

Globalization and Deindustrialization: Direct Investment and the Decline of  
Manufacturing Employment in 17 OECD Nations\*

by

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**Abstract**

Recent years have witnessed a fairly dramatic upswing in the level of foreign direct investment, a phenomenon which has played an integral part in a larger process of globalization. While sociologists have devoted a good deal of attention to the consequences of direct investment for the developing hosts of foreign direct investment, much less attention has been paid to the implications of direct investment for the advanced industrial societies. In this paper, I focus on one of the more interesting links that has been drawn between direct investment and its effects: that between the outflow of direct investment - often cast as "capital flight" - and deindustrialization. To examine this link I employ a pooled time-series of cross-sections dataset which combines observations on 17 OECD nations across the 1967-1990 period (N=408). Random effects regression models, which control for unmeasured country-specific effects, reveal strong support for arguments which link direct investment to the relative decline of the labor force in manufacturing in core societies. In addition, results show that deindustrialization across this period is largely explained by a model that combines classic generalizations of the process of economic development with an attention to a range of more immediate factors identified by contemporary students of deindustrialization.

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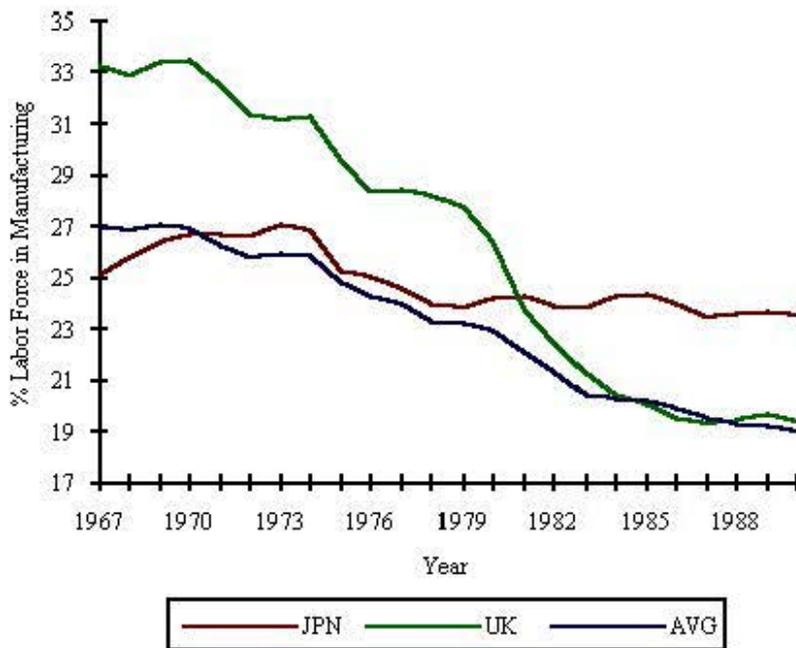
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## INTRODUCTION

Recent years have witnessed a fairly substantial upswing in the level of direct investment.<sup>1</sup> Following the global recession of the early 1980s (and a consequent downturn in direct investment), total outflows from seventeen OECD nations grew from 27 billion US dollars in 1982 to over 219 billion by 1990.<sup>2</sup> The average annual rate of growth between 1982 and 1990 was roughly 31 percent. This contrasts with an earlier period of slower, yet still impressive, growth in the outflow of direct investment from the OECD nations. Following the global recession of the early 1970s, for instance, outflows of direct investment from these same seventeen nations grew from 21 billion US dollars in 1974 to 53 billion by 1980, at an average annual rate of about 17 percent.

The growth of direct investment has played an integral part in a larger process of globalization or internationalization, a process which has captured the attention of analysts of diverse perspective and discipline (e.g. Ietto-Gillies, 1992; Robertson, 1992; King, 1991; Featherstone, 1990; Giddens, 1990; Albrow and King, 1990; Chase-Dunn, 1989; Harvey, 1989; Lash and Urry, 1987). This interest has been fueled by the sense that the most recent round of globalization, which finds its origins - according to a variety of authors - in the late 1960s, has exhibited a number of unique features and raised a number of profound questions, questions concerning everything from the representation of identity to the sovereignty of the nation-state. Although "globalization" (as noun) only emerged as a significant concept in academic circles a decade or so ago, it has become in that short period of time a subject of intense scholarly and public interest (Robertson, 1992: 8).

While sociologists have devoted a great deal of attention to the consequences of foreign direct investment for the periphery (e.g. Bornschier and Chase-Dunn, 1985; London, 1988; Boswell and Dixon, 1990; Wimberly, 1990), they have devoted much less empirical attention to often voiced concerns over the impact of the growth of direct investment on core societies. One such concern surrounds the impact of the heightened geographic mobility of capital on traditionally high-wage manufacturing employment. Across the 1970s and 1980s, all of the major industrial nations experienced a decline in the relative size of their manufacturing labor forces. At one extreme stand nations such as the UK, which moving into the 1970s had over 33 percent of its labor force in manufacturing and saw this decline to under 20 percent by 1990. At the other stands Japan, which saw its manufacturing labor force decline by only 3 percent since the early 1970s. On average, the share of manufacturing employment in the seventeen OECD nations noted above declined from 27 percent in 1967 to 19 percent by 1990 (**Figure 1**). "Deindustrialization" has thus been general, if not uniform, across the core in the last twenty-five years.<sup>3</sup>



**Figure 1.** Employment share of manufacturing, 1967-1990. Percent labor force in manufacturing in the UK and Japan and the average size of the manufacturing labor force in 17 OECD nations.

*Sources:* OECD *Labour Force Statistics, 1967-1987* (1989) and *Labour Force Statistics, 1973-1993* (1995).

While the authors of what Gordon (1988) has termed the "New International Division of Labor" (NIDL) and "Globalization of Production" (GOP) accounts of the contemporary world-economy have offered a variety of arguments for the existence of a link between globalization and core deindustrialization, such arguments have by and large not been followed up by systematic empirical research.<sup>4</sup> This is unfortunate, for while interest in the topic of deindustrialization has perhaps waned to some degree of late, the trend toward deindustrialization, while slowing, has nonetheless continued down to the present. In this paper I present results from a larger-scale exploration of this issue. Specifically, I examine the link between the growth of outflows of direct investment (often framed in this context as "capital flight") and deindustrialization. The question that I ask at this point is rather concrete; namely, is there indeed evidence for the claim that the growth of direct investment has played a significant role in deindustrialization?

