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Employment effects of multinational enterprises:

The Case of the United States

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EMPLOYMENT EFFECTS OF MULTINATIONAL
ENTERPRISES: A UNITED STATES CASE STUDY

Introduction

With the rapid growth of the U.S. multinational enterprise (MNE) in the decade of the 1960s, concern developed over the domestic employment (and other) consequences of apparently substantial direct foreign investments by U.S. firms. Predictably, organized labor in the United States, especially the AFL-CIO, articulated this concern to the Government and public directly; and consequently strongly supported the proposed "Foreign Trade and Investment Act of 1972"--a bill providing for the elimination of "tax incentives" for investing abroad, the imposition of import quotas effectively freezing the import share of domestic consumption by industry at 1965-69 average import levels, the regulation of transnational capital transactions whenever domestic employment was threatened, and potential control over the export of U.S.-based technology via licensing arrangements with foreign firms or subsidiaries.¹ One response to this far-reaching bill was a group of studies on the "jobs" issue underlying labor's rather contentious view of the MNE. Research on employment and other effects was conducted by, or on behalf of, various business organizations, U.S. Government agencies and the AFL-CIO itself--the most comprehensive of which was the ambitious, 930 page report of the U.S. Tariff Commission to the U.S. Senate's Committee on Finance in 1973.²

Concurrent with the growth of the social and economic significance of U.S. MNE's, considerable attention was accorded the employment and other effects

of MNEs by those within academic communities. Of special importance was the development of the "product-life cycle theory of international trade and investment" by Vernon and his colleagues associated with Harvard's Multinational Enterprise Project.³ This approach, especially as applied by Stobaugh, proved quite useful in putting a conceptual perspective around the "job-counting" types of studies noted above.⁴

As the 1970s progressed, labor's and others' concern over U.S. multinationals and employment issues waned a bit. The large surge of outward direct investment from the United States had abated; the recession of 1974-75 was consuming workers' interests. However as the OPEC countries began to accumulate massive amounts of dollars, and as foreign direct investment in the United States became increasingly significant (and politically visible--especially Japanese), public concern developed regarding the foreign multinational in the U.S., including questions related to employment effects.⁵ One important outcome of this was the "Foreign Investment Study Act of 1974" and the subsequent nine-volume report to the Congress Foreign Direct Investment in the United States which included census-like data on the U.S. employment effects and patterns of foreign multinationals, and sharply contrasts the situation of the U.S. effects of U.S. MNEs abroad where no such extensive, benchmark information exists.⁷

In this paper, various reports, studies and theories related to the U.S. employment effects of U.S. MNEs abroad and of foreign multinationals in the U.S. are reviewed and discussed. Recent data (1973-1978) relating to employment issues have also been developed and are analyzed. (The basic data in tabular format are presented in the appendix.) Following this, a theoretical basis is

developed and presented to embrace the empirically based data within a sensible perspective, which hopefully will facilitate a prospective-oriented summary section.

The U.S. Employment Effects of the U.S. MNE

There is no census-type information or data available on the U.S. MNE. However, regarding comparative data on U.S. MNEs and non-MNEs, an approximation was developed by Polk who estimated that in 1971 the "gross world product" of \$3,000 billion consisted of \$450 billion (or 15 percent) of international production, \$260 billion of which was generated by U.S. MNEs abroad. This was then equal to about 25 percent of U.S. GNP.⁸

Another estimate, developed by Musgrave, compared U.S. MNEs' production and employment abroad to overall U.S. production and employment levels. Using 1970 data, she reported direct investment abroad was equivalent to 11.5 percent of U.S. domestic corporate capital, as measured by net fixed assets; and that (industrial) employment abroad attributable to U.S. direct investment was approximately 7.8 percent of total (industrial) U.S. employment, or 4.8 million workers overseas compared to 61.5 million workers domestically.⁹ A report by the U.S. Department of Commerce shows U.S. direct investment abroad at the end of 1978 totalling \$168.1 billion, and concentrated in manufacturing (44 percent) and petroleum (20 percent), and in developed countries (72 percent).¹⁰ This level of investment is more than double that utilized in the earlier Polk and Musgrave analyses, but no hard data are available to justify any alterations of their estimates on comparative amounts of sales, investment and employment levels of U.S. MNEs and non-MNEs (or domestic corporations). However, given that U.S. firms' plant and equipment expenditures abroad have been growing as a percent of domestic plant and equipment expenditures (for data reported

through 1975), one might argue the comparative size of international production (and implied sales and employment effects) by U.S. firms has been increasing relative to (U.S.) domestic GNP.¹¹

Focusing more on operating characteristics, or effects, the 1973 Tariff Commission study presented comparative data on U.S. MNEs that were leading foreign investors in manufacturing and on other U.S. manufacturing enterprises. The data showed the "high multinationals" accounted for 88 percent of total research and development (R&D) expenditures in U.S. industry (in 1970) and 35 percent of total (U.S.) employment (1969). Moreover, they had a value of shipments per worker 14 percent greater (1969) and increased overall employment at an 88 percent higher annual rate (1961-1969) than did the "other" firms.¹² The "high multinationals" were identified as the firms comprising the five industries which were leading foreign investors--transportation equipment, machinery, electronics, chemicals and scientific instruments.¹³ The study reported high correlations between the level of MNEs' fixed assets abroad and U.S. domestic investment (1970).¹⁴ Apparently, the large investors abroad had been the large investors at home too.

