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CITIES IN THE CENTRAL POLITICAL/MILITARY NETWORK SINCE CE 1200: SIZE HIERARCHY AND DOMINATION

Christopher Chase-Dunn
and
Alice Willard

The comparative study of civilizations requires us to study cities and the networks of human interaction between city and countryside, one city and other cities, and the relationships between citified regions and regions in which people live in villages or are nomadic. One aspect of city systems long used by archaeologists to make inferences about the degree of centralization and hierarchy in a system is the city size hierarchy: the relative distribution of the sizes of cities in a region. In this paper we use data on the population sizes of cities to study the rate of urban growth and the city size distribution in Europe and the Near East since CE 1200.

Recent phenomena in the modern world-system have caused specialists in urbanization to conceptualize the notion of “world cities” (e.g., Friedmann, 1986). But the study of contemporary world cities needs to consider a comparative framework which spans both broad spatial expanses and deep temporal ones. In order to know what is new we need to know what is old; in order to interpret and explain contemporary trends we need to understand how and why change has occurred in the past. The contemporary global political economy, with its core world cities and semiperipheral megacities, is only the most recent formation in which large cities have played central roles in the hierarchical and horizontal links among societies that are parts of larger world-systems. Earlier regional systems also had their world cities. These performed central economic and political/military roles for the systems of which they were a part. The role of villages, towns, cities, and settlement systems in the evolution of world-systems has been outlined elsewhere (Chase-Dunn, 1992).

When we use a telescope we see different things than when we look with the naked eye or with a microscope. Here we focus our gaze on the last 800 years and on the intersocietal network that eventually became the global system in which we now live — the Central Political/Military Network.
This study replicates an earlier study using a somewhat different unit of regional analysis. Earlier work (Chase-Dunn, 1985) bounded the modern world-system following the principles and prescriptions of the Fernand Braudel Center at SUNY-Binghamton. In this paper we will utilize a different principle for specifying the spatial boundaries of world-systems. This changes the focus of analysis to some extent, and those who have studied regional systems know that the way in which the subject is bounded is a fundamental decision which affects everything else.

The approach to spatially bounding world-systems proposed by Immanuel Wallerstein has been criticized by many world-system scholars. Jane Schneider (1991) was the first to point out that luxury-goods trade often has important and systemic effects on the regions which are so linked. Wallerstein argued that "preciosity" trade was exogenous to world-systems. Others have argued that using mode of production as a feature for spatially bounding world-systems is mistaken (Chase-Dunn, 1989; Terlouw, 1992). Wallerstein argues that the Ottoman empire was separate from the modern world-system because it was not capitalist despite the extensive trade and political-military interaction that the Ottomans had with Europe.

We adopt an approach to spatially bounding world-systems that emphasizes all important interactional interconnections. World-systems are networks of interconnectedness in which the interactions condition the reproduction and the transformation of the social structures which are connected (Chase-Dunn and Hall, 1993). Connections must have regularized and systemic consequences. But all such connections do not have the same spatial characteristics. We note that in many world-systems bulk goods networks are small, while political-military networks are larger and networks of the exchange of prestige goods are larger yet (see Figure 1). We follow the work of David Wilkinson (1987, 1992) in studying the city systems of regularized political-military interaction networks composed of states and empires, but we also pay attention to the larger networks of luxury trade (called oikumenes by Wilkinson) as potentially important networks of systemic interaction.

Following Wilkinson, we call the intersocietal system which engulfed all others and which became the global political economy in which we now live the "Central World-System." World-systems are often nested networks of interaction as illustrated in Figure 1. The whole system exists at the level of the largest prestige goods network. In this paper we will use the political/military subsystem as the unit of analysis for our study of city systems. We contend that the political/military network (PMN) is the most sensible territorial unit for studying city size distributions because it is the unit within which states directly vie with one another for power. This new unit of analysis — the Central PMN — is posited to be a more appropriate
specification for studying the emergence of European dominance in the modern world-system than the boundaries proposed by the Braudel Center and used in the earlier study (Chase-Dunn, 1985a).

The Central PMN (called Central Civilization by Wilkinson) emerged with the coupling of the Mesopotamian and Egyptian PMNs in about 1500 BCE. The Mesopotamian and Egyptian systems had been linked into a single network of prestige goods exchange since at least 2500 BCE and probably much earlier. The Central PMN expanded, eventually engulfing all other systems, incorporating India and Spanish America in the sixteenth century and the Far Eastern and Japanese systems in the nineteenth century.

The PMN approach to bounding city systems leads to somewhat different conclusions about the history of large-scale interaction in the last 800 years from that of the Braudel Center scholars. From our point of view Europe was never a separate system, at least since its incorporation into the Mediterranean-centered prestige goods network in the Bronze Age (Kristiansen, 1991). The European story is one of a penetrated and peripheral region which eventually developed a new form of organization that enabled it to dominate all of the Central World-System. The Roman power which brought Europe into the political/military network was itself an upstart semiperipheral marcher state that conquered the old Near Eastern core region. After the fall of Rome the center of power moved back toward the Near East where it had long been, and Europe was left to stew in its feudal juices. The rise of Islam further isolated Europe from the long-distance trade and brought an even deeper devolution of political power and a parallel economic...
involution.

The recovery of Europe enabled a new mode of production, capitalism, to become the predominant logic of accumulation in a regional subsystem, and this subsystem eventually rose to transform the whole of the Central System to capitalism. But capitalism did not begin in Europe; it only became predominant in that regional subsystem. Markets, money, merchants, the production of commodities, and wage labor were institutions which were invented and spread within the tributary states and empires, and which grew in the interstices between the empires of the Afro-Eurasian oikumene. The first capitalist states on earth, states run by people whose main method of gathering wealth was through the trading of commodities and the production of commodities for sale, were the capitalist city-states operating in the interstices between tributary empires. The Phoenician city-states are an obvious example, but a much earlier case may have been Dilmun (now Bahrain) linking the early Mesopotamian states with the urbanized states of the Indus River valley.

These semiperipheral capitalist city-states were not the main players in the systems in which they lived. The main players were tributary states and empires that gathered wealth by taxation and tribute. But the semiperipheral capitalist city-states performed the important roles of carrying on trade between tributary states and linking dispersed peripheral regions into larger trade networks. They were the protagonists of commodification (Chase-Dunn, 1992).