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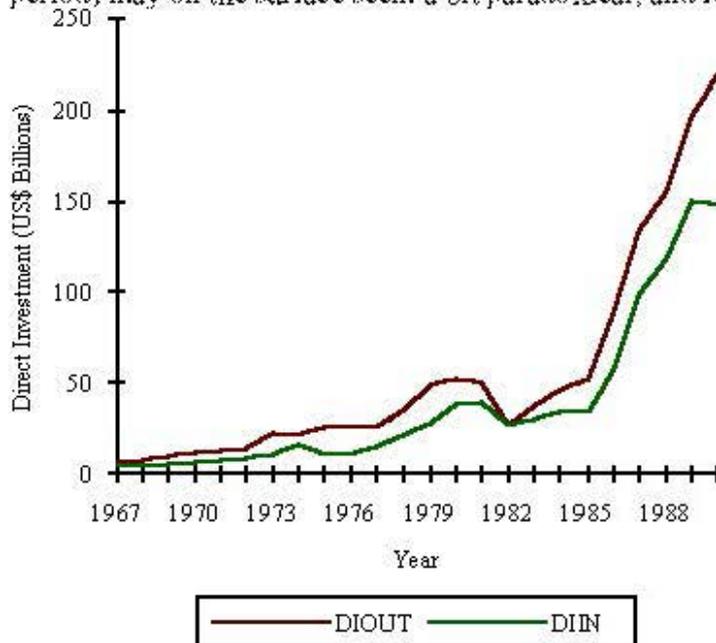
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Before turning to the issue of deindustrialization directly, I discuss the growth of direct investment and its changing spatial patterning. I introduce the "direct investment-deindustrialization thesis" (hereafter DDT) and touch on a couple of the more problematic issues raised by the popular statements of it. A simple "baseline" model of deindustrialization is developed to provide a background against which to test the DDT and a range of alternative accounts of the link between direct investment and deindustrialization are also introduced. Finally, results of a pooled time-series of cross-sections analysis of the percent labor force in manufacturing in 17 OECD nations from 1967-1990 are presented. In anticipation of the results, I find strong support for arguments which link deindustrialization to the growth of direct investment.

### DIRECT INVESTMENT: TRENDS AND PATTERNS

Data on total inflows and outflows of direct investment (hereafter DI) for the 17 OECD nations noted above are presented in **Figure 2**. In addition to noting the steep growth in outflows of DI following the recession of the early eighties, one can also note the parallel growth in inflows across the same period. The share of inflows going to the developing world decreased from an annual average of approximately 24 percent in 1975-1979 to about 14 percent in the 1985-1989 period, making the developed world even more important as both home and host to direct investment (Oxelheim, 1993). The rising share of direct investment flowing into the industrial nations relative to the developing nations (on average over 95% of this flowing from other industrial societies across the 1967-1990 period) may on the surface seem a bit paradoxical, and for a variety of reasons.<sup>2</sup>



**Figure 2.** Total outflow (DIOUT) and inflow (DIIN) of direct investment from 17 OECD nations, 1967-1990.

*Source:* IMF *Balance of Payments Statistics Yearbook* (various years)

For the sociologist of international development, whose papers are usually heavily weighted down with citations to a literature stressing the central, and often negative, role of the multinational enterprise (hereafter MNE) in everything from economic growth to the demographic transition in the developing world, it may come as something of a surprise that the relative importance of the developing world for core MNEs **has been declining over time**.<sup>6</sup> It is important to note, however, that this shift in the global distribution of DI that occurred across the 1970s and 1980s is part of a longer-term process (Dunning, 1988; Magdoff, 1992). While estimates of the stock of accumulated foreign direct investment in earlier periods must be approached with a degree of caution, **Table 1** indicates that the developing world's share of DI has been generally declining across the twentieth century.

**Table 1. Estimated stock of accumulated direct investment by area of origin and recipient area, 1914-1983**

Year	Developed countries (% originating in)	Developed countries (% hosted by)	Developing countries (% originating in)	Developing countries (% hosted by)
1914	100.0	37.2	0.0	62.8
1938	100.0	34.3	0.0	65.7
1960	99.0	67.3	1.1	32.3
1973	97.1	72.9	2.9	27.1
1983	97.4	75.5	2.6	24.5

*Source:* Dunning, 1988.

Lying behind this shift away from the developing world has been a shift in the sectoral composition of direct investment across the twentieth century. The bulk of DI before the Second World War was devoted primarily to agriculture and raw materials. Following the Second World War there was a shift toward manufacturing DI, a form of DI which has always been disproportionately sited in the developed world (Dunning, 1988). Since the 1960s, manufacturing has become the dominant sector for DI. It is important to note, however, that the 1980s have witnessed a significant increase in DI in services, particularly finance and trade related services (UNCTC, 1988). Rather than representing a displacement of manufacturing DI, though, the increased transnationalization of services "has led to increased [DI] in both manufacturing and services" (Letto-Gillies, 1992: 26); that is, it has further facilitated the servicing of foreign markets by manufacturing MNEs. Service sector DI, as with manufacturing DI, has tended to be disproportionately sited in developed societies.

In addition to these changes in the global distribution and sectoral composition of direct investment across the twentieth century, there have been major changes in the lineup of actors on the international investment scene. Before the Second World War, Britain was by far the largest direct investor. It is estimated, for instance, that it held roughly 46% of the world's accumulated stock of DI in 1914 (Dunning, 1988: 46). Following WWII, the US quickly rose to a position of dominance and had by 1960 attained the sort of hegemonic position which Britain had enjoyed in the decades surrounding the turn of the twentieth century, holding 48% of the world's stock of DI. In the last two decades or so, the situation has become much more diverse. Britain remains an important home and host to DI. Most of the other industrial societies have experienced an increase in their relative share of total world outflows of DI, notably Japan, France, Germany, and Sweden (OECD, 1987; UNCTC, 1988). Most of this increase came at the "expense" of the US's position as it experienced a simultaneous increase in inflows and decrease in outflows, becoming a net DI importer in 1981 and remaining one thereafter. Table 2 gives one a sense of the situation that currently prevails in the industrialized world relative to an earlier period of American hegemony. As one can note, the US's share of the total DI flowing out of the 17 nations compared in **Table 2** decreased rather substantially over the period from 1967-1990 while its share of the total DI inflows to these same nations increased markedly. Thus outflows of DI from the major investing nations become more evenly distributed while inflows have become skewed toward the US.

**Table 2. Share of total inflow and outflow of direct investment in 17 OECD nations, 1967-1972 and 1985-1990**

	Inflow (%)		Outflow (%)	
	1967-1972	1985-1990	1967-1972	1985-1990
Australia	12.88	5.10	0.87	2.26
Austria	0.96	0.55	0.17	0.44
Belgium	4.99	4.01	0.98	2.55
Canada	10.85	2.85	2.44	3.49
Denmark	1.58	0.52	0.39	0.69
Finland	0.32	0.45	0.32	1.37
France	6.98	7.06	3.50	10.10
Germany	14.54	4.07	7.82	10.01
Ireland	0.34	0.08	0.00	0.00
Italy	7.22	3.37	2.34	2.62
Japan	1.73	0.36	3.09	19.65
Netherlands	7.10	5.33	4.39	6.15
Norway	1.23	0.57	0.11	0.89
New Zealand	0.43	0.73	0.02	0.47
Sweden	1.62	1.14	1.62	4.83

Great Britain	12.68	17.26	12.22	17.70
United States	14.54	46.56	59.70	16.78
Total	100.00	100.00	100.00	100.00

Values are averages for the period.

*Source:* IMF *Balance of Payments Statistics Yearbook* (various years).

