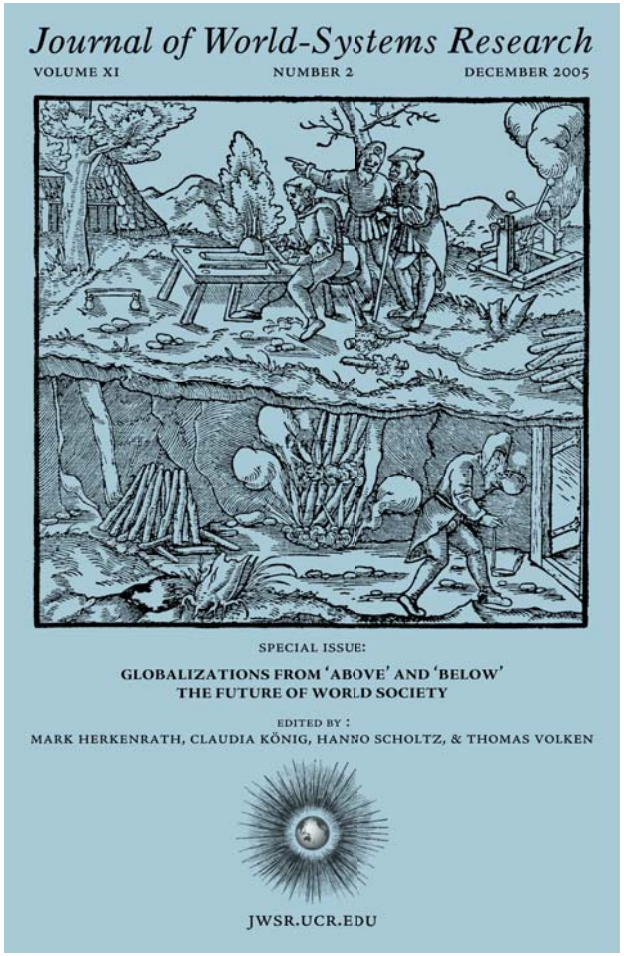

ABSTRACT:

This is a study of the growth of organizational power in the world-economy over the past forty years. It takes the position that transnational corporations (TNCs) are increasingly significant actors in the world-economy, independent of the nation-states within which they are located. The goal of this work is to identify the expansion, spatial distribution, and concentration of this global power over time, and to consider its impact on the global economy.

The TNC networks are identified by locating the headquarters and foreign subsidiaries of the world's 100 largest manufacturing corporations in 1962, 1971, 1983, 1991 and 1998. The distribution of ownership and location of these foreign subsidiaries are examined, both globally and bilaterally. I find high levels of concentration in ownership of these global networks that decrease over time, in contrast to a high degree of dispersion in the location of these linkages. U.S. corporations are clearly the dominant actors from 1962 to 1971 but decline dramatically through 1998, while Japanese and Western European TNC control over transnational networks grows significantly over this period. An empirical measure of economic dominance in the global economy is also presented.

The Growth of Transnational Corporate Networks: 1962–1998*

Jeffrey Kentor

INTRODUCTION

This is a study of the growth of organizational power in the world-economy over the past forty years. It takes the position that transnational organizations, more specifically transnational corporations (TNCs), are increasingly significant actors in the global economy. Some scholars argue that the nation-state is the appropriate unit of analysis for analyzing the global processes of the world economy (Tilly 1994; Evans, Rueschemeyer, and Skocpol 1985). Others, such as Kindleberger (1969), Leslie Sklair (1995, 2001), William Robinson (2003; Robinson and Harris 2000), and Philip McMichael (2000) suggest that nation-states are becoming increasingly marginalized by transnational corporations. They argue that these TNCs control an ever-increasing amount of capital and their activities are beyond the control and regulations of any single country, given their ability to shift resources at will throughout the global economy. Irrespective of which of these two positions is taken, it is evident that transnational corporations represent a relatively new and worthwhile dimension of study for understanding the relationships among nations and the increasing integration of the global economy.

There are few empirical studies of the global impact of TNCs from an organizational perspective. Most of the work has focused on the impact of national

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aggregate levels of foreign investment (Chase-Dunn 1975, Bornschier and Chase-Dunn 1985; Firebaugh 1992, 1996; Dixon and Boswell 1996; Kentor 1998, 2000, 2001; de Soysa and Oneal 1999; Kentor and Boswell 2003), portfolio investment (Manning 2000), or trade dependence (Burns, Kentor and Jorgenson 2003; Rubinson and Holtzman 1986).

Empirical studies using corporations as the unit of analysis have examined the sourcing, distribution and mechanisms of production of global commodities, referred to as "commodity chains" (Gereffi and Korzeniewicz 1993), or the emergence of a "global elite" that controls these transnational firms (Robinson 2003; Carroll and Fennema 2002; Kentor and Jang 2004).

Bergeson and Sonnett (2001) examine the geographical distribution of the Fortune Global 500 by industry, in an effort to define the geopolitical structure of the global economy, and understand the rise and fall of hegemonic nations. They find a tripartite distribution of TNCs among the U.S., Europe and Japan. This study takes a further step. It examines the global networks that are created by these TNCs, and considers if and how these linkages may act as conduits of power that have independent effects on the global economy.

The transnational enterprise is not a new construct. Moore and Lewis (2000) trace the emergence of the first recorded multi-national enterprises back to Assyria around 2000 BCE. These international firms were replete with "head offices, foreign branch plants, corporate hierarchies, extraterritorial business law, and even a bit of foreign direct investment and value-added activity" (ibid.: 31–32). However, the scope of these transnational firms has grown dramatically. One statistic is particularly telling: of the 100 largest economies in the world today, 51 are corporations and 49 are countries (Anderson and Cavanagh 2000).

The primary goal of this paper, therefore, is to chart the economic and spatial expansion of these transnational corporations, and explore the implications of this growth.