At the same time, the tributary empires were themselves becoming more sophisticated regarding their ability to exploit market trade without extinguishing it. The Persian emperor Darius understood the wisdom of allowing the merchants within the empire a certain degree of autonomy in order to maximize his own revenues from taxing their trade. Imperial monopolization was good for obtaining a quick return, but in the long run a percentage of a larger pie was preferable. The Roman and Chinese empires were among the most commercialized tributary empires, and the later Islamic and Ottoman empires also had extensive commodification without yet abandoning their primary orientation toward the logic of accumulation through political-military control.

In Sung and Ming dynasty China capitalists and capitalism posed significant challenges to the power of the Mandarins, but the logic of empire was able to meet these challenges and to maintain and reproduce a strong centralized state apparatus. The steppe-nomad and northern woodsmen dynasties that conquered China also reproduced the logic of bureaucratic empire (Barfield, 1989). The overall picture here is one in which the institutional bases of capitalism — money, commodified goods, commodified labor, and commodified land — emerged slowly, unevenly,
and in spurts and retreats as the territorial size of empires expanded from the third millennium BCE on. This was uneven development in a number of meanings. There were locations in which capitalists actually held state power — the autonomous semiperipheral capitalist city-states. There was also an oscillation within the tributary states between periods in which private capital accumulation by wealthy families became relatively more important versus periods in which state-controlled accumulation was more emphasized (Ekholm and Friedman, 1985; Frank and Gills, 1993). These were not capitalist systems, but capitalism was emerging in the interstices of the tributary modes of accumulation.

The irony of Europe was that capitalism was able to become the predominant logic of accumulation there precisely because states were weak. It was the strong imperial states of the Near East and China which prevented the emergent predominance of capitalism in those areas. The semiperipheral status of Europe allowed it to evolve a new institutional mix in which market forces and the political power of capitalists was greater than ever before. The capitalist city-states of Europe — Venice, Genoa, Florence, and Antwerp — were closer together and had a proportionally greater influence on trade and the political interactions among continental states than earlier capitalist city-states had. The operation of protection rent (Lane, 1979) as a regulator of state action became increasingly important in a system in which the most powerful states were increasingly coming under the control of capital.

**CYCLES OF POLITICAL CENTRALIZATION**

All hierarchical intersocietal systems go through sequences of centralization and decentralization of economic, political, and social power. Like states, chiefdoms emerged in sets in which chiefly polities interacted and competed with one another, and these “interchiefdom systems” exhibited a pattern of rise and fall in which the territorial and population size of the largest chiefdoms rose and then declined (Sahlins 1972:144-48; Mann, 1986:Chapter 2; Friedman and Rowlands, 1977). The dynamics of this sequence in systems composed of chiefdoms, in which power was organized around hierarchical kinship relations, differed in important ways from the dynamics of rise and fall, political centralization and decentralization, which operated in systems composed of true states.2

The cycle of the rise and fall of states occurs in all known interstate systems. In some the competition among states takes the form of the rise and fall of hegemonic core powers, a process which we know well in the modern world-system. In others, and more frequently, the cycle of political centralization/decentralization takes the form of the alternation between interstate systems in which there are a number of competing states within a
core region (these are called "states systems" by Wilkinson) and world-empires in which a single state succeeds in unifying an entire core area by means of conquest (called "universal empires" or "world states" by Wilkinson). Wilkinson (1992b:54) provides us with periodizations of states systems and world states for eleven state-based "civilizations" defined as interactive networks of polities that are fighting and/or cooperating with each other in which there are cities of at least 10,000 people.

In addition to the cycle of the rise and fall of polities, there is a long-run trend toward the increasing size of polities and the decreasing number of autonomous polities on Earth (Carneiro, 1978). Rein Taagepera's (1978a, 1978b, 1979) studies of changes in the territorial size of the largest empires on Earth over the past 4,000 years demonstrate the cycles of political centralization and decentralization discussed above. The combination of the long-term trend of the increasing size of polities with the medium-term process of political centralization/decentralization is illustrated in Figure 1. Taagepera's studies show that the size of the largest empire on Earth oscillated for long periods and then jumped up in rapid rises that correspond to the wide conquests by semiperipheral marcher states who created empires across whole core regions. Well-known examples are the Akkadian Empire, the Assyrian Empire, the Alexandrian conquests, and the Roman Empire. Figure 2 is a simplified and idealized model based on Taagepera's studies of the territorial size of the largest states and empires and Carneiro's (1978) discussion of the long-term evolutionary trend from many small polities to a few large ones.

In this paper we will examine the relationship between the processes of political centralization/decentralization and changes in the relative population sizes of cities located within a single interacting political/military network — the Central World-System. In an earlier paper (Chase-Dunn and Willard, 1993) we have compared the pattern of changes in the Central system with those of the Far Eastern and Indic systems. The simplest hypothesis is that city systems will become more hierarchical — that is, the largest cities will be much larger than other cities in the same network — when political/military power is more centralized. This is based on the idea that political power is an important component of the ability of large cities to gather the resources necessary to sustain large populations.

The phenomenon of urban primacy — the concentration of population in a very large central city with only much smaller cities in the same region — has been extensively studied in national societies in the modern world-system (e.g., Chase-Dunn, 1985b; Lyman, 1992). It is well known that France has a very primate city-size distribution, as do most peripheral and semiperipheral countries in the modern world-system. Urban primacy is seen as a problem by many contemporary urban and regional planners and they
have constructed and tried to implement policies for encouraging the growth of small and middle-sized cities (rather than further increasing the size of the largest city in a country).