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Weighting the flows to and from the individual nations in Table 2 by gross domestic fixed capital formation (GDFCF) gives one a sense of the relative importance of direct investment for their economies.<sup>7</sup> Once normalized, a somewhat different picture emerges. Column five in **Table 3** combines inflows and outflows as a percentage of GDFCF and averages these over the 1967-1972 period. The point of combining inflows and outflows is to get a general picture of the importance of international production for any given society. As one can note, although the US was host to 15% and home to 60% of the DI flowing into or out of the 17 nations under consideration in 1967-1972 (Table 2), this amounted to a comparatively modest proportion of US domestic fixed investment activity, roughly 5%. Indeed, relative to the size of their economies, DI was more important for Australia, Belgium, Canada, Holland, and the UK than it was for the US. Column 5 is disaggregated in columns 1 and 3. Here we see that only the Dutch and the British were proportionally larger exporters or homes to DI than the US; the Australians, Belgians, and Canadians being net importers of DI. Column 6 combines inflows and outflows over the 1985-1990 period. When compared with column 5, the most striking fact that emerges here is the substantial and often dramatic increase in the importance of international production for all of the nations under consideration save one (Ireland). DI inflow and outflow is now equivalent to over 5% of GDFCF in 13 of the 17 nations considered in this period, and equivalent to 10% or more in 7 of these 13. Britain, Holland, and Belgium again appear to be particularly heavily involved in international production, DI now being equivalent to nearly a third of GDFCF. Column 6 is disaggregated in columns 2 and 4. Comparing columns 2 and 4 to columns 1 and 3, one can note that while only Finland, Japan, the Netherlands, Sweden, Britain, and the US were net exporters of DI in the earlier period, the majority are in the later period. In addition to the US, whose somewhat peculiar behavior was noted above, only Australia, Austria, Belgium, Ireland, and New Zealand remain net importers. But even these nations, with the exception of Ireland, have seen substantial growth in their outflow of DI.

**Table 3. Inflow and outflow of direct investment in 17 OECD nations as a percentage of gross domestic fixed capital formation, 1967-1972 and 1985-1990**

	Inflow/GDFCF		Outflow/GDFCF		Inflow+Outflow/GDFCF	
	1967-1972	1985-1990	1967-1972	1985-1990	1967-1972	1985-1990
Australia	8.31	8.83	0.95	5.92	9.26	14.75
Austria	1.54	1.97	0.42	1.94	1.96	3.91
Belgium	5.73	14.52	1.77	12.98	7.50	27.50
Canada	3.81	2.58	1.40	5.23	5.21	7.81
Denmark	2.52	2.66	0.91	5.11	3.43	7.77
Finland	0.69	1.75	1.18	7.13	1.87	8.88
France	1.25	3.71	1.08	6.95	2.33	10.66
Germany	2.07	1.81	1.83	6.24	3.90	8.05
Ireland	2.71	1.63	0.0	0.0	2.71	1.63
Italy	2.11	2.01	1.22	2.32	3.33	4.33
Japan	0.16	0.07	0.45	3.54	0.61	3.61
Netherlands	5.33	11.29	5.61	18.49	10.94	29.78
Norway	2.49	2.39	0.38	6.41	2.87	8.80
New Zealand	1.51	9.16	0.13	8.14	1.64	17.30
Sweden	1.45	3.24	2.29	18.32	3.74	21.56
Great Britain	3.37	11.69	5.46	18.48	8.83	30.17
United States	0.59	5.44	3.97	2.74	4.56	8.18

Values are averages for the period.

**Sources:** IMF *Balance of Payments Statistics Yearbook* (various years); IMF *International Financial Statistics* (1979, 1989); World Bank *World Tables* (1994).

There are, then, a number of longer and shorter-term patterns and trends which come together to make the contemporary period both interesting and unique. Direct investment is of growing importance for almost all of the developed societies. Most DI originates in the developed world and an increasingly large proportion of it is sited there as well. In terms of its sectoral composition, most DI in the contemporary period is directed toward the manufacturing sector, but in recent years a growing proportion has been directed toward services. Most of the industrial societies have moved over the past two decades to become net exporters of DI, while the US has moved to become a net importer, receiving nearly half of the DI flowing into the 17 nations in Table 2 over the 1985-1990 period. All of these factors point, as the NIDL and GOP accounts of the contemporary world-economy have stressed, to the increasing importance of the MNE and its activities for core societies.

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## THE DIRECT INVESTMENT-DEINDUSTRIALIZATION THESIS

The idea that direct investment has contributed in an important way to the phenomenon of deindustrialization is, at least in the English-speaking world, a fairly general one.<sup>8</sup> In two widely cited pieces, for instance, Bluestone and Harrison have set out one of the more popular versions of this argument (Bluestone and Harrison, 1982; Harrison and Bluestone, 1988). They argue that DI in the contemporary era is being undertaken as part of a "globalization gambit." This move constitutes an integral part of a new set of corporate strategies designed to abrogate the old post-war social contract between capital, labor, and the state and, in doing so, to restore acceptable levels of profitability in response to the "profit squeeze" of the 1970s. The result of this strategy, they argue is a kind of hollowing of the economy. By hollowing, they mean in part that DI is no longer being undertaken by firms in an effort to complement domestic investment and production, but to replace it. As firm after firm in the manufacturing sector has gone abroad in search of lower labor costs, the end result of the growth of DI in the last two decades has been deindustrialization. While careful to note that DI is not the sole cause of deindustrialization, they nonetheless maintain that it is "certainly a major reason that the United States lost a significant fraction of its manufacturing base" (1988: 29).

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While Bluestone and Harrison focus most intently on the US, other studies paint a similar picture of the role of MNEs and DI in deindustrialization in other core societies. Stopford and Turner (1985), for instance, show that roughly a third of all manufacturing jobs lost in the UK between 1972 and 1983 were the result of the actions of 58 UK multinationals (who added 200,000 such jobs outside Britain across the same period). This echoes the data presented by Bluestone and Harrison for the US and the earlier research of Frank and Freeman (1978) which links substantial domestic manufacturing job losses to DI by US multinationals. More broadly, Beenstock (1984) and UNIDO (1983) have, among others, attributed a significant portion of the general North to South reallocation of manufacturing production and trade to the direct investment activity of core MNEs.

While the above treatment of Bluestone and Harrison's argument represents a bare bones statement of the popular version of the DIDT, it is an accurate one. The preceding discussion raises a number of questions regarding such arguments. For one, the image of "globalization" that Bluestone and Harrison have in mind is first and foremost one of North to South capital flight in which direct investment decisions are guided in largest part by simple labor cost differentials. As I have already indicated, this is an inaccurate picture of the contemporary pattern of DI.<sup>9</sup> Most DI flows between nations with roughly

comparable labor market conditions in which labor cost differentials are relatively minor (e.g. the US and Germany). While the spatial reorganization of manufacturing along a north-south axis is a real phenomenon - witness, famously, the *malquiladoras* along the U.S. border with Mexico - this simply does not represent the *general* pattern of DI in the last two decades or so. Moreover, there may be other avenues through which DI might prompt deindustrialization (discussed below). However, the North to South capital flight image is so strong in popular statements of the DIDT that these more subtle mechanisms are sometimes overlooked.