THE SHIFTING LOCUS OF ECONOMIC POWER

The central tenet of this work is that transnational corporations, and their global networks, represent a distinct locus of power that have a significant impact on an increasingly global economy. The theoretical basis for this assertion begins with Charles Tilly's (1994) work on the emergence of the modern nation-state system. Tilly argues that the current inter-state system is the result of a merging of coercive and economic power between A.D. 1000 and 1800. Prior to this time, economic and coercive, or military, power were separate. Political units, such as states, feudal areas and empires, were essentially containers of coercive power, used to acquire the necessary goods, and people, to maintain their systems. Economic power resided within cities, the centers of economic activities in these times, and where capital was accumulated by the emerging burgher class. As military technology progressed and warfare became more expensive, these political organizations were forced to look to cities for the financing of their military activities. The resulting relationship between state and city, of coercive and economic power, solidified over this 800-year period, giving rise to the modern nation-states of today. These modern nation-states controlled both military and economic power.

During the last few decades of the twentieth century, however, this coalescence of economic and coercive power began to fracture, due primarily to the emergence of the transnational corporation. Saskia Sassen (1991) describes the global dispersion of production that began in the 1970s, as corporations searched for lower wages, closer proximity to markets and raw materials, and a way to diffuse the power of labor. The corporate headquarter-foreign subsidiary linkages that emerged as a result of this process of production dispersion have formed the basis for a new dimension of economic power. It has allowed the transnational corporation to circumvent, to a significant extent, the regulation of their activities by the nation-states within whose boundaries they are located.[1]

Christopher Ross (1994) provides an additional perspective on these organizational networks. Ross, a human ecologist, studied the structure of city-systems within the United States. He argued that cities were essentially containers of organizations and city-systems were, therefore, reflections of organizational networks, primarily corporate. The hierarchy of these city-systems was determined by the relative power of the corporations residing within these cities in terms of their control over the economic activity in other cities. Ross operationalized these power relationships in terms of corporate headquarter and subsidiary locations. To the extent that a corporation headquartered in New York, for example, has a subsidiary in Pittsburgh, some amount of control or power is acquired by New York over Pittsburgh. The New York based corporation has an impact on employment and capital activities in Pittsburgh, which reduces the control that Pittsburgh has over its own economic activity. In other words, it reflects a loss of autonomy for the host location.

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1. A key point for Sassen is that this diffusion of production was accompanied by the expansion and concentration of certain service functions, primarily producer services, which facilitated the coordination and expansion of these manufacturing activities, giving rise to a new network of "global cities."

Ross created an organizational matrix to describe the city-system hierarchy in the U.S., by identifying the locations of corporate headquarters and their subsidiaries in major metropolitan areas in 1950 and 1980. Ross referred to these headquarter-subsidiary networks as "control linkages." He selected only manufacturing corporations for his study, arguing that industrial activity has a greater impact on a city's overall economic activity than primary or tertiary activities.[2] Ross concluded form these analyses that (a) urban systems are pyramidal in nature, with a few dominant cities at the top (New York and Chicago) and an increasing number of cities at lower levels of the hierarchy, and (b) dominance, or power, decreases at lower levels of these networks.

This global diffusion of production was facilitated by the emergence of what John Meyer et al. (1997) refer to as the "world society," an ideology that legitimates and facilitates the penetration of foreign interests into less developed countries. This is reflected in an isomorphism of laws and conventions throughout the world-economy concerning foreign ownership of private property, repatriation of capital, employee/employer rights and accounting practices that permit transnational corporations to locate and operate with consistency and predictability within most countries around the globe.

I extend the above arguments to formulate the following theory of international dominance. The coalescence of economic and coercive power, which generated the modern interstate system, has begun to unravel with the global diffusion of manufacturing that has occurred over the past forty years. The transnational corporate networks that have emerged over this period reflect a distinct locus of economic power. I do not suggest that these TNC networks are the sole conduits of power in the world-economy. They are only one network structure embedded within a series of hierarchical, overlapping networks that includes flows of information, migration, transportation, culture, and coercion. But they certainly play a significant, if not primary, role in the evolution of the world-economy.

EMPIRICAL EVIDENCE

A brief examination of available data strongly suggests that transnational corporations represent a significant, and growing, dimension of economic power in the global economy. In 1962, the world's 100 largest industrial corporations owned 1288 foreign subsidiaries. By 1998, the 100 largest industrial firms owned nearly 10,000 foreign subsidiaries. Some of these transnational corporate networks are

[2] Meyer (1984, 1986) conducts similar analyses of financial networks in the Southern U.S., and South America.

immense in scope. Philip Morris, for example, operates in 170 countries. In 1983, corporate revenues of the world's 500 largest corporations equaled 15% of world GDP. By 1998, this ratio had grown to 28% (Kentor 2002). Revenues of the largest 200 corporations now exceed the combined economic activity of 182 nations (Anderson and Cavanagh 2000).[3] Clearly, these TNCs have become significant actors in the global economy, apart from the nation-state system within which they are geographically located.

THE ANALYSES

As stated earlier, the goal of this work is to describe the economic and spatial expansion of transnational corporate networks over time, in terms of both individual countries and the global network as a whole. I employ the methodology used by Ross (1996) discussed above, by charting the shifting patterns of TNC headquarter-subsidiary linkages for the world's 100 largest manufacturing corporations at five time points: 1962, 1971, 1983, 1991 and 1998. These dates were chosen for data availability. This study is limited to manufacturing firms because, as Ross points out, these organizations have the greatest impact on the host economy relative to other sectors. Generally, they have the largest fixed investments, employ the most workers and have the greatest impact on the environment. The location of each corporate headquarters is identified, along with the number and locations of all foreign subsidiaries, for each time period. Hence, the specific corporations are not constant across periods.