**Figure 2. Cycles and Trend of Political Centralization**

![Graph showing cycles and trend of political centralization]

**SETTLEMENT SIZE HIERARCHIES**

What do we mean by city size hierarchy? All human settlements interact with other settlements. The size of individual settlements can be studied as they grow or decrease, and the relative size of settlements can also be studied. This means looking at the distribution of settlement sizes within a region. Some regions contain settlement systems which are very hierarchical in the sense that there is a single very large settlement which is surrounded by much smaller settlements. Such settlement systems are called “primate” because there is a single center which is much larger than any other settlement. Geographers have developed theories which suggest that a “normal” settlement size hierarchy will correspond to the rank-size rule in which the second largest settlement is half the size of the largest, the third largest is one-third the size of the largest, the fourth largest is one-fourth the size of the largest, and so on. The rank-size rule is also called the “log normal” rule because the distribution of settlement sizes approximates a straight line when the settlement sizes are logarithmically transformed. Some settlement systems are “flat” in the sense that the towns, cities, or villages of which they are composed are all about the same size. So we can discuss different settlement systems as primate, rank-size, or flat depending on the relative...
size of the settlements of which they are composed. The size hierarchy aspect allows us to compare very different kinds of settlement systems to one another because we are looking at the relative, rather than the absolute, sizes of settlements. Thus a system composed of villages can be just as hierarchical as a system composed of great cities if one village is much larger than the others. The SPI reflects the relative degree of inequality of settlement sizes amongst a group of settlements or cities.

Table One: Central PMN SPIs and Populations 1200 C.E. to 1988 C.E.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>SPI</th>
<th>URBAN POPULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1200</td>
<td>2.44</td>
<td>850,000</td>
</tr>
<tr>
<td>1250</td>
<td>-0.283</td>
<td>885,000</td>
</tr>
<tr>
<td>1300</td>
<td>-0.04</td>
<td>1,013,000</td>
</tr>
<tr>
<td>1350</td>
<td>-0.074</td>
<td>910,000</td>
</tr>
<tr>
<td>1400</td>
<td>-0.295</td>
<td>1,045,000</td>
</tr>
<tr>
<td>1450</td>
<td>-0.13</td>
<td>1,025,000</td>
</tr>
<tr>
<td>1500</td>
<td>-0.26</td>
<td>1,165,000</td>
</tr>
<tr>
<td>1550</td>
<td>-0.026</td>
<td>1,610,000</td>
</tr>
<tr>
<td>1575</td>
<td>-0.056</td>
<td>1,590,000</td>
</tr>
<tr>
<td>1600</td>
<td>-0.146</td>
<td>1,869,000</td>
</tr>
<tr>
<td>1650</td>
<td>-0.615</td>
<td>2,275,000</td>
</tr>
<tr>
<td>1700</td>
<td>-1.093</td>
<td>2,510,000</td>
</tr>
<tr>
<td>1750</td>
<td>-1.196</td>
<td>2,386,000</td>
</tr>
<tr>
<td>1800</td>
<td>-0.468</td>
<td>2,656,000</td>
</tr>
<tr>
<td>1825</td>
<td>-0.148</td>
<td>3,653,000</td>
</tr>
<tr>
<td>1850</td>
<td>-0.335</td>
<td>6,942,000</td>
</tr>
<tr>
<td>1875</td>
<td>-0.039</td>
<td>10,456,000</td>
</tr>
<tr>
<td>1900</td>
<td>-0.222</td>
<td>18,476,000</td>
</tr>
<tr>
<td>1914</td>
<td>-0.82</td>
<td>25,119,000</td>
</tr>
<tr>
<td>1925</td>
<td>-1.506</td>
<td>29,629,000</td>
</tr>
<tr>
<td>1950</td>
<td>-0.503</td>
<td>39,629,000</td>
</tr>
<tr>
<td>1970</td>
<td>-0.849</td>
<td>70,377,000</td>
</tr>
<tr>
<td>1988</td>
<td>-0.94</td>
<td>99,500,000</td>
</tr>
</tbody>
</table>

SPIs are based on a five city distribution. Populations are the sums of the three largest cities. Source: Chandler, 1987.

In order to make such relative comparisons a statistic called the
Standardized Primacy Index (SPI) was developed by Walters (1985). The SPI takes a value of zero when a settlement size distribution corresponds to the rank-size rule. It takes on negative values when the distribution is less hierarchical (flatter) than the rank-size rule and positive values when the distribution is more hierarchical than the rank-size rule (primacy). Although the measures of urban populations are subject to error, and to greater error as we go back in time, the degree of error is reduced when we calculate the SPI. The SPIs we calculate in Table 1 below are based on the largest five cities within the Central Political/Military Network at each point in time for which we have data from Chandler (1987).

Our data on the population sizes of cities is taken from Tertius Chandler’s (1987) *Four Thousand Years of Urban Growth*. We recognize that the population estimates in Chandler are often in error according to other sources and we applaud the recent efforts of other scholars to replace Chandler’s data set with a better one. In the meantime we can point out that the SPI is fairly insensitive to errors in population estimates because it focuses on the relative size of cities rather than their absolute size. For the most recent year (1988) we use population estimates of the world’s largest metropolitan areas from Camp (1990).

**POWER AND CITY SIZE DISTRIBUTIONS**

Why should a city system have a steeper city size distribution when there is a greater degree of concentration of power? The simple answer is that large settlements and especially large cities require greater concentrations of resources to support their large populations. This is why population size has itself been suggested as an indicator of power (Taagepera, 1978a:111). But these resources may be obtainable locally and the settlement size hierarchy may simply correspond to the distribution of ecologically determined resources. In a desert environment populations cluster near oases. It is not the political or economic power of the central settlement over surrounding areas which produces a centralized settlement system, but rather the ecological distribution of necessary or desirable resources. In many systems, however, we have reason to believe that relations of power, domination, and exploitation do affect the distribution of human populations in space. Many large cities are as large as they are because they are able to draw upon far-flung regions for food and raw materials. If a city is able to use political/military power or economic power to acquire resources from surrounding cities it will be able to support a larger population than the dominated cities can, and this should produce a hierarchical city size distribution.
Of course the effect can also go the other way. Some cities can dominate others because they have larger populations. Great population size makes possible the assembly of large armies or navies, and this may be an important factor creating or reinforcing steep city size distributions. The striking difference between the contemporary world-system and earlier regional systems is what we can describe as the declining significance of size. Certainly size was never the only important component of power. Some virtually city-less states (e.g., the Mongol empire) were able to dominate urbanized civilizations for periods of time. But the correlation between city size and power was much stronger in earlier world-systems than it is in our own. We need to address why this change has occurred.