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Moving away from the issue of direct investment, the DIDT, as usually stated, also largely neglects to account for the fact, as Singh (1977) has noted, that "deindustrialization" (or, at least, the relative decline of industrial employment) had long been anticipated by social scientists. Much as the Industrial Revolution initiated a movement of labor out of the primary sector and into the secondary sector, social scientists had, well before Daniel Bell (1973), predicted developments which would yield the future "coming of post-industrial society." For instance, Colin Clark in his The Conditions of Economic Progress (originally published in 1940) laid out an early version of the shift from manufacturing to services argument that roots this phenomenon in two processes (1960: 493-494, emphasis in original): first, with economic development, "as real income per head increases, it is quite clear that the *relative* demand for agricultural products falls all the time, and that the relative demand for manufacture first rises, and then falls in favor of services;" second, given higher relative productivity in the industrial sector, "a *stationary* relative demand for manufactures would lead to a *decreasing* proportion of the labor force employed therein." And, as Clark goes on to add (1960: 494), "even when the relative demand for manufactures is increasing, we still generally expect, in the long run, a decreasing proportion of the labor force to be employed therein." Thus as productivity grows and as the industrial economies mature, one should expect that in the "normal" course of economic development secondary sector employment will contract while the tertiary sector will expand in the face of rising demand for services.<sup>10</sup>

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For an empirical analysis of the direct investment-deindustrialization thesis, these criticisms raise two major issues. First, the mechanism through which DI is often held to produce deindustrialization (i.e. North to South capital flight) is more problematic than it might appear at first glance. As the data on DI indicate, the vast majority of all DI flows occur between core societies. While this does not invalidate the DIDT, it does suggest

that a reasoned interpretation of any observed effect of DI on deindustrialization will require some (careful) *post hoc* theorizing and analysis. Second, when testing for an effect of DI on deindustrialization, one should also be attentive to the important long-run generalizations offered by earlier analysts.

## A MODEL OF DEINDUSTRIALIZATION

As background against which to test the DIDT, I employ the framework developed by Rowthorn and Wells (1987). For Rowthorn and Wells deindustrialization (as the relative decline of manufacturing employment) can occur in at least three ways. First there is the "positive deindustrialization" that was noted by earlier analysts such as Clark (1960) and which represents much of conventional economic thinking on deindustrialization (see, for instance, Singh, 1989). Here deindustrialization is viewed as a structural feature of all economies during the course of economic development. With development, as per capita income increases, the share of employment in agriculture falls and the share of employment in manufacturing rises until a high level of development is attained. However, beyond some threshold of per capita income the share of services in employment begins to expand at the expense of manufacturing. This will occur as a consequence of the typically higher rate of productivity growth in the manufacturing sector relative to the service sector and of the systematic changes in consumption patterns that occur over the course of development (specifically, differences in the income elasticity of demand across sectors). Such deindustrialization is "positive" because it is viewed, not as a pathological phenomenon, but as a symptom of economic success. And labor shed in the course of positive deindustrialization is viewed as being more or less quickly absorbed by the growing service sector.

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"Negative deindustrialization" is the second form of deindustrialization that is posited by Rowthorn and Wells (1987). Here deindustrialization is the result of a pathological phenomenon, a structural disequilibrium in the economy, which prevents a nation from reaching its growth potential or a full employment of its resources. It manifests itself in poor performance in the manufacturing sector and is accompanied by a slow-down in manufacturing output and productivity. This leads to poor performance for the economy generally and a decline in competitiveness (in a cumulative vicious circle). The labor shed by negative deindustrialization is, given the general state of the economy, not absorbed by the service sector. Thus where positive deindustrialization is associated with rising real incomes and full employment, negative deindustrialization is associated with stagnating real incomes and rising unemployment. The appreciation of currencies (as in the UK in the late 1970s and the US in the early 1980s), high labor costs, poor product quality, and the failure or inability of firms to respond to changing market conditions have all been identified as factors in the "decline of competitiveness" experienced by a number of core societies in the past two decades or so (Ferguson and Ferguson, 1994).

Finally, shifting focus from the domestic to the international economy, Rowthorn and Wells (1987) argue for the existence of "trade-related deindustrialization." Trade is seen as affecting manufacturing employment through macroeconomic channels and through its influence on specialization. First, in contrast to many discussions in the NIDL and GOP literatures of the effect of international trade on manufacturing employment in the core, Rowthorn and Wells stress that in a mature economy deindustrialization may be associated with *either* strong or weak trade performance. Where manufacturing trade balances are positive and large, and the strength of the manufacturing sector contributes to sustained economic growth in the economy at large, the manufacturing sector may begin to shed labor (via positive deindustrialization) at a higher rate than it would in the absence of trade. Where manufacturing trade positions are deteriorating, and investment in manufacturing falls as a result, the manufacturing sector may begin to shed labor (via negative deindustrialization) into a stagnating economy in which it is not absorbed by the service sector. Underlying these potential macroeconomic effects of trade on the relative size of the manufacturing labor force are the structural effects. Quite simply, nations that run manufacturing trade surpluses will, all else being equal, devote more resources and labor to this sector than will nations that run deficits. Trade may thus lead to further specialization in manufacturing among successful nations, and accelerate the move away from specialization in manufacturing among unsuccessful nations.

These differing forms of deindustrialization can be understood to operate concurrently; that is, the deindustrialization experienced by any given nation need not be the exclusive result of any one "form" of deindustrialization. Indeed, it is probably most likely that the deindustrialization experienced in core societies has been in part the result of a mix of "positive" and "negative" factors - continued (slow) growth in real per capita incomes coupled with weak manufacturing performance - that has varied across time and place. In testing for a link between DI and deindustrialization, I will thus simultaneously control for these alternative sources of deindustrialization and employ as a baseline the simple model suggested by Rowthorn and Wells (1987: 31):

$$PCTMAN = f(LRGDP, LUNEMP, NMX)$$

where PCTMAN is the percent labor force in manufacturing, LRGDP is the logarithm (base 10) of real gross domestic product per capita, LUNEMP is the logarithm (base 10) of the unemployment rate, and NMX is net manufacturing exports as a percentage of GDP. LRGDP is employed to capture positive deindustrialization. A curvilinear, inverted U-shaped relationship is expected, as the share of employment in manufacturing should

first rise and then, after a certain point, start to fall. This relationship will be approximated as a second-degree polynomial of gross domestic product per capita. LUNEMP is employed to capture negative deindustrialization and a negative relationship with PCTMAN is expected. Finally, NMX is employed as an indicator of trade-related deindustrialization. As both positive and negative deindustrialization are already controlled for, a positive relationship is expected. NMX in this instance is viewed as primarily tapping into the structural or specialization effects of trade.