This methodology has two possible drawbacks. First, it is conceivable that limiting the data set to the largest 100 industrial corporations could bias the sample. This methodology would exclude countries with only mid-sized corporations or those outside the industrial sector of the economy. To address this issue, another data set was constructed that includes the largest 250 firms in 1998, irrespective of the sector within which it is located. This list is taken from the Fortune Global 500. This allows a comparison of network structures, which will provide a reasonable indication of the possible bias in the methodology. Second, it is assumed that all foreign subsidiaries have the same impact on the host country. There is no explicit control for subsidiary size, in terms of assets, sales, or number of employees. These would certainly be potentially useful data to include in the analyses, but are not available. However, there is an implicit control on

[3] It is interesting to note that while TNC economic activity has grown dramatically over the past forty years, its share of workers has steadily declined. The world's 200 largest corporations employ less than one percent of the global work force.

the size of these subsidiaries, because they are all owned by the world's largest corporations.

The TNC headquarter and subsidiary data used in these analyses have been obtained from various years of Moody's Directories, Dun and Bradstreet, Directory of Inter-Corporate Ownership, The National Register, Standard and Poor's Register of Corporations, The Directory of Multinationals, The World Directory of Multinational Enterprises and the Directory of American Firms Operating in Foreign Countries. Not all of the corporations listed in the top 100 industrials (or Global 500) had foreign subsidiaries, according to the sources listed above. It is unclear, however, whether this indicates there are no subsidiaries, or that these data are missing. In some cases it was possible to contact a specific corporation to confirm this information, in others it was not. The impact of these possible missing data would be to underestimate the extent of these TNC networks.

RESULTS

The expansion of these TNC networks during the 20th century has been dramatic. Table 1 presents the ratio of revenues of the 100 largest industrial firms to world GDP.

This ratio grew from .04 in 1912 to .11 in 1991, before declining to .09 in 1998. This decline reflects the growth of the service sector. The Global 100, which include all sectors of the economy, grew from .09 of world GDP in 1983 to .13 in 1998. The revenues of the Global 500 grew from .15 to .28 of world GDP between 1983 and 1998. These figures reflect the expansion of producer services that arose in response to the diffusion of production that began in the 1980s (Sassen 1991). Another indicator of the growth of producer services is the ratio of revenues of the 100 largest industrial firms to the revenues of the Global 500, which declined from 60% in 1971 to 46% in 1998.

I now turn to an examination of the distribution of TNC headquarter-foreign subsidiary linkages for the 100 largest industrial TNCs from 1962 and 1998, as shown in Table 2.[4] There are two ways to think about these linkages.

We can examine both the total number of TNC headquarter-subsidiary connections, and the number of dichotomous (country to country) linkages. These two aspects of TNC networks have different meanings and different

[4.] These analyses do not directly examine differences in revenues among these subsidiaries. However, the parent TNCs (world's 100 largest industrial TNCs) are from a uniformly high revenue group, which indirectly controls for economic size.

Table 1 – Ratio of TNC Revenues to World GDP 1912–1998

	1912	1962	1971	1983	1991	1998
100 Industrial (IND)	0.04	0.07	0.09	0.08	0.11	0.09
100 Total				0.09		0.13
500 Total				0.15		0.28
IND 100 / Global 500				60%		46%

impacts. Dichotomous linkages represent relationships between countries. From a dichotomous perspective, it is the existence or non-existence of a linkage that is important rather than the absolute number of linkages. Whether there are one or several linkages between two countries, a whole host of political, economic, social (and possibly even military) laws, regulations and norms are required for a TNC to be able to locate within a given host country. The total number of linkages is more clearly a measure of *penetration* of a host country by transnational corporations. Total TNC headquarter-foreign subsidiary linkages for the 100 industrial TNCs grew from 1,260 in 1962 to nearly 10,000 in 1998, with the sharpest increase occurring between 1991 and 1998. The number of dichotomous TNC linkages, or country to country connections, grew from 220 in 1962 to 780 in 1998, with the largest growth occurring between 1971 and 1983.

The distribution of TNC headquarter-subsidiary linkages for the top 250 firms in 1998 is, as expected, somewhat larger. There are nearly twice as many total linkages (19,481 / 9988) and approximately 50% more dichotomized connections (1241 / 780). However, the correlation between the two data sets is extremely high, both for out and in-degrees (.97 and .91, respectively), suggesting that the 100 largest manufacturing TNCs are a reasonable reflection of the organizational network as a whole.

An examination of the distribution of these linkages by country, given in Table 2, indicates a high degree of concentration in the ownership of these networks, and a dispersion of the location of these subsidiaries.

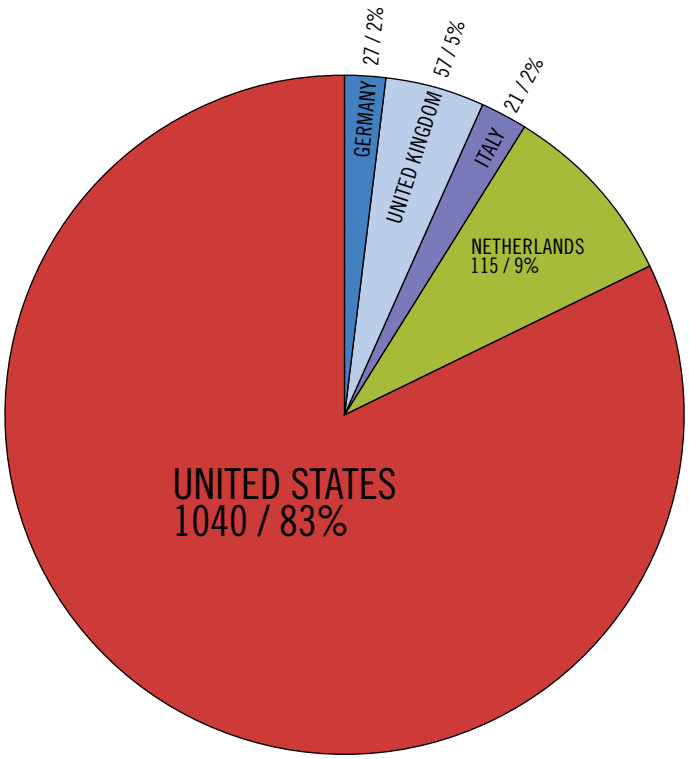
In 1962, the 100 industrial TNCs with foreign subsidiaries were concentrated in only five countries: the U.S., the Netherlands, the U.K., Germany and Italy (see Figure 1). U.S. corporations were clearly the dominant firms, controlling 1040 of the total 1260 subsidiaries.