How descriptive these operating characteristics of the high multinationals of the earlier, 1969-1970 years are of today is open to question. Admittedly, and as illustrated by the foregoing, data and information on the U.S. MNE and the national economy are vague at best. The recent collection of data on U.S. direct foreign investment had been limited historically to authority implemented by Executive Order 10033 of February 8, 1949, issued pursuant to the Bretton Woods Agreement Act and intended primarily to collect balance of payments data to report to the International Monetary Fund.¹⁵ The International Investment

Survey Act of 1976 substantially alters this situation by giving the President authority to collect and analyze data on MNE-related issues affecting the U.S. economic welfare.¹⁶ To this author's knowledge, no results of studies conducted under the 1976 Act have been reported to date, however.

Studies on Job Losses and Gains

Notwithstanding the lack of census data, several serious attempts to estimate U.S. employment of U.S. MNEs have been published. These contrast positions taken by some researchers that the MNE-job issue is really a "non-issue." For example, Dewald used aggregated data covering the period 1958-1974 for the U.S. economy as a whole and reported¹⁷

...a strong positive association between imports, employment and income and a lack of association between the unemployment rate and imports, contrary to the neo-mercantilist hypothesis that exports gain jobs and imports cost jobs.

Dewald's approach offers a rather broad definition of the issues and is of perhaps limited usefulness. As a variation on this theme, Magee implies a "non-issue" conclusion in his observations that workers who lose jobs from MNEs are not unlike those losing jobs from non-MNEs and are deserving of no special consideration.¹⁸ He contends, moreover, that¹⁹

...the magnitudes involved must be kept in perspective, the most favorable estimates of the job effects of MNCs [MNEs] (+600,000) is only 0.7 percent of the U.S. labor force (86.0 million) and 12 percent of the unemployed (4.99 million) in 1971; the most unfavorable estimate doubles these numbers.

One of the first of the "job counting" studies on the domestic employment effects of U.S. MNEs was published by the Industrial Union Department, AFL-CIO, and prepared by Ruttenberg & Associates in 1971.²⁰ Using data developed by the Bureau of Labor Statistics (BLS), U.S. Department of Labor, Ruttenberg balanced jobs generated in the growth of merchandise exports against those which would

have been required to produce U.S. imports which compete with domestic products.²¹ From 1966 to 1969, BLS estimated employment related to exports grew from 2.5 million to 2.7 million jobs, while jobs which would have been required to produce U.S. production-competing imports rose from 1.8 million to 2.5 million. The net of these two considerations represents a loss of 500,000 U.S. jobs.²² Ruttenberg contended moreover that the experience of the 1966-1969 period reflected longer term trends evidenced since the mid-1950s showing a declining favorable "employment balance" associated with U.S. exports and imports, and an increasing incidence of import-related job losses in the manufacturing sector.²³

Goldfinger, Research Director of the AFL-CIO, updated the Ruttenberg job loss estimates with the identification of another 400,000 lost job opportunities during 1970 and 1971--the 1966-1971 total growing to 900,000 jobs.²⁴ Quite importantly, Goldfinger linked the job losses not only to imbalanced growth in U.S. exports and imports, but also to the nature and growth of the U.S. MNE--whose actions were resulting in²⁵

...rapid displacement of U.S. production and export of U.S. jobs that are spreading across our landscape--annually throwing scores of thousands of U.S. workers out of jobs, wiping out large segments of U.S. product lines, narrowing the nation's industrial production base, and adversely affecting many communities in different parts of the country.

Responding to these Ruttenberg/Goldfinger statements several business-related groups undertook special studies on the employment effects (inter alia) of U.S. MNEs.²⁶ To cite one perhaps typical example, the National Foreign Trade Council, Inc. surveyed its members (that were MNEs) and collected

data on reasons for investing abroad, the domestic manufacturing employment effects of such decisions, and the long-term effect on U.S. jobs as export opportunities expanded because of the presence of U.S.-owned manufacturing facilities overseas.²⁷ The study concluded that foreign investments did not result because of lower labor costs abroad; that U.S.-owned, foreign based facilities resulted in increased exports of U.S.-made goods (often of "more sophisticated" products than otherwise); and that U.S. exports and U.S. domestic employment rose as did foreign direct investment. Indeed, in no case was the foreign investment a U.S. "job export"--the investments were made to stave off competitors in the foreign markets and thereby maintain U.S. employment through the export of key components to captive, U.S.-owned affiliates.²⁸

Following these initial reports and **statements** on the "job counting" issue, three major reports have subsequently appeared on the topic: the study conducted by the U.S. Tariff Commission (1973), the U.S. Department of Labor, State and Treasury-sponsored study by Frank and Freeman (1975) and the New York University research project "Economic Effects of Multinational Corporations" as it studied employment effects under Hawkins' direction (1976).