### **The direct investment-deindustrialization thesis revisited**

In the empirical analysis that follows, I examine the effects of the *total* outflow of DI on the employment share of manufacturing. The criticism voiced above regarding the tendency of proponents of the DIDT to overstate the magnitude of North to South capital flight in their characterization of DI suggests that, in this context, reasoning such as Harrison and Bluestone's must necessarily be supplemented with some more general account of the relationship between direct investment and deindustrialization.<sup>11</sup> A range of alternatives have been developed (e.g. Hymer, 1979; Cowling, 1986; Tanaka, 1991; Ietto-Gillies, 1992). These suggest that, beyond the direct labor-displacing effects of foreign investment stressed in the NIDL and GOP literatures, direct investment may have a range of (dynamically evolving) indirect effects on the relative size of the manufacturing labor force.

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First, outflows of DI may over time move a nation's economy into what Rowthorn and Wells term, by analogy to the more familiar "debt trap" from development economics, the "wealth trap." By this they mean "the *automatic* process by which a country which is intrinsically a capital exporter may become a rentier nation." (1987: 353, emphasis in original). In short, what starts out on the national accounting ledger as an outflow (i.e. the direct investment) may effectively turn into a real inflow as profits from abroad outrun outflows of foreign investment. Ietto-Gillies has built on this insight and argues that the end result of this process is that (1992: 185):

[nations] with a long tradition of outward foreign investment are likely to experience overall net 'positive' effects on the balance of payments. These may cause a rise in the exchange rate; in a situation in which the economy cannot - or is not allowed to by monetary and fiscal policies - expand to meet the extra demand generated by the inflow of incomes, the overall long-term effect will be a weakening of the manufacturing sector with loss of jobs and 'negative' deindustrialization.

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Thus for nations such as the UK and US - nations with a long experience with outward direct investment - DI may not only lead directly to the displacement of manufacturing labor, but lead also to their "living on their past" in such a fashion as to prompt a deterioration of their manufacturing sectors. If profits from abroad grow at a faster rate than the domestic economy - an entirely conceivable phenomenon - the investing economy may, given that such profits will eventually translate into incomes, begin to import more manufactured goods and experience a rise in the exchange rate of its currency leading to a deterioration of its manufacturing trade position and, ultimately, its manufacturing sector. As has been argued in regards to other aspects of British and American hegemony (e.g. Chirot, 1986), there may be long-term "costs of dominance" in this realm as well.

In addition to the "wealth trap" posited by Rowthorn and Wells, Ietto-Gillies (1992) argues that DI may also contribute to deindustrialization by lowering the rate of domestic capital formation. MNEs typically enjoy higher rates of return on investment than do comparable domestic firms. Where the activities of such firms are substantial, this should tend to increase the required marginal rate of return on domestic investment and influence investment decisions accordingly. This will place a nation in a disadvantaged position relative to nations which are less dominated by the activities of MNEs. All of this may contribute to a cumulative vicious circle resulting in deindustrialization. Furthermore, Ietto-Gillies adds that (1992: 188):

Global scanning combined with electronic technology in communications and ease of movements of funds across frontiers by [MNEs] may have contributed to raising the rate of return on purely financial investment. This will have raised the marginal rate of return required on real capital formation. Similarly, high rates of return on the services sector (particularly the financial services) may have raised the marginal rate of return on [manufacturing sector investments].

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Direct investment, then, may in this vein contribute to deindustrialization through a number of intimately intertwined mechanisms. DI may raise the required marginal rate of return on domestic investment, shift investment from manufacturing to services, and reorient investment away from real investments toward financial investments.

While these arguments regarding the "wealth trap" and the effects of DI on capital formation remain speculative, when combined with an attention to the direct labor-displacing effects of DI stressed in the NIDL and GOP literatures, they do provide a rough framework for the interpretation of any observed effect of the total outflow of DI

on the employment share of manufacturing. All argue for a negative relationship and each highlights a distinct moment in a nation's history of direct investment. In the short term there is the hollowing effect posited by analysts such as Harrison and Bluestone. Over a longer term there are the effects of DI on the rate and character of capital formation traced out by Ietto-Gillies. Finally, given a sufficient history of DI, there is the possibility of Rowthorn and Well's "wealth trap." While it is not my aim in this paper to develop a synthetic theory of the relationship between DI and deindustrialization, I would maintain that any observed effect of DI can reasonably be interpreted in light of these mechanisms.

## DATA AND METHODS

Data on the dependent variable, Percent labor force in manufacturing (PCTMAN), are drawn primarily from the OECD's Labour Force Statistics, 1967-1987 and Labour Force Statistics, 1973-1993 (OECD, 1989; 1995). Cases not covered in this source (i.e. Netherlands, 1967-1974) are coded with data drawn from the U.S. Bureau of Labor Statistics (BLS, 1993).

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Real gross domestic product per capita (LRGDP) is measured in US dollars. Values for 1967 through 1985 come from Summers and Heston (1988). Indices of real gross domestic product per capita published by the World Bank are used to extend the Summers and Heston data to 1990.

Data on the unemployment rate (LUNEMP) are drawn from the OECD's Labour Force Statistics, 1967-1987 and Labour Force Statistics, 1973-1993 (OECD, 1989; 1995). To the degree possible, I use data that are standardized by the OECD methodology.

Net manufactured exports as a percentage of GDP (NMX) is measured as exports minus imports measured in current US dollars. Data are drawn from the World Bank's World Tables (various years). Current GDP in US dollars is drawn from the OECD's National Accounts (various years).

Data on outflow and inflow of direct investment as a percentage of GDP (LDIO, LDII) are drawn from the IMF's Balance of Payments Statistics Yearbook (IMF, various years). Current GDP in US dollars is drawn from the OECD's National Accounts (various years). As direct investment is the variable of greatest interest in the analysis, there are a few features of these data that are worth noting. "Direct investment" is defined by the IMF (1977: 136) as "investment that is made to acquire a lasting interest in an enterprise in an economy other than that of the investor, the investor's purpose being to have an effective voice in the management of the enterprise." The key element of this definition - that which distinguishes direct investment from portfolio investment - is its requirement of "management interest" or control. Control is operationalized in terms of a certain level of

ownership. So a foreign investment which resulted, for instance, in one per cent ownership of the voting stock of a domestic firm would typically be classified as portfolio investment, while a foreign investment which resulted in forty per cent ownership would be classified as direct investment. In practice, the ownership threshold is set much lower than forty per cent. As the IMF (1977: 138) notes, this is done in the "recognition of the fact that - especially for large corporations of the type that are likely to engage in multinational operations - a small, organized group of stockholders may well have an influence in management that is much more than proportionate to its share in the equity capital."

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Nations differ, however, in the ownership thresholds (beyond which portfolio investment becomes direct investment) that they apply to international flows of investment.<sup>12</sup> This, of course, raises the issue of comparability - an issue, surprisingly enough, which has tended to receive less attention than it deserves in prior research on foreign direct investment. On this subject, however, the IMF's advice is instructive. The IMF suggests that, while the problem of differing definitions should not be ignored, "borderline" cases of foreign investment - cases in which the minimum thresholds become important - constitute a relatively small proportion of the total universe of direct investment since most direct investment enterprises are either wholly or majority owned.<sup>13</sup> Nations also differ in their reporting of DI data in a number of more idiosyncratic ways. While, for instance, the benchmark IMF and OECD definitions argue for the inclusion of reinvested earnings in DI flow data, nations such as Belgium and France exclude them.<sup>14</sup> As the pooled time-series of cross-sections methodology that I employ (see below) enables one to control for unspecified time-invariant country-specific factors, these features of national data collection and reporting systems will be implicitly controlled.