In other words, U.S. based corporations owned 82% of all foreign subsidiaries of the 100 largest industrial TNCs in 1962. The position of U.S. TNCs strengthened in 1971, controlling 1337 of the 1566, or 86%, of all foreign subsidiaries. Dutch TNCs, the next largest group in 1971, owned only 115 (9%) subsidiar-

Table 2 – TNC Headquarter: Subsidiary Distribution 1962–1998

Country 1962	Subsidiary Own	Subsidiary In	Country 1971	Subsidiary Own	Subsidiary In	Country 1983	Subsidiary Own	Subsidiary In	Country 1991	Subsidiary Own	Subsidiary In	Country 1998	Subsidiary Own	Subsidiary In
	Foreign subsidiaries owned in other countries			Foreign subsidiaries located within country										
US	1040	22	US	1337	31	US	1339	121	US	982	298	US	2901	1479
Netherlands	115	17	Germany	80	76	Netherlands	415	98	Netherlands	462	157	Japan	2296	302
UK	57	132	France	49	59	Germany	241	163	France	431	159	Germany	1764	445
Germany	27	56	UK	44	115	Italy	207	87	Germany	328	221	Switzerland	1441	184
Italy	21	25	Netherlands	18	50	UK	174	158	Japan	310	84	Netherlands	441	342
France	0	52	Italy	18	58	France	154	159	Switzerland	289	113	Sweden	354	159
Japan	0	18	Japan	13	35	Switzerland	81	69	Italy	278	118	France	329	451
Australia	0	46	Australia	5	67	Japan	64	62	UK	151	250	UK	176	827
Switzerland	0	35	Switzerland	2	51	Belgium	52	95	Sweden	92	61	Italy	100	311
Belgium	0	19	Belgium	0	46	Sweden	27	55	Belgium	49	110	Korea	78	83
Sweden	0	16	Sweden	0	31	Canada	7	142	Finland	34	24	Canada	43	323
Canada	0	169	Canada	0	168	Brazil	3	102	Spain	29	147	Spain	29	288
Brazil	0	45	Brazil	0	46	Australia	0	133	Venezuela	17	33	Venezuela	16	103
Spain	0	18	Spain	0	37	Spain	0	100	Austria	1	46	Brazil	9	254
Venezuela	0	33	Venezuela	0	47	Venezuela	0	38	Canada	0	136	Belgium	0	190
Austria	0	14	Austria	0	16	Austria	0	33	Brazil	0	118	Finland	0	61
Korea	0	0	Korea	0	2	Korea	0	10	Korea	0	27	Austria	0	167
Mexico	0	42	Mexico	0	50	Mexico	0	67	Australia	0	86	Australia	0	337
Norway	0	8	Norway	0	17	Norway	0	32	Mexico	0	86	Mexico	0	273
Luxemburg	0	5	Luxemburg	0	15	Luxemburg	0	16	Norway	0	39	Norway	0	104
Taiwan	0	0	Taiwan	0	8	Taiwan	0	17	Luxemburg	0	32	Luxemburg	0	30
Finland	0	8	Finland	0	7	Finland	0	18	Taiwan	0	28	Taiwan	0	0
China	0	1	China	0	0	China	0	2	China	0	24	China	0	171

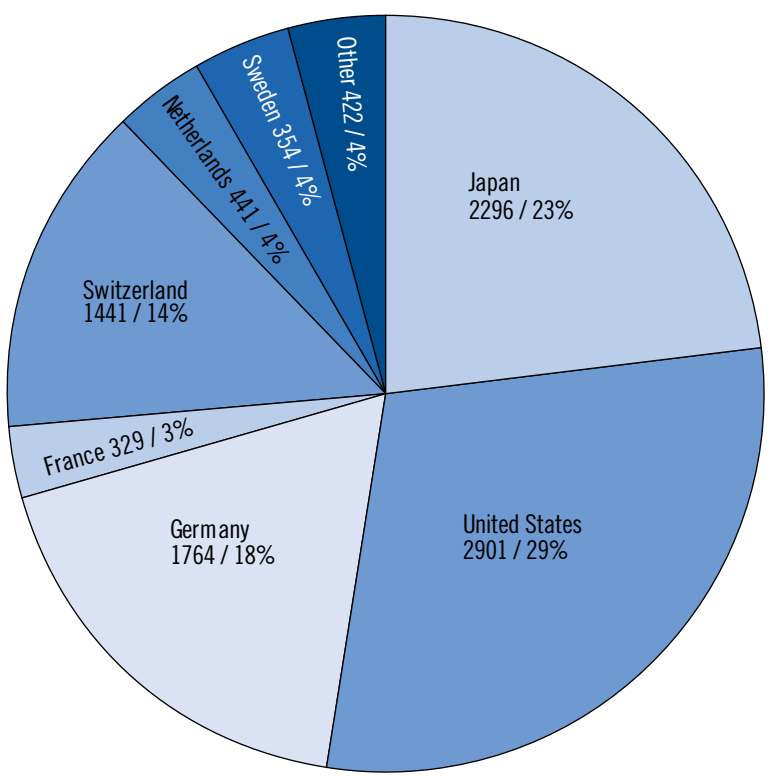
Figure 1 – Distribution of Subsidiary Ownership in 1962



ies. TNCs in seven other countries owned foreign subsidiaries: Germany, France, U.K., Italy, Japan, Australia and Switzerland.