The U.S. Tariff Commission study presented three different scenarios on the U.S. employment effects of direct foreign investments.²⁹ Summaries of these are presented in Table 1. The three cases relate to differing assumptions on price competitiveness and other product market conditions confronting (potential) U.S. MNEs. "Case #1: The 100% Assumption" is the situation where U.S. exports could have served foreign markets at identical prices to goods produced at U.S.-owned, foreign-based facilities and in the absence of similar, foreign-based competitors. In case #1, foreign production is a perfect substitute for U.S.

TABLE 1

The U.S. Tariff Commission Study
 Estimation of U.S. Net Employment Impact of Direct Foreign Investment
 All Manufacturing Industries, 1970
 (Figures equal Number of Jobs)

Alternative Scenario (1)	Potential Gross Job Loss (2)	Offsets to Potential Gross Job Loss			U.S. Employment of foreign MNEs (6)	Net Impact (7)
		MNE Headquarters Employment (3)	Employment Due to MNE Exports to Affiliates Abroad (4)	Employment Due to Income Effect of Direct Investment Abroad (5)		
Case #1: The 100% Assumption	-2,379,400	140,200	286,600	34,400	621,200	-1,297,000
Case #2: The 50% Assumption	-1,189,600	140,200	286,600	34,400	310,600	- 417,800
Case #3: The Constant Share Assumption	- 603,100	140,200	286,600	34,400	629,900	488,000

Source: U.S. Senate, Committee on Finance, Implications of Multinational Firms for World Trade and Investment and for U.S. Trade and Labor, a report prepared by the U.S. Tariff Commission (Washington, D.C.: U.S. Government Printing Office, 1973), pp. 652, 665 and 670.

production. It produces the most negative U.S. employment effects possible. "Case #2: The 50% Assumption" assumes half the U.S.-owned foreign affiliates production could be met by U.S. production. "Case #3: The Constant share Assumption" is based on the contention that U.S. exporters would have maintained their shares of world manufacturing in the absence of the foreign production alternative as evidenced by their average shares during 1960 and 1961 benchmark years (which preceded the recent high growth of foreign direct investment activity in manufacturing). (The employment data summarized in Table 1 were developed at the three-digit SIC level and then aggregated. Export propensities, potential or otherwise, remain constant within manufacturing sectors across all three cases. Similar employment scenarios on non-manufacturing sectors were not presented in the study.)

The data in Table 1 regarding cases #1 and #2 appear straightforward and readily understandable. Column (6), however, may need some explanation. The Tariff Commission decided the U.S. employment effects of foreign direct investors in the U.S. needed to be included for consistency and "fairness." As column (2) represents U.S. jobs that would have been gained had U.S. direct investment abroad not occurred (given the assumptions), column (6) represents the U.S. jobs that would have been lost had foreign direct investment in the U.S. not occurred (given the same assumptions). The "Net Impact," column 7, summarizes the estimates in columns (2) through (6).

Depending on which assumptions hold, the net U.S. job impact of the MNEs varies considerably. The Tariff Commission notes, however³⁰

Under Case 3, the MNCs [MNEs] have contributed a net job gain for the U.S. economy, relative to a reasonably high standard of what they should have been able to

contribute to U.S. exports and export-related employment, had they kept their capital at home. Indeed, this estimate is biased in the direction of excessive pessimism because it totally rejects--by assumption--the MNCs argument that at least a portion of the MNCs foreign direct investment has to go abroad to prevent foreigners from getting there first. As the analysis of cases 1 and 2 has shown, a relaxation of both the substitution and export trade assumptions would quickly show the MNCs producing even larger net gains for U.S. manufacturing employment than those shown in Case 3.

This **statement** contends that as the transfer of production from domestic sources to foreign-based subsidiaries is necessitated by economic and competitive forces, the associated job losses (of column (2) in Table 1) are not at the MNEs' option, and thus must be removed from consideration on net U.S. employment effects of MNEs--the jobs would have been lost anyway.

Frank and Freeman took issue with the Tariff Commission's inability, or unwillingness, to derive and apply the appropriate substitution ratios between domestic and foreign production.³¹ They developed estimates of domestic-to-foreign production cost ratios and market power (i.e., competitiveness of firms in an industry), and used these to estimate a "home-foreign substitution ratio" for fifteen different industries which identifies the portion of foreign employment that would have been realized in the United States had there been no foreign direct investment.³² Combining these ratios with production estimates predicated on 1966-1973 foreign investment levels by industry, yielded estimates for jobs created had the investments been U.S. domestic investments and the jobs created in domestic supporting industries. These, less the number of jobs lost as import-supporting activities were eliminated, yielded an approximation of over one million jobs lost because of U.S. foreign direct investments abroad.

The industry distribution of cumulative job losses during 1966-1973 are shown in Table 2. These differ from those developed in the Tariff Commission study in that jobs created by foreign direct investors in the U.S. are not netted against those lost due to foreign direct investments by U.S. MNEs, and non-manufacturing sectors are also included in the analysis. Not including the non-U.S. MNEs employment effects seems to explain much of the difference between the jobs lost/created figures reported by Frank and Freeman and the U.S. Tariff Commission.