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Finally, in all of the models that I will estimate, I include two period indicators (1974-81 and 1982-90, with the 1967-1973 period as the baseline) to capture time-specific effects. These indicators trace, respectively, the period from the trough of the 1973-74 global recession to the peak of late 1970s expansion and the period from the trough of the 1981 - 82 global recession to the end date of 1990.

### **Pooled time-series of cross-sections methods**

The dataset contains 408 observations; 24 observations (1967 -1990) on each of 17 nations. In analyzing this dataset, I employ an estimation procedure that is designed

specifically to address the heterogeneity bias - the confounding effect of unmeasured time-invariant country-specific variables - that is likely to plague the more familiar ordinary least squares (OLS) procedure in the context of the pooled time-series of cross-sections dataset that I employ (see Hsiao, 1986; Greene, 1990). Heterogeneity bias can seriously affect OLS coefficient estimates, making OLS an inappropriate estimation technique. The fixed effects (FEM) and random effects (REM) models are two commonly used estimation strategies designed to correct for unmeasured time-invariant factors.

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These techniques basically differ from each other in the fashion in which they treat the intercept and the disturbance term. FEM, like OLS, assumes the classical disturbance term but differs in its treatment of the intercept. Where, under OLS, all countries are constrained to the same intercept, under FEM, indicator variables are introduced for each country and act as country specific intercepts. By doing so one "simulates" unmeasured time-invariant country-specific effects and thus resolves the problem of heterogeneity bias. The FEM takes the following general form:

$$y_{it} = \alpha_0 + \alpha_i + \beta'x_{it} + \varepsilon_{it}$$

where the subscript  $i$  denotes the country and  $t$  the time point of observation. In this equation,  $\alpha_0$  represents the general intercept,  $\alpha_i$  the country specific intercept, and  $\varepsilon_{it}$  is the classical disturbance term (with  $E_{\varepsilon_{it}} = 0$  and  $\text{Var}_{\varepsilon_{it}} = \sigma^2$ ). REM differs from OLS mainly in the fashion in which it treats the disturbance term. The REM takes the following general form:

$$y_{it} = \alpha + \beta'x_{it} + u_i + \varepsilon_{it}$$

Thus rather than treat country specific intercepts as fixed effects to be estimated, as under FEM, the REM treats them as a random component of the error term. Compared to OLS, the REM involves the estimation of an additional component of the error variance:  $u_i$  (country specific).

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It can be shown that FEM is equivalent to applying OLS to data transformed by subtracting the country-specific means from the data, while the equivalent REM transformation involves subtracting only a portion of the country-specific means (Rosenfeld and Nielsen, 1984; Hsiao 1986). For methodological reasons, I present the REM estimates of the regression models. While I estimated both REM and FEM models, Hausman's (1978; see also Green, 1990) chi-square test of REM versus FEM uniformly favored REM.<sup>15</sup>

Analysis of outliers and influential cases was performed using the various diagnostics available in the SYSTAT and SYGRAPH statistical programs (Belsley, Kuh, and Welsch, 1980; Bollen and Jackman, 1985; Wilkinson 1990a, 1990b). These revealed the presence of a number of outliers. Their exclusion, however, had no dramatic effect. Standard errors were lowered and the significance levels of the various coefficients (and  $R^2$ s) were consequently raised, but the exclusion of outliers had no substantive impact. For this reason, I include all 408 observations. I estimated the REM models with the LIMDEP statistical program (Greene, 1992).

## RESULTS

Correlations and basic statistics are presented in Table 4. The regression results are presented in Table 5. In all models in Table 5, period indicators (1974-1982, 1982-1990) are employed as explicit controls for unmeasured time-specific effects. Models 1, 2 and 3 in Table 5 present results for the three variables that form the "baseline" model discussed above. Model 4 presents results for the measure of direct investment outflow. Model 5 combines all of these variables and Model 6 introduces direct investment inflow as an additional check on the stability of the results.

**Table 4. Correlations and basic statistics for variables in the analysis (N=408)**

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) PCTMAN	1.000							
(2) LRGDP	-0.311	1.000						
(3) LUNEMP	-0.604	0.218	1.000					
(4) NMX	0.441	0.118	0.091	1.000				
(5) LDIO	-0.250	0.456	0.211	0.089	1.000			
(6) LDII	-0.208	0.009	0.132	-0.307	0.364	1.000		
(7) 1974-1981	0.098	-0.002	-0.035	0.000	-0.164	-0.054	1.000	
(8) 1982-1990	-0.520	0.484	0.507	0.060	0.422	0.109	-0.548	1.000
Minimum	14.039	3.499	0.041	-18.454	0.252	0.025	0.000	0.000
Maximum	38.442	4.138	1.270	11.231	0.934	0.819	1.000	1.000
Mean	23.162	3.911	0.722	-1.154	0.427	0.420	0.333	0.375
SD	4.822	0.116	0.256	6.739	0.120	0.190	0.472	0.485

### Variables:

PCTMAN	Percent labor force in manufacturing
LRGDP	Real gross domestic product per capita (log base 10)
LUNEMP	Unemployment rate (log base 10)
NMX	Net manufactured exports as percentage of GDP
LDIO	Outflow of direct investment as percentage of GDP (log base 10)
LDII	Inflow of direct investment as percentage of GDP (log base 10)

1974-1981 Period indicator, 1=1974-1981

1982-1990 Period indicator, 1=1982-1990

**Table 5. Unstandardized coefficients for the regression of percent labor force in manufacturing on selected independent variables: random effect model estimates for 17 OECD nations, 1967-1990 (N=408)**

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
LRGDP	314.740 ***				218.910 ***	224.540 ***
LRGDP2	41.238 - ***				29.080 - ***	29.823 - ***
LUNEMP		-6.604 ***			-7.876 ***	-7.910 ***
NMX			0.202 ***		0.167 ***	0.159 ***
LDIO				-6.486 ***	-3.567 ***	-3.278 ***
LDII						-0.825
1974-1981	-2.439 ***	-1.480 ***	-2.859 ***	-2.564 ***	-0.785 **	-0.770 **
1982-1990	-5.559 ***	-4.188 ***	-6.861 ***	-5.856 ***	-2.249 ***	-2.214 ***
Constant	573.57 - ***	29.994 ***	26.921 ***	28.982 ***	379.30 - ***	389.72 - ***
R2	0.397	0.432	0.512	0.303	0.650	0.646

\* p<.05 \*\*p<.01 \*\*\*p<.001

**Variables:**

LRGDP Real gross domestic product per capita (log base 10)

LRGDP2 Real gross domestic product per capita squared

LUNEMP Unemployment rate (log base 10)

NMX Net manufactured exports as percentage of GDP

LDIO Outflow of direct investment as percentage of GDP (log base 10)

LDII Inflow of direct investment as percentage of GDP (log base 10)

1974-1981 Period indicator, 1=1974-1981

1982-1990 Period indicator, 1=1982-1990

Model 1 introduces LRGDP and its square to capture the hypothesized curvilinear relationship between development and the employment share of manufacturing in mature industrial societies (positive deindustrialization). Both terms are highly significant and correctly signed, indicating that manufacturing employment first rises and then turns to decline with development. The R<sup>2</sup> of .397 is only moderately strong. As some of the fit in Model 1 is contributed by the significant negative effect of the two period indicators, this suggests that the deindustrialization experienced by these seventeen nations has been the result of more than simple positive deindustrialization.