There is a significant decline in the concentration of subsidiary ownership after 1971. The number of countries with TNC headquarters in 1983 grew 30% (from 9 to 12), reflecting a continued diversification of control. TNCs from Belgium, Sweden and Canada now own foreign subsidiaries, while Australia has been dropped. This trend continued in 1991, with the U.S. TNC share of ownership dropping to 28.4% (982 out of 3454 total subsidiaries). TNCs from 14 countries now control foreign subsidiaries, with significant country movement. Finland, Spain and Venezuela have been added, while Canada, Brazil and Australia have been dropped. The U.S. position stabilized in 1998, now accounting for 2901 of 9977, or 29%, of total out-degrees (see Figure 2). Japanese TNCs, now the second largest group, had the most dramatic growth, controlling 2296 foreign subsidiaries, or 23% of the total. German and Swiss TNCs ranked 3rd and

Figure 2 – Distribution of Subsidiary Ownership in 1998

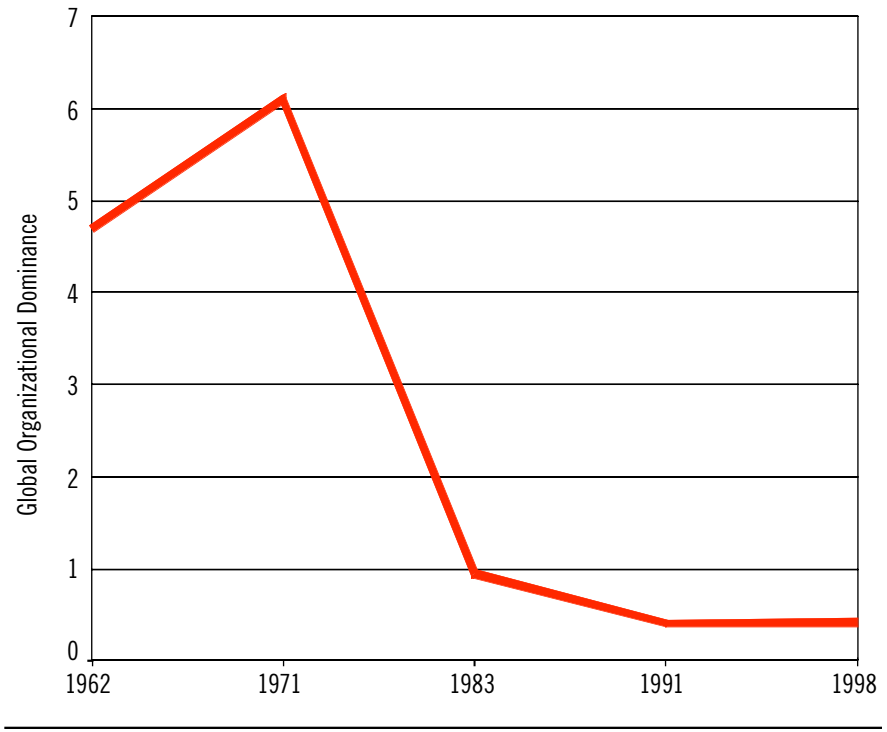


4th, owning 18% and 14% of all foreign subsidiaries, respectively.

A useful measure of transnational organizational dominance can be constructed from the above data by examining the ratio of the greatest number of foreign subsidiaries owned by TNCs from a single country to the number of foreign subsidiaries owned by TNCs of all other countries, somewhat analogous to the notion of urban primacy (Walters 1985).

This measure quantifies the extent to which TNCs from a single country dominate the organizational networks in the global economy; much like urban primacy reflects the dominance of a single largest city over the entire city system of a given country. For example, U.S. TNCs owned the largest number of foreign subsidiaries in 1971, 1040 out of 1260, resulting in a ratio of 1040/220, or 4.7. This means that U.S. TNCs owned 4.7 times as many foreign subsidiaries than TNCs from the balance of the world combined. According to this measure, U.S. TNC dominance peaked in 1971, with a score of 6.1. There was a dramatic decline

Figure 3 – Changes in Global Organizational Dominance 1962–1998



between 1971 and 1983, with global organizational dominance falling below 1, to .94, over this 12-year period. The decline continued through 1991, dropping to .40, and stabilized through 1998. A graph of the change in this measure between 1962 and 1998 is presented in Figure 3.

It is important, however, to distinguish between the concentration of control of the total number of foreign subsidiaries on a global level and the concentration of ownership within a given country. If we look at the concentration of ownership within a given country, a different picture emerges. In 1971, the peak year for U.S. TNC dominance, U.S. industrial corporations owned the majority of foreign subsidiaries in 86 countries, with an average concentration of 88%. These countries, listed in Table 3, include nearly all of the developed world; the U.K. (96%), Canada (95%), Japan (91%), Germany, Italy, Sweden and Switzerland (90%) Netherlands (89%) and Australia (84%), among others.

U.S. industrial TNCs are also dominant in the developing countries of that period, including Argentina (89%), Brazil (88%), Mexico and Taiwan (87%) and India (58%). By 1998, this situation had changed significantly. The U.S. industrial

Table 3 – Countries Dominated by US Subsidiaries 1971 (IND 100)

