rose in scale and spread to numerous industries, the agglomeration of workers and firms in cities deepened the extent of division of labor and lowered labor market transactions cost.

One of the major developments associated with the industrial revolution was a transportation revolution. In the pre-industrial period, the bulk of long-distance trade occurred over bodies of water such as canals, rivers, lakes, seas and oceans. With the introduction of the railroad and later trucks and airplanes, overland transportation costs fell dramatically. In the United States, the integration of its regional economies led to a significant increase and then decrease in regional specialization (Kim (1995)). The rise of U.S. regional trade led to the rise of many large inland cities like Chicago that emerged to coordinate the increase in domestic trade.

In the second half of the twentieth century, though the rate of urbanization slowed in industrialized nations, cities remain a vital component of the modern economy. Scholars believe that one or more factors, such as Marshallian externalities (technological spillovers, non-traded industry specific inputs, and labor market pooling), market size and natural advantages, cause the formation and growth of cities (Henderson and Thisse (2004)). Moreover, while economic factors are much more significant in modern than in pre-modern times, political factors, such as tariffs and dictatorships, remain important for urbanization (Ades and Glaeser (1995)).

The history of urbanization was not confined to the Middle East and Europe. Cities arose indigenously in India (1000-400BC), China (700-400BC) and the New World (100BC). Cities diffused to Korea (108BC-313AD) and Japan (650-700AD) from China, and to Southwest Asia (700-800AD) from China and India. In the New World, cities arose independently in Mesoamerica in Mexico and Andes in South America. With the arrival of maize agriculture from Mesoamerica, urbanization reached the southwestern and eastern parts of North America. Whereas China and Japan contained some of the largest pre-industrial cities, and had urbanization rates comparable, or perhaps even higher, than pre-industrial European societies, the cities in the New World were smaller, fewer in number, and less stable.

In Africa, there is considerable uncertainty as to whether agriculture and cities arose independently. While there is evidence of domesticated agriculture in Sahel (5000BC) and Tropical West Africa (3000BC), scholars remain unsure whether founder crops arrived from elsewhere (Diamond (1997)). There is evidence of cities in Africa as early as 1000BC, but it is also not clear whether these cities resulted from outside influences (Bairoch (1988)). In Australia, no cities arose indigenously as the aboriginal population remained hunters and gatherers.

The coming of the modern era in 1500 not only transformed western Europe, it also decisively altered the path of development around the world. As European nations colonized the New World and parts of Africa and Asia, they transplanted their technologies, agriculture, germs and political institutions to their colonies. From the colonies, the Europeans extracted new plants and resources and traded them around the globe. The demography of the New World colonies was fundamentally altered as the native population suffered and, to a varying extent, was supplanted by European immigrants and African slaves. In general, colonization and globalization were accompanied by a rapid growth in urbanization in Europe and the colonies.

In the nineteenth and the twentieth centuries, the uneven diffusion of the industrial revolution around the globe determined the patterns of world urbanization. While there is no general consensus on the causes of uneven economic development, explanations usually rest on one or more factors related to geography, technology, trade and institutions (see Aghion and Durlauf (2005)). In nations which developed, industrialization led to a rapid growth in urbanization; in those that did not, urbanization remained relatively low. In addition, most of the urban population in poor nations became concentrated in a handful of very large cities.

Cities in history arose with the advent of agriculture as they became centers of governments, crafts, religion and universities. As markets and trade developed, cities became centers of finance and commerce. While the patterns of urbanization differed greatly over space and time, the causes of urbanization were the same around the world. Pre-industrial urbanization rose with technological advances in agriculture, artisan manufacturing, transportation and trade but fell with environmental degradation, famine and disease. Just as importantly, cities rose and fell with military and administrative efficiency of city-states, territorial-empires and nation-states.

With the industrial revolution, cities became centers of factories and offices. Although early industrialization began in rural areas, the shift in the employment composition from agriculture to manufacturing and services led to rapid urbanization. The formation and growth of industrial or modern cities are attributed to benefits from a variety of market and non-market factors such as the division of labor, lower search costs of matching specialized workers and firms, information spillovers, market size, and non-traded intermediate inputs (Henderson and Thisse (2004)). With the rise in disposable incomes, cities became centers of arts, entertainment and other amenities.

The history of civilization is the history of urbanization. Without cities, the pillars of civilization, literature, science, and the arts, would not exist. Yet, as the industrial era gives way to the information era, will cities disappear? Leamer and Storper (2001) believe that face-to-face interactions in cities are likely to remain important for some time to come. For these scholars, the coordination of complex, unfamiliar and innovative activities depends on the successful transfer of uncodifiable messages and requires long-term relationships, trust, closeness and agglomerations. Wherever the new innovative activity may arise, be it in commerce, finance, politics, arts, or science, the future of civilization is likely to rest on the success of its citizens.

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