Our earlier paper (Chase-Dunn and Willard, 1993) examined the extent to which changes in the degree of hierarchy in city-size distributions corresponded to changes in the degree of political centralization since 2000 BCE in several different world-systems. We observed that, on the average, all the political/military networks studied had city size distributions that were significantly flatter than the rank size rule. This contrasts with studies of city size distributions within modern national societies. These show average distributions that are much closer to the rank-size rule (Chase-Dunn, 1985b). The fact that political/military networks composed of many states have flatter distributions than single national societies supports the notion that city size hierarchies reflect relative distributions of power. Political/military networks are generally larger and more politically multicentric than single nation-states.

We found a high degree of correspondence between changes over time in city-size distributions and changes in the distribution of political power within political/military networks (Chase-Dunn and Willard, 1993). The periods designated by Wilkinson (1992, 1993) as those in which there were “universal states” in political/military networks all exhibited relatively more hierarchical city size distributions. The temporal and spatial focus we are studying here, the Central PMN from CE 1200 to 1988, is one in which there were no “universal states” that dominated the entire core region of the system. The last world state in the Central PMN was the Roman Empire. But this system has continued to go through cycles of political centralization and decentralization even in the absence of universal states. This cycle has been called the rise and fall of hegemonic core powers in the modern world-system. The broad similarities of this sequence of rise and fall to the earlier pattern of empire formation and disintegration are important, but the differences are also central to the argument that the modern capitalist world-system operates according to a qualitatively different logic from the previously dominant logic of the tributary modes of accumulation.
A serendipitous finding reported in Chase-Dunn and Willard (1993) is that the SPIs and urban growth sequences for the Central and Far Eastern political/military networks are fairly closely synchronized from 430 BCE to CE 1825, when the Central PMN incorporated the Far Eastern. We concluded that the dynamics of the Eurasian prestige goods network and the formation and disintegration of steppe nomad empires account for the synchronicities of urban growth and changes in the city size distributions in the Central and Far Eastern PMNs.

Table 1 shows the SPIs (index of flatness or hierarchy in the city size distribution) and the total populations of the three largest cities at each point in time for which we have data from Chandler (1987). The city populations we used for both the SPI and the total urban populations are available for inspection in Chase-Dunn and Willard (1993: Appendix). Negative SPIs indicate a city size distribution that is flatter than the log normal rule. Note that all the SPIs in Table 1 are negative, indicating that the city size distribution of the Central PMN never became primate or more hierarchical than the log normal rule. There is, however, significant variation in the degree of hierarchy versus flatness over time. In CE 1200 the city size distribution was quite flat with an SPI of -2.44. This is the flattest point in all the years from 1200 to 1988. By 1300 the SPI had moved to -0.04, a nearly log normal distribution, indicating a significant shift toward a much more hierarchical city size distribution over that 100-year period.

THE CENTRAL PMN SINCE CE 1200

Our earlier paper (Chase-Dunn and Willard, 1993) examined the Central PMN from 1360 BCE (just after the coupling of the Mesopotamian and Egyptian PMNs) until CE 1988 and compared it with other regional world-systems. Here we will focus on the more recent period from CE 1200 until 1988 and will focus only on the Central PMN. The purpose is to focus on the PMN that contains the emerging European hegemony and to show how the city-system of this unit of analysis changed over time. This constitutes a replication of Chase-Dunn (1985a) with a new unit of analysis — the larger political/military network of which the Wallersteinian “modern world-system” was a part. Figure 3 graphs the SPIs in Table 1, showing the changes in the SPI for the Central PMN between CE 1200 and 1988. The overall pattern since 1200 is a rise from flatness to near log normality, small-fluctuations until a descent back to flatness between 1600 and 1750, another rise to log normality after 1750, another descent to flatness after 1900, and another short rise peaking in 1950 and then a move back toward flatness.

Figure 4 graphs the urban population figures from Table 1. These are
the sums of the populations of the three largest cities for each time point. This shows the general trend for cities to become larger, and also some interesting

![Figure 3: Central PMN SPIs from 1200 A.D. to 1988 A.D.](image)

variations in the growth rate. We exclude populations after 1825 because the rate of increase after that time is so great that it masks the interesting variations in growth rate that are visible in Figure 4. Comparison of Figures 3 and 4 shows the relationship between urban growth of the largest cities and changes in the relative distribution of city sizes. There is no general relationship between the two aspects of city system development, except for a possible relationship between the declines in both in the 17th and 18th centuries. This implies that changes in the relative distribution of power are largely independent of changes in the rate of growth as indicated by the increasing size of cities.

Let us now take a closer look at these broad trends. In CE 1200 the city size distribution of the Central PMN was quite flat (SPI = -2.44) and the urban population had fallen a bit from what it had been in 1150. The urban population was still well below the level it had attained in CE 1000. The two largest cities in 1200 were Fez (in Morocco) and Cairo, with 200,000 each; these were followed by Constantinople, Palermo, and Marrakesh. Saladin ended the Fatimid rule of Egypt in 1171 and established the Ayyubid dynasty. Seville was the sixth largest, Paris the seventh largest. Venice was
In 1250 we find the city size distribution jumping up to a hierarchy with an SPI of -0.283. The largest city was now Cairo with 300,000, swollen by the power of the Ayyubid dynasty. Second was Fez with 200,000, third Paris with 160,000. These were followed by Marrakesh and Constantinople. Constantinople had been taken by the army of the Fourth Crusade in 1204 and had declined from 150,000 to 100,000. The overall urban population was continuing to grow but it had still not reached its former peak in CE 1000.

In 1300 we find an even steeper hierarchy that closely approximates the rank size rule (SPI = -0.04). The overall urban population had grown again. Cairo was still in first place but now had a much larger population of 400,000. The Mamluks had taken over Egypt during the 1250s and successfully stopped the Mongol conquest of Syria and Palestine (Abu-Lughod, 1989: 148). Paris was second and had grown to 228,000. Then we have Fez with 150,000 (its population down despite the founding of the new city in 1276), Tabriz with 125,000, and Venice with 110,000. Tabriz, in what is now northwestern Iran, was the capital of the huge Mongol state headed by Ghazan Khan in 1295. In 1300 Constantinople had fallen to seventh place, having been sacked again in 1261 by Michael VIII, who restored the Byzantine empire. Venice, now in fifth place, was at the highest rank it would attain, although it matched this again in 1550.