Country	Concen. %	Total Foreign Subsidiaries	Country	Concen. %	Total Foreign Subsidiaries
Cuba	100	1	Samoa	100	1
Chad	100	1	Tunisia	100	2
Gambia, The	100	1	Venezuela	97.9	47
Sierra Leone	100	2	United Kingdom	96.5	115
Mali	100	1	Panama	96.2	26
Jamaica	100	6	Canada	95.1	168
Liberia	100	15	Puerto Rico	94.1	16
Iraq	100	2	Philippines	93.3	14
Thailand	100	11	France	93	59
Singapore	100	8	Belgium	93	46
Korea, Rep.	100	2	Japan	91.2	35
Hong K., China	100	8	Italy	90.9	58
Cameroon	100	2	Greece	90	11
Cyprus	100	1	Switzerland	90	51
Luxembourg	100	15	Sweden	90	31
Turkey	100	10	Germany	89.6	76
Ecuador	100	10	Netherlands	89.4	50
Virgin Islands	100	1	Argentina	89.3	31
Dominican Rep.	100	4	Guatemala	88.9	8
Barbados	100	1	Brazil	88.1	46
Saudi Arabia	100	2	Taiwan	87.5	8
Finland	100	7	Mexico	87.2	50
Norway	100	17	Chile	86.7	16
El Salvador	100	3	Costa Rica	85.7	6
Niger	100	1	Denmark	85.7	21
Madagascar	100	1	Libya	85.7	5
Kuwait	100	1	Peru	84.2	20
Egypt, Arab Rep	100	4	Australia	83.8	67
Guinea	100	3	Ghana	83.3	5
Honduras	100	5	Uruguay	83.3	6
Lebanon	100	4	Colombia	82.9	27
Malta	100	2	Bahamas, The	82.4	14
Mozambique	100	1	Nigeria	81.8	10

Table 3 (Cont.) – Countries Dominated by US Subsidiaries 1971 (IND 100)

Country	Concen. %	Total Foreign Subsidiaries	Country	Concen. %	Total Foreign Subsidiaries
Portugal	80	11	Bermuda	62.5	5
Nicaragua	80	4	Indonesia	60	7
Iran, Islamic R	77.8	9	Pakistan	60	0
Spain	77.1	5	India	58.3	14
Trinidad & To.	75	7	Netherl. Ant.	55.6	5
Ireland	71.4	14	Malaysia	55.6	8
South Africa	70	26	Zambia	50	5
Austria	68.8	16	Morocco	50	6
New Zealand	68.8	16	United States	45	31
Israel	66.7	2	Kenya	44.4	7

firms now dominated the foreign subsidiary structure of only 50 countries, with an average concentration of 49 percent, as listed in Table 4. U.S. industrial TNCs still own the largest number of foreign subsidiaries in many of the same countries. However, the concentration is substantially reduced: Japan (64%), the U.K. and the Netherlands (47%), Germany (42%), Australia and Canada (38%) and Italy (32%). Japanese TNCs, with 22% of total foreign subsidiaries in 1998, dominated the ownership of foreign subsidiaries in only 18 countries, as listed in Table 5. These include only one developed country, the U.S. (43%), along with several regional economies; Thailand and Indonesia (60%), Malaysia (50%), Taiwan and the Philippines (40%), China (38%) and Singapore (37%).[5]

The location of foreign subsidiaries has also shifted significantly between 1962 and 1998. Foreign subsidiaries of the 100 largest industrial firms were located in 99 countries in 1962 (see Figure 4). Canada was host to the largest number of these (169, 13%), followed by the U.K. (132, 11%), Germany and France.

Only 22 subsidiaries (2%) were located in the U.S., and only 18 in Japan. By 1998 this picture had reversed. The U.S. was now the single largest host, accounting for 15% (1479 out of 9977) of all foreign subsidiaries. The next largest, the U.K., accounted for 8% (827) of the total. Japan, however, maintained its limited role as host to the world-economy, with only 302 foreign subsidiaries being located there in 1998 (see Figure 5).

[5] It is interesting to note that Dutch industrial TNCs, which controlled fewer than 5% of total foreign subsidiaries in 1998, dominated ownership of foreign subsidiaries in 22 countries, with an average concentration of 65%.

Table 4 – Countries Dominated by US Subsidiaries 1998 (IND 100)

Country	Concen. %	Total Foreign Subsidiaries	Country	Concen. %	Total Foreign Subsidiaries
Monaco	100	1	Colombia	40.8	52
Rwanda	100	1	France	39.9	451
Yugoslavia, FR	100	9	Korea, Rep.	38.8	83
Bosnia & Herz.	100	1	Poland	38.6	47
Isle of Man	100	1	Ireland	38.1	98
Israel	94.7	16	Australia	37.6	337
Bahamas, The	75	9	Canada	37.5	323
Puerto Rico	69.2	13	Venezuela	37.3	103
Netherl. Ant.	67.6	34	Austria	37.2	167
Barbados	66.7	9	Chile	35.8	51
Japan	63.9	302	Saudi Arabia	34.6	25
Bermuda	62.5	40	Greece	34.6	50
Cyprus	57.1	7	Honduras	33.3	5
Ecuador	55.2	28	Portugal	32.9	86
Jamaica	54.5	11	Belgium	32.8	190
Cayman Islands	53.8	13	Italy	32.3	311
Mexico	49.8	273	Un. Arab Emir.	31.6	19
Netherlands	47.2	342	Luxembourg	31	30
United Kingd.	47.2	827	Spain	30.1	34
India	43.2	111	Peru	28.9	40
Uruguay	42.9	22	Finland	28.8	61
Germany	42.5	445	Norway	28	104
New Zealand	41.9	95	Denmark	26.8	103
Egypt, Arab R.	40.9	21	Tunisia	26.3	19
Switzerland	40.9	184	Morocco	26.1	24

The above analysis has focused on the relationships between developed and less developed countries. A more complex set of power relationships emerges when we examine the TNC networks among developed countries where there is a more equal distribution of control over these linkages, especially for the more recent period.

Tables 6 and 7 are ownership/location matrices of industrial TNC linkages

Table 5 – Countries Dominated by Japanese TNCs 1998 (IND 100)

Country	Total Foreign Subsidiaries	% Owned by Japanese TNCs
Liberia	34	91.2
Thailand	178	60.2
Indonesia	126	60
Panama	45	56.8
Vietnam	17	52.9
Bahrain	6	50
Malaysia	154	49.7
United States	1479	42.8
Hong Kong, China	154	42.7
Taiwan	0	40.4
Philippines	83	40
China	171	37.7
Singapore	184	37
Guatemala	22	35
Costa Rica	21	35
Kuwait	9	33.3

among developed countries for 1971 and 1998. China is included in these matrices for discussion purposes only, to highlight the fact that they do not participate in these bilateral relationships during these time periods.