The Hawkins' study utilized U.S. Department of Commerce data collected in 1966 and 1970 on U.S. multinationals and considered the relationships among the shares of alternative suppliers (i.e., exports from the U.S., sales by U.S.-owned foreign subsidiaries, sales by non-U.S., indigenous suppliers, and third-country imports) in twelve individual national markets.³³ It assumed constant market shares during 1966-1970 unless a competitive imbalance occurred among the suppliers with the gain or loss of each supplier's sales vis-a-vis alternative sources calculated using 1966 weights. As Hawkins described it:

this was done for each of 19 manufacturing industries. If a gain occurs for one supplier relative to a second, it is assumed that the first has become more competitive. Thus, if U.S. exports lost vis-a-vis foreign affiliate production in a given market or industry, the implication is that the relatively higher foreign affiliate production was associated with (caused?) the decline in U.S. exports.³⁴

The U.S. market was similarly analyzed--with three suppliers identified: imports from U.S.-owned subsidiaries in the same twelve national markets, imports from all other sources, and indigenous production. Foreign activities of U.S.

TABLE 2

Frank and Freeman Study
 Estimates of Job Losses, 1966-1973
 (Figures are Numbers of Jobs)

Industry	Jobs Lost
All Manufacturing	733,283
Food Products	57,425
Paper & Allied Products	62,244
Chemicals and Allied Products	120,763
Rubber and Misc. Plastic Products	44,208
Primary and Fabricated Metals	58,064
Non-Electrical Machinery	194,721
Electrical Machinery	113,619
Transportation Equipment	48,782
Other Manufacturing	33,457
Agriculture, Forestry and Fishing	33,189
Mining and Smelting	894
Petroleum	5,374
Transportation, Communications and Public Utilities	29,282
Retail and Wholesale Trade	58,469
Other Misc. Service Industries	195,339
Federal, State and Local Government	6,748
Total--All Industries	1,062,577

Source: Comptroller General of the United States, Domestic Policy Issues Stemming from U.S. Direct Investment Abroad (Washington, D.C.: U.S. General Accounting Office, 1978), p. 35--as developed from data presented in Robert H. Frank and Richard T. Freeman, "The Impact of United States Direct Foreign Investment on Domestic Unemployment," a report on a research project sponsored by the U.S. Departments of Labor, State and Treasury (mimeographed), May 1975.

MNEs substituted for U.S. production and jobs when imports from U.S.-owned foreign subsidiaries gained relative to indigenous production.

Table 3 summarizes the results of these analyses. To highlight, it shows for instance that U.S. exports to the twelve markets gained relative to foreign production by U.S. foreign affiliates by \$3.9 billion. Similarly, they gained relative to indigenous suppliers by \$7.0 billion but declined by \$0.4 billion due to imports from third countries. For the U.S. market, the production lost to imports from non-affiliates (\$8.5 billion) dwarfed that lost to affiliates (\$0.2 billion).

The industry breakdown of the net gains or losses of U.S. production of U.S. exports relative to foreign affiliate sales and relative to imports from foreign affiliates, as well as the number of U.S. jobs these represent, are shown in Table 4. As noted therein, the results by industry vary considerably. Some industries show large gains in exports vis-a-vis foreign affiliates' sales in U.S. and foreign markets; others show significant losses. Job changes likewise vary considerably by industry, and show a net cumulative gain of 260 thousand. To conclude, as Hawkins observed³⁵

...the analysis suggests that total U.S. jobs have not suffered at the expense of U.S. foreign affiliate operations. But some industries have lost output and jobs while others have gained to a greater degree... As the data [in Tables 3 and 4] suggest, U.S. firms already have major investments abroad, but export only 7% [sic] of the output back to the United States. The major competitive thrust is from foreign (non-U.S.) suppliers. So controlling new foreign investment by U.S. firms would have a negligible impact on U.S. jobs in the short run.

To summarize, in the studies on U.S. job losses and gains of U.S. MNEs, conclusions apparently depend on assumptions regarding, for example, the extent

TABLE 3

Hawkins/New York University Study
 Summary of Estimated Gains or Losses (-) of U.S.
 Production vis-a-vis Alternative Suppliers
 (Figures are in Millions of Dollars)

Vis-a-vis Competitive Suppliers	Gains or Losses in U.S. Production for ¹ --	
	Exports to Twelve Markets	The U.S. Market
U.S. Foreign Affiliates	3,899.3	- 226.6
Imports from other Countries	- 357.0	-8,474.6
Indigenous Suppliers	7,005.0	-
Total	10,547.3	-8,701.2

Note: ¹Data exclude results of auto trade with Canada.

Source: Robert G. Hawkins, "Jobs, Skills and U.S. Multinationals," a statement to the Subcommittee on International Economic Policy, Committee on International Relations, U.S. House of Representatives (mimeographed), February 1976 (page un-numbered).

to which exports would have been lost even in the absence of foreign direct investment, and professional judgements such as, for example, whether U.S. jobs created by non-U.S. MNEs should be netted against those "lost" by U.S. MNEs. The studies do not, in this regard, present a confused picture. Indeed, quite the opposite appears true. They have identified the real issues, and they leave final conclusions to broader, perhaps politically-based social considerations, values and processes.