Fernand Braudel’s (1984) picture of a world-economy in which capitalist city-states such as Venice and Genoa were at the pinnacle of the
whole system defines that system in a way that downplays the importance of the land-based tributary states, which were still the most powerful actors and had the largest cities. Venice was a prototypical semiperipheral capitalist city-state operating within the interstices of a tributary system still dominated by larger states and empires, and Braudel’s work affirms this. The fact that capitalist states later became the most powerful central actors should not distort our understanding of these older systems.

In 1350 the SPI had gotten just a bit less steep but was still close to the rank size rule. Cairo was still the largest city, but its population had dropped to 350,000. The Black Death had struck Cairo in 1348. Paris was still second with 215,000, down slightly. Fez was third, followed by Sarai and Tabriz. Sarai, near present-day Volgograd, was the capital of the Tatar “Golden Horde.” The overall urban population had declined a bit since 1300 but was still higher than it had been in 1250.

In 1400 the SPI had fallen a bit flatter to -0.295. Cairo was still the largest city and had grown to 360,000. Paris was still second and had grown to 280,000. Tabriz was now third with 150,000, up by 50,000 since 1350 despite its capture by Tamerlane. Fourth place with 130,000 was held by Samarkand, Tamerlane’s capital. Fez was fifth with 125,000. The overall urban population had grown.

In 1450 Cairo was still first with 380,000. Tabriz was now second with 200,000, Granada third with 165,000. It was the flourishing center of Moorish civilization in Spain but was soon to fall to the conquistadors. Paris had declined to fourth with 150,000, down abruptly from 1400. It had been occupied by the English between 1419 and 1436 and had suffered famine and the Black Death. The fifth was Bursa (in northwest Turkey), now grown to 130,000 despite its having been sacked by Tamerlane in 1402. The SPI (-0.13) had become more hierarchical once again.

In 1500 we find that the SPI (-0.26) had become a bit flatter again, but not by much. Cairo had grown to 400,000 and Tabriz to 250,000. Constantinople was third with 200,000 despite the fact that it had been depopulated when it fell to the Ottoman Turks in 1453. It recovered quickly as the capital of the Ottoman empire. Paris was fourth with 185,000. Fifth place was held by Fez. Urban population had grown once again, nearly attaining the level it had in 1000.

In 1550 the SPI once again nearly approximated the rank size rule at -0.026. Constantinople, now capital of the Ottoman empire, was once again the largest city with a population of 660,000, returning to its rank in 1100. Cairo was now second with 360,000, down 40,000 since 1500. Paris was growing again with 210,000. Naples was in fourth place with 209,000, and Venice was fifth with 171,000. Urban growth reached its highest point since
This was a system-level city size hierarchy in which the hegemonic power was the Ottoman empire. Lisbon, allegedly the 16th-century city with “global reach” according to Modelski and Thompson (1988), was the twentieth city in the Central system.

In 1575 things had not changed much. The SPI was just a bit flatter. Constantinople had grown to 680,000, but Cairo had lost population to 275,000. Paris had grown just a bit, as had Naples. The Indic system was now united with Central, and the fifth largest city was Agra (eventual home of the Taj Mahal) with 200,000. It was established by Akbar as the Moghl capital in 1566. Total urban population had lost a bit since 1550. The Hapsburg bid to unite the European core into an empire state had been resisted by France in alliance with the Ottomans (Zolberg, 1981:263-65). The fact that the Ottomans were crucial players in this critical conjuncture belies the effort to consider them as exogenous to the developing modern world-system.

In 1600 Constantinople was at 700,000. The second largest city was Agra with 500,000. Paris was still third with 245,000. Naples was fourth with 224,000, and Cairo had dropped to fifth with 200,000. The SPI had become a bit flatter and was headed toward even more flatness. The urban population had grown rapidly and was now into its permanent geometric ascent.

In 1650 Constantinople was still first but it had not grown since 1600. Agra was gone. The Moghl capital had moved to Delhi in 1658, possibly affecting Chandler’s estimate for Agra in 1650. Paris was second with 455,000, up abruptly in fifty years. London was third with 410,000, having more than doubled in size since 1600. Fourth place was held by Lahore (Pakistan) with 360,000, and fifth was Isfahan (Safavid Iran) with 350,000. The SPI (-0.6150) had dropped toward flatness, but was on its way to much greater flatness. Amsterdam, now at the peak of its golden age as the world city of the 17th-century Dutch hegemony in Europe, was at the eleventh rank in the city size distribution of the Central system.

Even when we look only at Europe (Chase-Dunn, 1985:278), Amsterdam was never higher than fourth in the city size hierarchy. This supports the notion that the Dutch state’s hegemony was intermediate between the semiperipheral capitalist city-states and the full-blown core capitalist hegemony of the British. Formerly capitalist states, such as the Phoenician cities or Venice, had been semiperipheral city-states in the interstices between tributary empires. Like these, the Dutch were specialists in intercontinental trade and in naval power, but they were closer to being a core nation-state and more important in the interstate system than any earlier capitalist state had been. Even so, in the 17th century Amsterdam was only a town compared to Constantinople.
In 1700 we find that Constantinople was still first but with the same 700,000 it had in 1600. Second place was now held by London with 550,000. Paris, now third, continued to grow and had a population of 530,000. Fourth place was now held by Ahmedabad in northwest Indian Gujarat with 380,000, augmented by a British trading post there in 1619. Fifth was Isfahan with 350,000. Sixth place was held by Amsterdam with 210,000. The SPI was now at a rather flat point (-1.093). The rise of London marked the first time in world history that the world city of a capitalist state moved toward the first position.

In 1750 London was the largest city with a population of 676,000. Constantinople was now second with 625,000, down from its former 700,000. Paris was third with 556,000, Naples fourth with 310,000. Fifth place was held by Amsterdam with 219,000. This is Amsterdam’s highest position ever in the city size hierarchy. Many have suggested a comparison between Venice and Amsterdam, both the centers of international trade in their day (e.g., Burke, 1974). Like Amsterdam, Venice attained its highest rank in the city size hierarchy (fifth) well after its own hegemony in international trade had passed (in 1550). This was also true of Lisbon, which now attained the sixth rank. According to Modelski and Thompson (1988: Chapter 7), Portugal had been the “global leader” of the sixteenth century because it held the greatest naval power among the European states and controlled intercontinental trade. It is interesting that Lisbon only rose to the top tier of the city size hierarchy in the middle of the 17th century, after hegemony had passed to the Dutch.