The rows of these matrices represent the country of ownership and the columns indicate the location of the foreign subsidiaries. This format allows us to examine the distribution of power among developed countries as bilateral relationships, rather than aggregate characteristics for a given nation. The U.S. maintained dominant bilateral relations over all other developed countries in 1971. For example, U.S. TNCs owned 109 subsidiaries in the U.K., while U.K. TNCs owned only 9 subsidiaries in the U.S. A similar imbalance existed with Germany (69 to 0), France (53 to 3), Switzerland (45 to 0), and Japan (31 to 5). By 1998, however, many of these relationships had reversed. The most dramatic change occurred between the U.S. and Japan. Japanese TNCs now own 619 subsidiaries in the U.S., compared to 182 U.S. subsidiaries in Japan. German and Swiss TNCs also had more subsidiaries in the U.S. than U.S. TNCs had in these countries.

The interpretations of these bilateral relationships require two additional considerations. First, we need to control for the overall sizes of the two economies when considering the relative impacts of foreign subsidiaries. Switzerland may

Figure 4 – Location of TNC Subsidiaries 1962

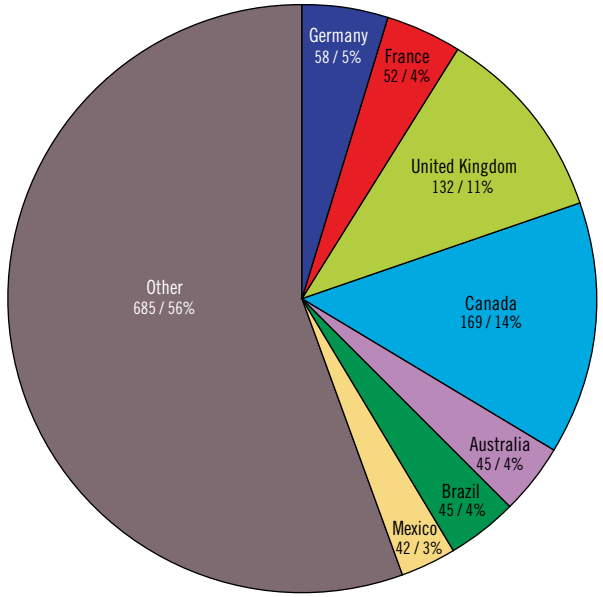


Figure 5 – Location of TNC Subsidiaries 1998

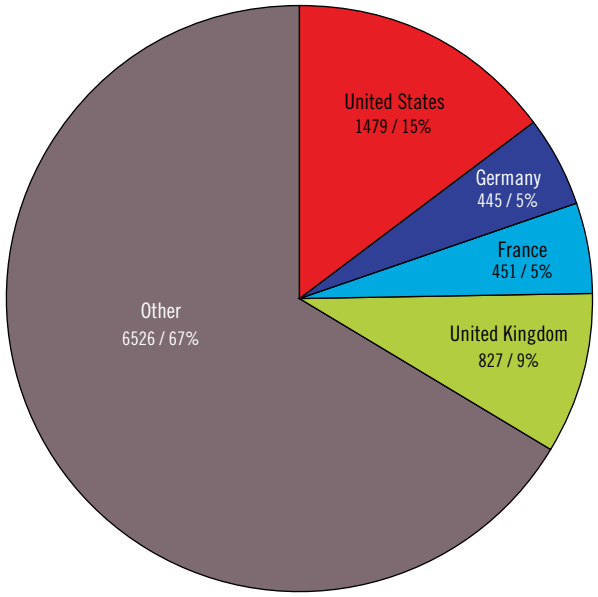


Table 6 – Ownership and Location of Foreign Subsidiaries of 100 Largest Industrial TNCs in 1971

	Subsidiary Location								Group	
TNC Headquarters	US	JAP	GER	SW	FR	NL	UK	CHI	Total	%
US		31	69	45	53	42	109	0	349	89.2
Japan	5		0	0	0	0	0	0	5	1.3
Germany	0	0		1	0	0	0	0	1	.3
Switzerland	0	0	0		0	0	1	0	1	.3
France	3	0	4	2		1	2	0	12	3.1
Netherlands	1	1	1	1	1		1	0	6	1.5
UK	9	1	2	1	1	3		0	17	4.3
China	0	0	0	0	0	0	0	0	0	0
Group Total	18	33	76	50	55	46	113	0	391	100
%	4.6	8.4	19.4	12.8	14.1	11.8	28.9	0	100	

own more subsidiaries in the U.S. than vice-versa, but the potential loss of U.S. subsidiaries in Switzerland would likely have a greater impact on Switzerland than the removal of Swiss subsidiaries from the U.S. Second, we need to consider the potential impact of the European Union. To the extent that the EU becomes a single integrated economy, it may be more appropriate to examine these bilateral headquarter-subsidiary relationships between the U.S. and Europe as a whole, rather than individual European countries.

DISCUSSION

The expanding and shifting organizational networks described above provide a productive level of analysis for understanding the way in which power is concentrated and distributed in the world-economy. These descriptive analyses clearly indicate a significant expansion of economic power of transnational corporations, in terms of both dollars and global linkages. We should be careful, though, not to overestimate the strength of these transnational corporations vis-à-vis nation-states (Wolf 2001). It could be argued, for example, that corporate revenue is not equivalent to a national gross domestic product. Further, the state still holds a monopoly on coercive power. There can be little doubt, however, that these giant firms wield a significant and increasing amount of power that is, to some extent, beyond the control of nation-states.