The role of negative deindustrialization is assessed in Model 2. The above discussion suggests that, in addition to indicating a nation's stage in the business cycle, unemployment may also proxy for the sort of structural imbalance that is stressed in more critical accounts of deindustrialization. Under this view, the deindustrialization experienced by core societies over the past two decades should not be viewed as the result of a "natural" and "self-correcting" phenomenon, but as evidence of profound economic distress. The strong negative effect of LUNEMP, net of period indicators which crudely trace the business cycle, lends support to this argument.

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Model 3 introduces NM<sub>X</sub> as an indicator of the nation's manufacturing trade position. The highly significant positive relationship observed (and its stability across Models 5 and 6) suggests that specialization effects outweigh the "accelerating" effects of trade; that is, rather than suggesting that trade surpluses have contributed to positive deindustrialization, the results indicate that they have, to date, led to the employment of additional resources (labor) in manufacturing. In largest part, then, the patterns of trade specialization that these nations exhibited moving into the 1970s have been replicated down to the present. There are, however, three important exceptions to this rule. The early eighties saw the formerly large manufacturing trade surpluses of the UK, US, and France turn negative. While there may be a variety of reasons why this occurred (Rowthorn and Wells, 1987; Wood, 1994), this indicates that the results are also partially consistent with the NIDL and GOP interpretations of the effects of trade in the contemporary period: in an environment of heightened international competition, particularly from semiperipheral and peripheral nations, traditionally high-wage manufacturing operations in core nations have become vulnerable. This vulnerability has expressed itself in at least some nations in deteriorating trade balances, disinvestment, and, ultimately, declining employment in the manufacturing sector.

The DIDT is tested in Model 4. A negative relationship between LDIO and the employment share of manufacturing is observed. The highly significant nature of this relationship (and its relative stability across Models 5 and 6) is somewhat surprising. Given the criticisms voiced above of popular statements of the DIDT and the speculative nature of the alternative theories that I touched on, one might expect to find only modest

support for the DIDT in the context of an examination of the effect of total outflows of direct investment. While the R2 of .303 indicates that the three variables already discussed each provide a better fit than LDIO, the results do suggest an important role for DI in the deindustrialization experienced in the 17 nations under study. As suggested above, this result may be consistent with a combination of factors: the direct labor-displacing effect of DI stressed in the NIDL and GOP literatures, the effect of comparatively high (and growing) levels of DI on domestic capital formation, and the "wealth trap" which turns capital exporters into rentier nations.

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Model 5 collects all of the variables examined thus far in isolation. LRGDP and its square remain highly significant and correctly signed, as do LUNEMP, NMX, and LDIO. The outflow of direct investment thus remains an important determinant of the employment share of manufacturing net of positive, negative, and trade-related deindustrialization. The period indicators also remain significant, while the size of their coefficients declines noticeably. This suggests that while the full model does a better job at capturing time-specific effects than either of the preceding four models, some unmeasured effects remain (as one might expect given its relative simplicity). The fit of the full model ( $R^2 = .650$ ) is impressive for a model of this type, indicating that the variables collected in it account for a good part of the phenomenon of deindustrialization in these 17 nations.

Finally, Model 6 introduces a measure of direct investment inflow (LDII). If outflows of DI are negatively related to the relative size of the manufacturing labor force, might not inflows of DI, given that their composition should tend to be similar, have a positive effect on manufacturing employment? In some conventional economic treatments of the employment effects of DI, it is argued that any job loss due to DI outflows may be made up by DI inflows (in addition to being offset by domestic employment growth prompted by increased demand for the inputs of overseas subsidiaries) (e.g. Frank and Freeman, 1978; Dicken, 1986). In others, it is simply maintained *a priori* that the net impact of DI on employment is near zero (e.g. Graham and Krugman, 1991). As regards manufacturing employment, however, the results do not support these conclusions. LDII is not significantly related to the relative size of the manufacturing labor force. And controlling for LDII does not appreciably influence the coefficient of LDIO or its significance level. This surprising finding lends additional gravity to the role of direct investment outflows.

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## CONCLUSIONS

The results presented here are based on a dataset that pools observations on 17 OECD nations over the 1967-1990 period. They show that the deindustrialization experienced across this period is largely explained by a model that combines classic generalizations of the process of economic development with a range of more immediate factors identified by contemporary students of deindustrialization. The findings support a number of conclusions. First, deindustrialization in the contemporary period has not been the result of a "natural" process of "positive deindustrialization" alone. While the results suggest that it is of continuing importance and should not be ignored, they also indicate a role for the sort of "negative deindustrialization" discussed in more critical and specific treatments of deindustrialization in the contemporary period. Support is also found for arguments which stress the role of international trade in deindustrialization. Success, as indicated by a manufacturing trade surplus, has tended to lead to the devotion of additional labor to manufacturing. And where nations have historically specialized in other sectors, or, as with the UK, US, and France, have faltered, international trade has accelerated the move away from manufacturing.

The main goal of this paper was to assess the role of direct investment outflows in deindustrialization. While the NIDL and GOP literatures offer a variety of arguments for the existence of a link between globalization and core deindustrialization, such arguments have generally not inspired empirical research by sociologists. This is unfortunate since the issues of globalization and deindustrialization impinge directly on a number of core sociological concerns, including social stratification, the sociology of the labor force, and political sociology. I have tried to address this omission by exploring one element of the broader discussion surrounding globalization and its effects.

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I find surprisingly strong support for arguments that link deindustrialization to the outflow of direct investment. As I suggested above, a reasoned interpretation of this link will require additional theoretical work. While North to South capital flight would seem a clear enough (if not uncontroversial) mechanism through which direct investment might contribute to deindustrialization, most direct investment flows between core societies. This suggests that a general account of the effects of direct investment must necessarily incorporate additional, indirect mechanisms through which direct investment might operate. I have offered two such mechanisms. While I would stress again that arguments regarding the effect of direct investment on capital formation and the "wealth trap" remain speculative, the results of my analysis lend additional import to the pursuit of such hypotheses. I am currently exploring these issues, and it is my hope that this research might encourage other sociologists to continue to rigorously engage the variety of profound issues that surround globalization. Sociological discussions of globalization have too often taken on a very general and polarized character - alternating between a stance which suggests that globalization means that in some sense "everything has

changed" and one in which *plus ça change, plus c'est la même chose*. While it may indeed be the case that grander claims for the significance of globalization are overblown, this does not mean that the most recent round of globalization has not been intimately involved in many of the most important social changes that the past two to three decades have witnessed.