The SPI in 1750 was now at its flattest point in this cycle at -1.196. The flatness was due to the rapid rise of the Western European capitals to the size attained by the cities of the Near East and the very slow growth of Constantinople. The multicentric geopolitical structure of the Central PMN accounts for its difference in this period from the more constant size hierarchy which existed in the Far Eastern PMN. In Western Europe the two great powers, Britain and France, were leaders of coalitions of European core states about to engage in a military struggle for control over territories in North America and India, the Seven Years War (1756-63).

By 1800 a new city size hierarchy was beginning to emerge but the distribution was still rather flat. The SPI was -0.468. London had grown to 861,000. The second city was Constantinople, still the capital of the Ottoman empire. It had continued to fall in population and was now 570,000. Paris was still in third place but had decreased slightly to 547,000. Naples had 430,000 and Moscow was now fifth with 248,000. The Napoleonic wars were about to begin. The tale of two cities, of which we know so much, leaves out Constantinople. It was still a major player despite being classified by Immanuel Wallerstein as outside the modern world-system because of
its noncapitalist mode of production.

In 1825 the SPI had moved further toward hierarchy at -0.148. London’s population was now 1,335,000. This was a very big city, but it was still smaller than Peking. The second largest city in the Central world-system was now Paris at 855,000. Constantinople was third with 675,000, up considerably from 1800. St. Petersburg now held the fourth position with 438,000. Fifth was Naples with 350,000. British hegemony was well under way and was reflected in the city size hierarchy of the Central world-system. This was the true arrival of a system in which the largest city was politically dominated by capitalists. The logic of capitalist accumulation had been predominant since at least the 17th century in the European subsystem, but now it was becoming predominant in the entire Central PMN.

In 1850 the SPI dropped temporarily back toward flatness because the Far Eastern and Central PMNs merged (SPI = -0.335). London continued to shoot up and now had a population of 2,320,000. It was the megacity of the Earth. Peking, the second largest city in the Central (now nearly global) system, also continued to grow, but not nearly as fast as London. It had a population of 1,648,000. Paris had also grown and was now at 1,314,000. Canton was now in fourth place with 875,000 and New York was fifth with 645,000. The amazing thing about the 1850 city size distribution is that the drop toward flatness was not greater. Two massive urbanized city systems combined into one, and yet the rapid growth of London still resulted in a size hierarchy of cities.

By 1875 the hierarchy had moved nearly to the rank size rule (-0.039). This was its most hierarchical peak since 1550 and a point to which it has not returned in subsequent years. London now had a population of 4,241,000 and Paris was second with 2,250,000. New York had moved up to third with 1,900,000. Berlin was fourth, Vienna fifth. Peking had dropped to sixth place from second, and now had a population of 900,000. This was the true arrival of global European hegemony. All of the five largest cities on Earth were European except New York, a formerly semiperipheral outpost of European civilization which was rising to the peak. It was also the high point of British hegemony within the core of the modern world-system.

In 1900 London was still growing mightily and it now had a population of 6,480,000, but a new challenger was coming up quickly. New York was second with a population of 4,242,000. The SPI had begun to flatten once again and was at -0.222. Paris was third with 3,330,000 and Berlin was fourth with 2,707,000. Another upstart city, Chicago, was fifth with 1,717,000.

In 1914 the SPI was flatter still. London was still first and had continued to grow with a population of 7,419,000, but New York was now nearly as large with 6,700,000. Paris had 4,000,000. Tokyo and Berlin were tied for
fourth place with 3,500,000. Tokyo, a new non-European world city, was moving up in the hierarchy.

In 1925 New York was first but just barely. It had 7,774,000 while London had 7,742,000. The SPI was now very flat at -1.506, flatter than it had been in 1750. This flat point corresponds to the transition between the British and American hegemony in the world-system. Tokyo was now third with 5,300,000 and Paris was fourth with 4,800,000. Berlin was fifth with 4,013,000. The Ottoman sultan was deposed in Constantinople in 1922 and by 1925 the city was the thirty-ninth largest in the world.

In 1950 the city size distribution was again moving back toward hierarchy but the SPI was still only -0.503. This was the high point of the population peak for New York, which was now at 12,463,000, and also the peak of the golden age of U.S. hegemony. London was still second largest with 8,860,000. Tokyo was still third with 7,000,000. Paris was fourth with 5,900,000 and Shanghai was now fifth with 5,406,000. The hegemony of the United States had just been consolidated by World War II. Berlin was now the twelfth largest city on Earth with 3,707,000, down from fifth place in 1925. Tokyo, despite having lost the war, had grown from 5,300,000 in 1925 to 7,000,000 in 1950.

In 1970 Tokyo had become the largest city on Earth with 20,450,000. The SPI had once again begun to flatten along with the declining hegemony of the United States. It was now -0.849. New York was second with 17,252,000. It had grown since 1950 but not nearly at the rate of Tokyo. Another Japanese city, Osaka, was now in third place with 12,000,000. London was fourth with 10,875,000. Moscow was in fifth place with 9,800,000. Paris had dropped to seventh place from fourth and Mexico City was in sixth place with 9,000,000.

In the last year for which we have data, 1988, the SPI had become even flatter (-0.940). Greater Tokyo was still the largest with 28,700,000. Mexico City was now second with 19,400,000. New York was third with 17,400,000, Sao Paulo fourth with 17,200,000. Fifth place was held by Greater Osaka (Osaka-Kobo-Kyoto) with 16,800,000. Huge megacities of the semiperiphery (Mexico City and Sao Paolo) had appeared among the largest cities in the system. This trend was already visible in 1970 when Mexico City was in sixth position, Buenos Aires was ninth and Sao Paolo was tenth.

Urbanization has become so dense in the core that it is much more difficult than it was in the past to determine the boundaries between urbanized areas. The fact that two of the five largest cities on Earth are Japanese corresponds to the emerging economic hegemony of Japan in the world-system.
Let us now review the macropatterns of the sequences of rise and decline of city size hierarchies and changes in the rate of urban population growth. Look again at Figures 3 and 4 above. By looking at both figures we can see that the city size distribution of the Central PMN recovered from an extreme flatness which bottomed out in 1150. It became nearly a rank size hierarchy in 1300 and then experienced a few small ups and downs until 1600, when it again began a descent that bottomed out in 1750. It then rose again to nearly a rank size hierarchy in 1825, wobbled a little, and then peaked in 1875. It then dropped to a rather flat distribution in 1925 and then rose again to a slight peak in 1950. It has since descended but has not yet reached the flatness it had in 1925.