One question that arises from this work concerns the value of using the number of foreign subsidiaries as a measure of TNC penetration in place of the traditional aggregate indicator of foreign capital penetration: foreign direct

Table 7 – Ownership and Location of Foreign Subsidiaries of 100 Largest Industrial TNCs in 1998

	Subsidiary Location								Group	
TNC Headquarters	US	JAP	GER	SW	FR	NL	UK	CHI	Total	%
US		182	188	70	178	154	382	43	1197	31.5
Japan	619		91	13	52	40	153	63	1031	27.1
Germany	259	35		51	80	40	129	30	624	16.4
Switzerland	218	41	82		96	36	72	18	553	14.8
France	114	4	26	6		13	34	1	198	5.2
Netherlands	65	13	18	10	11		0	0	117	3.1
UK	40	3	8	5	10	6		0	72	1.9
China	0	0	0	0	0	0	0	0	0	0
Group Total	1315	278	413	155	427	289	770	155	3802	100
%	34.5	7.3	10.9	4.1	11.2	7.6	20.2	4.1	100	

investment as a percentage of GDP. There are several theoretical reasons for exploring the impact of globalization from an organizational perspective. It is, first, an effort to examine these global processes at the level of the operant actors. Foreign investment is typically controlled by individual corporations. These corporations determine the place and amount of foreign investment, the transfer of technology, access to their international markets, repatriation of profits, number of employees, etc. These TNCs also control a variety of non-equity items, such as licensing agreements. And in less developed countries, these corporations may carry significant influence on the host country's political processes. The notion that "foreign investment" is a homogeneous variable with singular effects seems increasingly less likely (Kentor and Boswell 2003). The more productive avenues of research appear to be in examining the components or structures of foreign investment. Decomposing foreign investment allows us to understand the multiplicity of effects, be they positive, negative, or benign.

There are empirical reasons to suggest that foreign subsidiaries may have significant, independent effects. Preliminary empirical analyses indicate that relatively high concentrations of foreign subsidiaries retards economic growth in less developed countries (Kentor 2002).

These TNC networks also appear to provide a useful level of analysis for examining changes in the international nation-state hierarchy, which we commonly refer to as "hegemony." The headquarter-subsidiary data presented above seems to reflect well the apex and decline of U.S. hegemony from 1970 to 2000, and the dramatic rise of Japanese and European TNC networks during this

period. It is interesting to note, though, that the expansion of Japanese TNC networks in the 1990s was not accompanied by expansion of the Japanese national economy, which has been in recession for the entire decade. This may reflect the growing independence of transnational corporations from their territorial bases or, in other words, the growing chasm between economic and coercive power. Alternatively, the answer may be found in the relationship between ownership and penetration of TNC subsidiaries. Following Ross (1996), it seems reasonable to assume that ownership of a foreign subsidiary transfers some amount of power from the host country to the TNC and, in some cases, to the country in which the TNC is headquartered. The economic and political implications of having a foreign subsidiary located within a country are less clear. Is it more beneficial for a country to have few or many foreign subsidiaries located within its borders?

In political economy terms foreign subsidiaries may result in a loss of power, or autonomy, for the host country. To the extent that an outside actor has control over the internal dynamics of the host country, it reduces that country's ability to control or direct its own economy. This loss of control may be exacerbated by the political and social ties that emerge from these economic linkages. But the impact of foreign subsidiaries may not be uniform. The impact may vary as a function of the economic and political strength of the host economy. In developed countries like the U.S., having foreign subsidiaries within its borders may be beneficial, both from economic and political vantages. These foreign subsidiaries become, to some extent, captured resources of the host country. Laws of the host country may preclude TNCs from unilateral actions that might be harmful to its economy or its work force. In less developed countries, however, the host country may not have the economic or political strength to confront TNC penetration. A related way to think about this is in terms of a balance between ownership and location. The impact of foreign subsidiaries in a host country will be most pronounced if the host country is bereft of TNCs with subsidiaries outside the host country. In countries with more of a balance between ownership and penetration, the effect may be lessened or even reversed.

The role of China also deserves mention. Many would argue that China is upwardly mobile in the world-economy, and may be an ascending hegemonic power (Frank 1998), citing China's rapid growth in market size, national income and military strength. I would suggest otherwise. These results clearly illustrate that Chinese TNC networks have little impact in the global economy. It is possible that China's mobility in the world economy may be hindered by its inability to project its national interests via these networks. The recent efforts of Chinese firms to purchase large U.S. firms such as UNOCAL may be attempts to "buy their way" into these networks.

SUMMARY

This descriptive study of transnational organizational networks provides a new vantage from which to examine the process commonly referred to as "globalization." It adds to our theoretical understanding of the ways in which power is organized and transmitted around the world. It also suggests new ways of thinking about the future distribution of power in the world-economy. Peter Taylor (1996) has written of the end of national hegemony. He argues that the world-economy is so large that a single country can no longer exert dominance over it and questions whether future hegemons may be coalitions among several countries. This may be the wrong question entirely. Global dominance may no longer be within the domain of nation-states at all. The locus of power in the world-economy may be shifting to transnational organizations. The implications of such a shift are profound. John Markoff (1996) examines the impact of this redistribution of power on democracy. He argues that, to the extent transnational corporations increasingly "make the rules," democracy is threatened. When nations make laws, there are political mechanisms by which these laws can be challenged. There are no such mechanisms for challenging the "laws" made by transnational corporations.

As noted above, this is a descriptive study of the growth of transnational corporate power, a necessary first step in exploring the expansion of transnational corporate power over time. An obvious extension would be to expand this study to the Global 500. This would provide a more complete picture of foreign subsidiary penetration as well as changes in the sectoral distribution of these subsidiaries. These data would also provide a more comprehensive measure of the international nation-state hierarchy. A variety of causal analyses can be generated from these data as well, such as the impact of foreign subsidiaries on economic growth and inequality. Network analyses of these data could also tell us much about changes in the global economy over time, in terms of centrality, density, cliques, and other network measures. Finally, these studies could profitably be merged with other aspects of transnational corporate networks, such as interlocking directorates.

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ERRATA

January 12, 2006: Tables 6 and 7 were found to have the same data. Table 7 was repaired to contain the correct data. No effect on pagination.