Studies on the Quality of Employment Created and the Duration of Unemployment

The fact of U.S. job losses and gains generated by MNEs is one issue; others are the quality of the employment created and the duration (quality?) of the unemployment generated. Studies on these issues are not quite as plentiful as those on the jobs issue, but they do appear more straightforward and less reliant on assumptions and values.

Regarding the former issue, de la Torre, Stobaugh and Telesio analyzed in-depth case studies of nine U.S. MNEs in different industries to identify the skill-level composition of U.S. employment generated by direct foreign investment.³⁶ They concluded the professional positions resulting from new employment through foreign direct investment (numerically) substantially exceeded the proportionate share of professional jobs in U.S. import-competing firms, and employment in semi-skilled and unskilled jobs declined compared to its proportionate share of all jobs in U.S. import competing firms.³⁷ They concluded also that U.S. MNE employment is becoming increasingly characterized as more professional and more highly skilled--both in terms of the structure of employment itself within the MNEs as well as in comparing the U.S. MNE employment structure with that of the non-MNE.³⁸

TABLE 4

Hawkins/New York University Study
 Estimated Gains or Losses of U.S. Production vis-a-vis
 Foreign Affiliates of U.S. Firms by Manufacturing Industry
 1966-1977
 (Figures are in Millions of Dollars)

Industry	Change in U.S. Sales Relative to Foreign Affiliate Sales in U.S. and Host Country Markets (Millions)	Number of Jobs Represented by These Changes (Thousands)
Food Products	\$ 201.1	16.78
Paper and Allied Products	- 16.5	- 1.18
Drugs, Cosmetics and Cleaning Preparations	1,609.9	119.05
Plastic Materials	116.5	- 6.90
Industrial and other Chemicals	- 381.5	- 19.80
Rubber Products	84.7	4.50
Primary and Fabricated Metals	60.1	3.90
Farm Machinery and Equipment	- 61.9	- 4.95
Office and Computing Machinery	75.8	5.51
Other Non-Electrical Machinery	520.6	43.15
Household Appliances	- 14.9	- 1.30
Other Electrical Machinery & Equipment	856.3	65.94
Transportation Equipment ¹	- 7.1	- 0.58
Textiles and Apparel	- 76.3	- 8.49
Lumber, Wood and Furniture	- 168.8	- 16.42
Printing and Publishing	- 8.9	- 0.82
Stone, Clay and Glass Products	12.7	1.02
Instruments	67.0	4.83
Other Manufacturing	815.9	49.95
Totals	\$3,672.7 ²	260.61

Notes: ¹ Excludes auto trade between U.S. and Canada

² The reader should note this total is the net of the two figures on line 1 "U.S. Foreign Affiliates" in Table 3.

Source: Robert G. Hawkins, "Jobs, Skills and U.S. Multinationals," a statement to the Subcommittee on International Economic Policy, Committee on International Relations, U.S. House of Representatives (mimeographed), February 1976 (page un-numbered).

Hawkins, in the above described market-based analysis, reported the average annual (1970) compensation for jobs represented by industries experiencing sales gains vis-a-vis foreign affiliates was \$8,080, compared to \$7,367 for jobs in industries experiencing losses vis-a-vis foreign affiliates.³⁹ His analysis also indicates⁴⁰

...these wage differentials reflect differences in the mix of skill groups represented in the total employment requirements of the gaining and losing industries. On average, the U.S. industries whose market shares have gained vis-a-vis foreign affiliate production utilize the following skill classifications to a greater degree than industry in general:

- Professional, Technical and Kindred Workers
- Managers and Administrators, except Farm
- Clerical and Kindred Workers

On the other hand, the jobs represented by the industries experiencing losses in U.S. sales relative to foreign affiliates tend to have higher than average concentration in the following skill classes:

- Craftsmen and Kindred Workers
- Operatives, except Transport
- Laborers, except Farm

Regarding the duration of unemployment issue, Frank and Freeman, in a simulation of labor market adjustment dynamics in eight of fifteen industries (as identified in the above discussion of their job-loss study) using 1970 data, showed that in all eight industries most workers who lost jobs following a direct foreign investment found new jobs within seven weeks after becoming unemployed.⁴¹ The authors cautioned, however, that the base-year exhibited nearly "full employment" and this likely facilitated the adjustment process.

One key ingredient in the "resulting employment and unemployment" area has yet to be analyzed or reported on--that is, the quality of the re-employment. It appears the new U.S. jobs generated within U.S. MNEs are socially preferred, and

initial research indicates that those losing jobs are out of work for a period of time which is socially tolerable (at least during periods of reasonably full employment). Theory indicates subsequent re-employment of workers should be at income levels slightly below those previously experienced. This assumes, of course, no prior immobility on labor's part, nor other factors which could result in less than an "appropriate" wage. Obviously, the quality of re-employment issue becomes exceedingly complex; nonetheless, it should be investigated.