How can we interpret this trajectory in terms of what we know about changes in the distribution of political-military power? The extreme flatness of the twelfth century was likely due to the effects on the Central PMN of forces coming from Central Asia and the Far East. Pandemic diseases and invasions by steppe nomads caused the decline of urban populations at the end of the first millennium and flattened the city size distribution of the Central PMN. While the city size hierarchy recovered quickly (by 1300) the total urban population was much slower to recover. It did not reach the pre-crisis level until 1600 (see Table 1 and Figure 4). This sequence suggests that the Central PMN was functioning as a subsystem within a larger Afro-Eurasian world-system in the 12th century. The simultaneities discovered in Chase-Dunn and Willard’s (1993) comparison of Far Eastern and Central PMNs suggests that this had been true for at least the previous millennium.

The recovery of the city size hierarchy in 1300 was based on the rise of the Mamluk empire in Egypt and its successful confrontation with the Mongols (Abu-Lughod, 1989: Chapter 7). Under different dynasties Cairo was the world city in the Central system until 1550, when it was replaced by Constantinople, now the Ottoman capital. The descent into flatness that was under way in 1600 was due to the rapid growth of both Indian and European cities. Unlike the earlier flatness, this one occurred in a context of rapid growth of the overall urban population (see Figure 4). The flatness occurred because the old centers were not growing as fast as the new centers. This was a period of rapidly growing semiperipheral megacities similar in some respects to the period after 1960.

The descent to flatness bottomed out in 1750. By this time the old capitals of the Central PMN, except for Constantinople, had dropped way down and the rapidly growing European cities were at the top. The flatness was due, then, primarily to the fact that several European capitals were about...
the same size. This would tend to support the notion that the eighteenth century was a period of multicentricity in the Central PMN in which core powers were contending with one another for hegemony. Modelski and Thompson (1988) show that the British already led in sea power in the 18th century, and they argue that there was an 18th-century "cycle of leadership" in which the British had already attained the position of "global leader." London was indeed the largest city, but Paris was not far behind.

The British were already the leading power in terms of naval capability, but their hegemony in the world-economy was only beginning. By 1825 they had beaten the French in the Napoleonic wars and firmly established their primacy in the world market. This was reflected in the peak of the now hierarchical city size distribution, with London pulling well ahead of Paris by 1825.

By 1850 the city size distribution had flattened a little because of the incorporation of Peking and Canton into the Central PMN. We have already remarked about the surprisingly small effect that this had on the city size distribution. In 1875 the British hegemony was at its peak, and it then declined primarily because of the rapid growth of New York, Berlin, and Tokyo, new rising challengers. In 1925 the distribution was flat again with an array of core states having very large capital cities of about the same size — a multicentric core once again. By 1950 the United States hegemony was at its peak, with New York much larger than the second city, London. By 1970 the distribution shows the return of multicentricity, with Tokyo now being the largest city, and this trend toward flatness continued until 1988.

It is our conclusion that the city size distribution of the Central PMN reflects rather well the changes in the distribution of economic and political-military power among the contending states in the Central PMN. Our findings about macropatterns are not greatly different from those reported in an earlier study of the city size distribution of the modern world-system (Chase-Dunn, 1985a), despite our having changed the spatial focus of the study somewhat by using Wilkinson's definition of system boundaries (the network of political-military interaction). If we compare Figure 3 of this paper with Figure 12.2 in Chase-Dunn (1985a:277) we will see a reassuring similarity. This supports the notion that errors in the estimation of the population sizes of individual cities do not greatly affect the SPIs because this earlier study was based, not only on a somewhat different spatial scope, but also on a different city population data set, that of Chandler and Fox (1974). The SPI is a fairly robust statistic.
What are the implications of the above for contemporary studies of world cities? The most obvious is that world cities are not a recent phenomenon. City systems were not, until recently, national systems which did not have important international links. Interactions among the great cities of world-systems have been important since the first emergence of cities in Mesopotamia 5,000 years ago. But what is new about world cities in the last few decades?

Here we rely on a recent summary of the world cities literature by John O’Loughlin (1992). It has been alleged that world cities are more strongly linked to one another now than ever before. Surely this is the case in a globalizing world-system. But the trends toward greater international political and economic integration are themselves of very long standing. It is true that these trends have now reached a very high point, but have they really changed the fundamental logic of the system? That is the question. There have always been important “international” interactions among states and there have been city-states that specialized in long-distance trade and finance. What has happened is that the proportion of all production and trade in the system that crosses state boundaries has increased. And now it is not only a few city-states that specialize in international trade. There are proportionally more world cities and they are more tightly linked than they used to be.

Chase-Dunn (1989, 1993) has argued that, if we properly specify the systemic constants, cycles, and trends of the modern world-system, there have been no major changes in systemic logic since World War II despite all the claims of those who have discovered one or another new stage of capitalism. The hegemonic sequence has proceeded, as have the Kondratieff wave and the trends toward increasing international economic integration and international political integration. All the jumping up and down about “global capitalism” misunderstands the extent to which capitalism has long been global. The “new world order” and the globalized economy are simply larger and more intense than they have been in the past, but the basic logic of the system has not changed.

The description of contemporary world cities as polarized postindustrial phenomena needs also to be put in comparative and historical perspective. The trajectory of New York is strongly reminiscent of London at the end of the 19th century. Both cities experienced a growth of producer services and became even more specialized as headquarters cities as their larger national economies lost pride of place in world manufacturing. England’s declining position in manufacturing was followed by the rising importance of the City

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of London in world finance. And both New York and London experienced polarization between the "citadel" and the teeming mass of recent immigrants. The expanded informal sector composed of recent immigrants to New York was matched in late 19th-century London by a flood of Irish immigration to the East End that provided a cheap supply of labor for the docks and the "casual labor market" (Jones, 1971).

It has been observed elsewhere (Chase-Dunn, 1989: Chapter 9) that world cities outlive the hegemonies of their nation-states in many respects. The continuing significance of Amsterdam, London, and New York in contemporary global financial affairs illustrates this point.