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## Endnotes

1. A direct investment is one which involves an ongoing, managerial interest on the part of the investor in the firm or operation invested in. The IMF (1977: 136) defines direct investment as "investment that is made to acquire a lasting interest in an enterprise operating in an economy other than that of the investor, the investor's purpose being to have an effective voice in the management of the enterprise." As such, direct investment is distinct from portfolio investment: "long-term bonds and corporate equities other than those included in the categories for direct investment and reserves" (IMF, 1977:142). The key distinction between direct and portfolio investment is one of control. Control is usually defined in terms of a certain level of ownership (see OECD, 1987). This subject is taken up again below.

2. These seventeen nations are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Sweden, Great Britain, and the United States. Data come from the IMF's Balance of Payments Statistics Yearbook (various years).

3. "Deindustrialization" has of course been defined in a variety of ways. For the purposes of this paper, I define deindustrialization as the relative decline of the manufacturing labor force. Under this definition, absolute levels of output or employment in the manufacturing sector are not a concern. This is not meant to imply, however, that attention to absolute levels is unimportant for our understanding of the phenomenon (e.g. Singh, 1977; 1989).

4. The NIDL and GOP literature is simply too large to attempt to review it here. I assume that the participants in this session are familiar with it. See Gordon (1988) for an appreciative, yet highly critical, review. In terms of "foundational" statements, the NIDL account is most strongly linked with Fröbel, Heinrichs, and Kreye (1980), while the GOP school is probably best represented by Bluestone and Harrison (1982) and Piore and Sable (1984).

5. It is interesting to note, for instance, that in a relative sense the liberalization of controls on international capital flows - one of the hallmarks of the latest round of globalization (Harvey, 1989) - has proceeded at a faster pace in the developing world

than it has in the developed world (UNCTC, 1991). The developing countries did, however, start the general liberalization process with a higher average level of control (Oxelheim, 1993: 22).

6. Which is not to suggest that importance of the MNE and its activities for the developing world has declined. Indeed, as commercial bank lending has come to be seen, in the wake of the debt crisis of the early eighties, as a highly unpredictable source of development finance, direct investment has found new favor of late in the eyes of reformers and advocates (Helleiner, 1991).

7. Direct investment is weighted by gross domestic fixed capital formation because it is the domestic indicator which is most similar to DI (Ietto-Gillies, 1992). GDP and GNP are also commonly employed as normalizers in empirical analyses of direct investment. There are high correlations ( $r > 0.97$ ) between the results of these different weighting schemes in my dataset.

8. There is, of course, an extremely large literature on deindustrialization. A good bit of the early discussion of deindustrialization was taken up with a debate over its definition and whether it was in fact occurring. As I noted above, I adopt the common current definition under which deindustrialization is defined as the relative decline of employment in manufacturing. The argument linking DI and deindustrialization appears to have found its contemporary form in the context of the broader debate in Britain over the "British Disease" or "Englanditis" of the early 1970s (see, for example, the views collected in Coates and Hillard's (1986) volume on the economic decline of Britain). Many of the key terms and concepts that emerged in this debate were quickly taken up, largely wholesale, by American and Canadian researchers. Outside of the Anglo world, the direct investment/deindustrialization issue - if electronic searches of the relevant literatures can be used as an indicator - is one that has only relatively recently come to concern the broader public outside of labor movement circles in nations such as France, Germany, and Japan.

9. In Harrison and Bluestone's (1988) defense, they do note that direct investment is influenced by an array of factors in addition to labor costs. Nonetheless, in discussing the hollowing of the manufacturing sector, they stress that labor cost differentials were the prime determinant of the upswing in direct investment that the past two decades or so have witnessed. Even more finely drawn statements of the DIDT by authors who work more directly with the specialized literature on DI sometimes fall into arguments like this (e.g. Cowling and Sugden, 1987). Scholars unfamiliar with the large (primarily economic) theoretical and empirical literature on direct investment can find excellent reviews in Ietto-Gillies (1992), Dunning (1988), and UNCTC (1992).

10. This generalization concerning the process of economic development, Clark suggests, was first made as long ago as 1691 by one Sir William Petty. More recently, A. G. B. Fisher and Simon Kuznets, among others, also offered similar arguments for the relative growth of the service sector.

11. One could, of course, more directly test Bluestone and Harrison's version of the DIT with data on north to south flows of manufacturing direct investment. Given my interest in the globalization of production, however, data on total DI flows are more appropriate. As noted above, North to South flows do not represent the general pattern of DI in the past few decades.

12. The OECD (1987) provides a detailed account of the collection techniques and definitions applied by various nations. As regards ownership thresholds, this source provides information on a number of the nations under consideration in the present study. In these nations, the following minimums were (circa 1985) set for an investment outflow or inflow to qualify as direct investment: Australia (25% / 25%), Austria (no acknowledged minimum / 5%), Belgium (no minimum for outflows or inflows), Canada (10% / 10%), Denmark (10% / 10%), Finland (20% / 20%), France (20% / 20%), Germany (25% / 25%), Japan (10 % / no minimum), Netherlands (no minimum for outflows or inflows), New Zealand (25% / 25%), Great Britain (20% / 20%), United States (10% / 10%). These minimums have occasionally changed over the time period under consideration. For instance, prior to 1980 Japan applied a 25% minimum to outflows (Julius, 1990). These changes appear to have been undertaken in an effort to achieve harmonization with the benchmark IMF/OECD Common Reporting System for Balance of Payments Statistics which suggests a minimum of 10% for outflows and inflows.

13. In total, the IMF offers the following on this issue (1977: 138):

Much stress is often laid on the difficulty of defining direct investment precisely and of applying the concept in practice. It may be pointed out, however, that these problems, serious though they may seem, do not necessarily have a corresponding importance for the validity and intercountry comparability of the statistics on direct investment. Most direct investment enterprises, in fact, either are branches or are subsidiaries that are wholly owned by foreigners or in which a clear majority of the voting stock is held by a single foreign investor or group. The real borderline cases are thus likely to form a rather small proportion of the universe. Moreover, since an enterprise is most apt to be inconsistently classified when the share of the investor in question is quite small, the weight of the doubtful cases tends in principle to be further reduced by adherence to the [prescribed benchmark classification system].

14. These deviations from the standard classification system are a result of the national data collection and reporting systems in use in such countries. Two systems are currently employed: surveys of investing companies and reports of related cash-flows through the banking system. Most OECD nations employ either a survey methodology or combine survey techniques with cash-flow data. Some nations (e.g. France), however, employ only a cash-flow system and thus forms of equity other than cash, such as reinvested earnings, are not covered. Nations also differ in how they approach taxes and in how they treat short-term loans, trade credits, interest payments and dividends (see OECD, 1987).

15. Substantively, the REM and FEM results were identical. The FEM estimates did produce much higher  $R^2$ 's (as all between-country variation is perfectly fitted with indicator variables).

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