A Theoretical Perspective on
Employment Effects of U.S. MNEs ⁴²

In this author's opinion, one more useful theory to help understand some of the foreign trade and direct investment patterns, especially relative to firm behavior in the manufacturing sector as such affects location of employment and personnel skill levels required in employment, is the product-life-cycle (PLC) theory. The PLC, largely developed and tested by Vernon and others associated with the Harvard Business School Multinational Enterprise Project, uses a disaggregated approach focusing on individual products and firms rather than impersonal markets which regulate product price and the firm's production behavior.⁴³

Manufactured products, according to the PLC, exhibit a "life cycle" consisting of three stages: (1) the new product, introductory, or "growth" stage; (2) the "maturity" stage; and (3) the "decline" stage. New products embody significant levels of product differentiation which allows innovators to earn greater-than-average returns initially. Thus, risk is rewarded and subsequent innovation encouraged. Differentiated products must be sold in markets with high levels of consumer discretionary spending. The U.S. market, where income levels have been high traditionally and where consumers with high incomes and diverse consumption needs and interests exist, has spawned varied and numerous new products. As products enter the maturity stage, product imitation occurs and drives

down the product price. Consumption and production are expanding while the profit margin is declining. This forces a shift in the firm's competitive strategy away from new product technology to new process technology as competitive production costs are now crucial to success (i.e., staying power) in the market. The decline stage is characterized by the apparent ubiquity of both product and process technology, and ease of market entry due to the absence of financial, marketing and other barriers. Profits in this stage approach purely competitive levels.

International trade begins in the new product stage as exports, which often result from a fortuitous order from a foreign customer, preferring markets with income and consumption characteristics as the United States.⁴⁴ As exports grow, the firm becomes more deliberate and effective in serving foreign markets. Export demand adds to domestic demand and (U.S.) domestic production and production employment expand. Eventually, as the U.S. exporter continues to demonstrate success in the foreign market, foreign firms indigenous to the export market desire to serve the market. They begin to innovate around the U.S. exporter's product technology to adapt the product more completely to the local market's peculiar, and perhaps changing needs. Foreign production, unburdened with international shipping costs, insurances, import tariffs, etc., begins to displace U.S. exports. Consumption in the foreign market is growing as this competition develops, but the U.S. firm's participation is declining as its exports are being forced out of the market.

Acting defensively then, to protect its foreign market presence, direct investment by U.S. firms in foreign manufacturing facilities occurs. Control

over product technology, the firm's first line of defense, has dissipated over time as local competition has been encouraged and facilitated by the demonstrated market success of the U.S. export product. Control over superior process or production technology, a second line of defense, is being implemented and made effective via the firm's direct foreign investment in the distinctive product market it serves as important non-competitive costs, such as tariffs and shipping expenses, are eliminated. These firms, now U.S. MNEs, then develop a third line of defense--the bringing of new products to market on a frequent, if not continuous basis either by expanding existing product lines or by developing new product core technologies, thus ensuring the firm's continuous presence in both the U.S. and foreign markets. As its product lines and product cores vary in terms of their life-cycle positions, the U.S. MNE is likely now both exporter and foreign manufacturer. Sustaining this posture, the firm has developed an expanded U.S.-based research and development (R&D) capability, and the U.S. technical and logistical support and management structure necessary to serve world markets. In the foreign market, the U.S. firm is implementing superior production processes, introducing new products, and securing the sales of mature products via advertising, distribution control, etc. The firm then, because of these actions, typically develops into a large-scale, high-technology, conglomerate organization whose ultimate strengths lie in managerial expertise and superior financial resources.

The employment implications of the PLC model are several. In the U.S., production employment declines as defensive foreign investment displaces U.S. exports. Countering this, U.S. employment of managers, scientists, engineers,

technicians and other support personnel increases. The previously discussed studies by de la Torre, Stobaugh and Telesio and by Hawkins that U.S. MNEs upgrade skill levels in U.S. employment support these PLC implications. Indeed, Stobaugh and his associates, using 1961-1970 case-study data, found additional support for the PLC's employment references, as the continuum of the shift in employment composition was traced out in firms in nine different industries.⁴⁵ They found sudden drops in U.S. production employment and the gradual, consistent build-up in each firm's employment of more highly skilled personnel. Interestingly, the U.S. employment (level) "recoupment period" was found to average three years.

The U.S. employees losing jobs during this process are more likely production workers, than the professional/technical workers finding expanding employment opportunities as U.S. MNEs expand. This in turn implies that the MNE activities carry with them potential problems not only concentrated among a majority of union members but also striking at the heart of a union's long-term institutional viability. Perhaps this helps explain why the AFL-CIO has taken on such a vociferous, leadership role in developing a political response aimed at controlling U.S. MNEs.

Recent studies by Vernon and Stobaugh indicates U.S. MNEs have become increasingly less competitive in foreign markets, a condition which these firms are responding to by becoming even more conglomerated and by more readily abandoning unprofitable markets.⁴⁶ Perhaps more startlingly, Vernon reports U.S. MNEs may be divesting in anticipation of unprofitable markets:⁴⁷

...between 1968 and 1974, 180 U.S. based multinational enterprises sold or liquidated 717 manufacturing subsidiaries located in foreign countries. Coming out of a total population of about 6,500 such subsidiaries, these withdrawals were not insignificant... 449 [of these discarded] subsidiaries appear to have been well established in their networks at the time of liquidation, suggesting the existence of an entropic process in the multinational enterprise.