But despite the above claims about long-run continuities, the telescope we have been using to look at city-systems can also give us clues about change. The literature on world cities has generally behaved as if the important dimension for core world cities is the control of world trade and finance. What is left out of most of this literature is any discussion of military power. Indeed, Janet Abu-Lughod (1994) presented a paper on U.S. world cities — New York, Chicago, and Los Angeles — to an audience at the meetings of the International Studies Association without ever mentioning Washington, D.C. Even stranger than her implicit assumption that military power is not a relevant dimension of world cityness was the response of the audience, primarily political scientists specializing in international relations. They never asked about D.C.³

The long-run perspective we have employed makes this background assumption stand out. Most of the largest cities in the Central PMN have historically been capitals of militarily-powerful states. Those city states and nation-states that performed central roles in international trade were relatively small compared to the much larger metropoli of the tributary empires. This began to change in Europe with the rising importance and centrality of capitalism. Capitalist states moved into the core and the leading capitalist states developed larger "home markets" that complemented their international activities. Dutch hegemony can be seen to have been halfway between that of Venice and that of London in this regard. The capitalist states were primarily naval powers when they were small. Amsterdam and London fit this category, but London was also able to field a sizable army. England was the first core capitalist state to have sea power, land power, and economic global reach, and London was the command center for all these types of power. New York is only an economic capital, but it is in a core state that includes an empire city of the older sort — Washington. The home market of the United States has been a very large share of the world market, and it is this that accounts for the somewhat unusual development in which the declining hegemon has become a receiver rather than a sender of capital
investment. Tokyo is unique in being an economic center alone without its own military backup.

In this sequence from Venice to Tokyo we see a trend toward the greater and greater importance of economic competition and the decreasing importance of political-military competition in the modern world-system. This trend is part of what many think of as globalization. It is alleged that nation-states are no longer important actors because the global economy makes them irrelevant. It is also alleged that hegemonic rivalry — the rise and fall of hegemonic core powers in which core national segments of the world capitalist class occasionally resort to warfare with one another in order to determine who the new hegemon will be — is no longer thinkable. The suprahegemony of a core-wide capitalist class has supposedly ended the phenomenon of periodic core wars. Evidence for this is the growing importance of the Group of Seven and the revitalized activities of the proto-world-state — the United Nations.

We hope it is true that political-military competition and conflict among different segments of core capital is a thing of the past, but we worry about this conclusion. The current separation between military capability (the United States) and economic hegemony (Japan) would seem to shore up the conclusion that the age of world wars is behind us. But how stable is this distribution? Joshua Goldstein (1988) and William Thompson (1992) show that wars among core states tend to break out late in a Kondratieff upswing. If the long economic wave continues as it has for at least 200 years (and probably much longer) we should approach the end of the next upswing in the decade of the 2020s. It is then that we will find out how strong the institutions of global conflict resolution really are. If these do not prove strong enough, a war among core states will surely be the biggest catastrophe that has ever afflicted humankind.

With regard to the world city system, what can we predict? We already noted that the emergence of large semiperipheral megacities is not an entirely novel phenomenon. These have often appeared in upwardly mobile states in the past. The upward mobility of Brazil and/or Mexico, the countries containing the two semiperipheral megacities in the top five in 1988, is certainly questionable. The unbelievable size of Mexico City and Sao Paolo seems to be more of a burden than an advantage in the contemporary system. There is evidence that the rapid growth of megacities in semiperipheral areas has slowed down. Portes (1989) and Lyman (1992) show that the earlier trend toward increasing urban primacy within peripheral and semiperipheral countries has leveled off since 1970.

It is likely that the global city size distribution will continue to flatten until another hegemony is on the rise. The Japanese seem to have a leg up
in this horse race. Germany has been distracted by its unification, and European unification has been interrupted by the current economic stagnation. In the absence of pressure from European unification the United States will be less likely to pursue a regional rather than a global strategy.

It is not impossible that the political effort to retool the U.S. economy for another cycle of economic hegemony will succeed, but it is unlikely. In the absence of strong contenders, the Japanese will certainly continue to win, and this will probably be for the good. As a small and militarily weak country with global economic and raw material interests Japan has the most to lose from a new period of core conflict and should, therefore, be a strong supporter of world government. If this scenario plays out we might expect the continuation of a fairly flat city size distribution with Tokyo at the top for some time to come. If New York remains the home of the United Nations it will continue to be one of the largest cities on Earth because, ironically, its economic hegemony will be replaced by political centrality. The political experience that the United States has developed with pluralism and multiculturalism may be a new comparative advantage for leadership in a multicultural world. The politics of New York can become the politics of the world in a U.S.-led global federation. This scenario will not solve all the problems of social justice and environmental degradation, but at least it holds the promise of preventing another round of deadly core war.

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NOTES
1. Wilkinson (1991) gives a detailed account of the expansion of this unit (which he calls “Central Civilization”) as it moved out of West Asia toward all points of the compass.

2. We follow Johnson and Earle (1987) in defining true states as polities that are larger than chiefdoms and that have specialized institutions of regional administration and control.

3. Of course it is somewhat unusual, even in the modern world-system, to have separate economic and political-military capitals within the same state, as does the United States. This is a feature of nearly all states within the United States, which usually have large economic centers and smaller political capitals located near the geographical center of the state. This is a phenomenon associated with federal governments in which territory is constitutionally assigned political power. Germany has such a system, as does the Netherlands.

4. The factors affecting the probability of future core wars have been examined by Chase-Dunn and O’Reilly (1989).

5. Our Earth will not soon be Trantor, the capital of Isaac Asimov’s galactic empire — a planet which was a single city encased in a steel shell. Trantor required the food and resources of the galaxy for its existence, much as did Rome. Asimov solved the problem of interstellar travel by means of a doubtful trick. Even if Mars can be terraformed and we have many space stations in our own solar system, Earth will not be Trantor. Perhaps it will become the House of Earth as envisioned by Warren Wagar (1992) — a decentralized, low-density, but interconnected settlement system of villages and towns. Whatever happens, the long cycle of political centralization and decentralization will probably continue, but it will operate according to new logics yet to be invented. This assumes, of course, that we survive the window of vulnerability to new core war and the growing threat to the ecosphere.
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