These findings will be kept in mind as more recent data on U.S. employment effects are present and analyzed in the section following, and in the "prospective" section at end of this report.

U.S. Employment Effects over the Period 1973-1978⁴⁸

Fairly recent studies on the U.S. employment effects of U.S. MNEs are not in evidence. The major works already discussed used data reflecting conditions in 1970 and earlier times. Moreover, the pre-1970s were characterized as fairly high growth periods for U.S. MNEs, and the U.S. and world economies. During the 1970s, economic conditions were generally less ebullient, especially because of the 1974-1975 recession. What have been the more recent U.S. employment effects of U.S. MNEs? This is not an easy question to answer. Nonetheless, 1973-1978 data on sales and employment in selected U.S. industries have been tabulated and are presented in Tables A-1 through A-10 in the Appendix. These will be analyzed and discussed in the hope of shedding some light also on the MNE-employer issue. This attempt is admittedly modest; the discussion only suggestive.

Data showing the percentage changes in U.S. sales and employment in ten major industries during 1973 to 1978 are shown in Table 6. The industries are ranked in terms of declining technological intensity, using a ratio of MNE R&D expenditures to sales as the technological intensity indicator--a system

presented and utilized in the 1973 Tariff Commission report in correlating high R&D expenditure industries with high U.S. MNE concentrations.⁴⁹ In other words, U.S. MNEs are likely more evident, and significantly so, in the six top-ranked industries in Table 6 than in the four bottom-ranked industries.

In comparing these two groups then (the "more multinational" versus "less multinational" industries), the average growth in sales was 75.3 percent for the upper six compared to 50.5 percent for the lower four.⁵⁰ The difference appears significant. It may reflect substantial differences in the real growth of output between the more and less multinational industries, or, alternatively greater control over price by the former group. Market control over price, however, is intrinsic to the nature of the MNE. Perhaps either interpretation is acceptable and leads to the more generalized conclusions that MNEs have experienced better growth than non-MNEs during 1973-1978. Regarding changes in overall employment, the more multinational industries averaged 4.8 percent growth over 1973-1978 compared to the 2.6 percent average decline experienced in the less multinational industries. These findings support the already stated inference of the sales growth differences. Referring back to the Tariff Commission findings, however, the MNE U.S. employment growth rate compared to non-MNEs appears to have behaved much less buoyantly than in the 1961-1969 period.⁵¹ Given the nature of the present data, however, it is impossible to identify or infer causality for this decline in employment growth between the effects of the 1974-1975 recession or Vernon's state of entropy currently characterizing MNEs--or to yet other causes for that matter.

In Table 7, the percentage change in employment during 1973-1978 is presented in terms of its "production" and "other than production" employment

Table 6

Percentage Changes in Sales and Employment Levels, 1973-1978
 Selected Industries Ranked by Research and Development (R&D)
 Expenditures as a Percent of Sales (by Multinational
 Corporations, 1966)

Rank No.	Industry ¹	R&D as Percentage of Sales ²	1973-1978 Percentage Change ³	
			Sales (Value of Shipments)	Employment Level
1	Electrical Machinery and Apparatus, Incl. Household Appliances	8.29	+ 42.9	- 1.1
2	Drugs	6.28	+ 75.4	+ 10.9
3	Industrial Chemicals	5.61	+131.9	+ 8.4
4	Instruments	4.21	+ 90.0	+ 21.6
5	Transportation Equipment	3.54	+ 62.8	- 5.8
6	Electronic Products & Components ⁴	3.26	+ 48.8	- 5.4
7	Paper and Allied Products	0.31	+ 75.9	+ 0.7
8	Lumber, Wood Products and Furniture	0.14	+ 33.3	- 6.0
9	Printing and Publishing	0.08	+ 64.3	+ 6.0
10	Textiles and Apparel	0.07	+ 28.6	- 11.0

Notes: ¹"Industry" consists of the selected industries identified in Tables A-1 through A-10 in the Appendix.

²"R&D as Percentage of Sales" refers to the contribution by multinational corporations to the technological intensity of each industry and is based on 1966 data presented in Implications of Multinational Firms for World Trade and Investment and for U.S. Trade and Labor, a Report by the U.S. Tariff Commission to the Committee on Finance of the U.S. Senate, 93d Congress, 1st session (Washington, D.C.: U.S. Government Printing Office, 1973), p. 561.

³As calculated from data in Tables A-1 thru A-10 in the Appendix.

⁴Industry corresponds to "Radio, T.V., Electronic Components" identified in the 1973 Tariff Commission Report.

TABLE 7

Percentage Change in Total, Production and Other
Than Production Employment Levels, 1973-78
for Selected Industries Ranked by Technological Intensity¹

Rank No. ²	Industry ³	1973-1978 Percentage Change in Employment Levels ⁴		
		Total	Production	Other than Production
1	Electrical Machinery and Apparatus, Incl. Household Appliances	- 1.1	- 2.0	+ 2.5
2	Drugs	+10.9	+10.4	+11.3
3	Industrial Chemicals	+ 8.4	+ 6.6	+11.5
4	Instruments	+21.6	+16.5	+30.6
5	Transportation Equipment	- 5.8	- 4.5	- 8.3
6	Electronic Products & Components	- 5.4	-10.8	+ 4.9
7	Paper and Allied Products	+ 0.7	- 1.7	+ 9.8
8	Lumber, Wood Products and Furniture	- 6.0	- 7.0	+ 1.3
9	Printing and Publishing	+ 6.0	+ 0.8	+13.0
10	Textiles and Apparel	-11.0	-11.6	- 5.6

Notes: ¹"Technological Intensity" refers to R&D expenditures as a percentage of sales.
See footnote #2 to Table 6 for a more complete citation.

²Rank order, with most "technologically intensive" industries in descending
order, corresponds to Table 6.

³"Industry" consists of the selected industries identified in Tables A-1 through
A-10 in the Appendix.

⁴As calculated from data in Tables A-1 through A-10 in the Appendix.

change components. The industries, as in Table 6, are listed in descending order of technological intensity. In the more multinational industries, employment in production grew on average by 2.7 percent and non-production employment by 8.8 percent. In the less multinational industries, production jobs actually declined by 4.9 percent while non-production jobs increased 4.6 percent on average. These results suggest the U.S. MNEs out-performed the non-MNEs in all employment categories, and the shift within the MNE towards more professional, and technical employment continues--a trend consistent with earlier findings and the PLC model implications.

As a final note, these inferences on the recent employment behavior of U.S. MNEs compared to non-MNEs and compared to MNEs of earlier periods, appear consistent with Bailey's conclusions on German MNEs and VanDen Bulcke and Halsberghe's findings on MNEs in Belgium.⁵²

The U.S. Employment Effects of Foreign MNEs

In contrast to the absence of census-type data on the U.S. employment and economic effects of U.S. MNEs, a benchmark census on foreign MNEs was conducted by the Bureau of Economic Analysis, U.S. Department of Commerce, in 1974.⁵³ Subsequently, several studies of interest were published which utilized the 1974 census data, either directly or as a "benchmark." These will be discussed in this section.

Foreign direct investment in the United States has grown rapidly during the 1970s. At the end of 1978, it totalled \$40.8 billion, approximately 24.3

percent of U.S. direct investment abroad. This is in contrast to the \$34.6 billion level in 1977, \$30.8 billion level in 1976 and the \$26.5 billion recorded in the 1974 census.⁵⁴ The four-year increase from 1974 to 1978 was 54 percent.

In the 1974 census, the United Kingdom, Canada and the Netherlands each accounted for about 20 percent of the total direct investment.⁵⁵ Japanese ownership stood at 1 percent, but was significantly understated since Japanese parents favor financing U.S. affiliates with loans rather than equity. To illustrate, Japanese-owned affiliates accounted for 22 percent of all foreign affiliate assets in the U.S. The industry distribution of direct foreign investment capital reveals that about one-third is in manufacturing, one-fourth in petroleum, and one-fourth in finance, insurance and real estate combined. U.S. affiliates (of foreign investors) accounted for 24 percent of U.S. exports and 30 percent of imports in 1974. They controlled total assets of \$174.3 billion and had sales of \$146.8 billion. U.S. affiliates employed nearly 1.1 million people in 1974, 95 percent of which were U.S. citizens. Their wages and salaries totalled \$11.4 billion. Their employment equalled 1.6 percent of private, non-farm, U.S. employment; their wages and salaries 1.9 percent of private, non-farm wages and salaries. U.S. affiliates accounted for slightly less than 6 percent of the nation's manufacturing output in 1974.

Given the large increase (54 percent) in foreign direct investment in the U.S. during 1974-1978, the participation of foreign MNEs in the U.S. economy has undoubtedly grown beyond the already impressive 1974 figures.⁵⁶

U.S. Job Losses and Gains of Non-U.S. MNEs

The industry distribution of U.S. employment of non-U.S. MNEs is presented in Table 8. As indicated thereon, the manufacturing sector accounted for 51 percent of total U.S. employment; the wholesale and retail trades 22.5 percent; petroleum 8.6 percent; mining 2.1 percent; finance, insurance and real estate 6.7 percent; and transport, commerce and public utilities 4.1 percent.

The distribution of U.S. affiliates' employment by parent-company nationality is listed in Table 9. As depicted in the table, the British, Dutch and Swiss were the largest foreign employers in the U.S.

Since no other benchmark or survey data have been published on the U.S. employment of non-U.S. MNEs; it is impossible to contrast the 1974 statistics with earlier or later periods. If the investment capital per employee ratio experienced in 1974 were held constant, however, the 1978 investment level of \$40.8 billion indicates U.S. employment should have grown to 1,670,000--a figure overstated, of course, to the extent inflation has occurred, and mis-stated to the extent that other factors (such as the incidence of Japanese investment and the use of debt financing) may have changed. Nonetheless, other evidence on the quality of the U.S. employment, such as estimates on job stability and growth trends and wages and (implied) skill levels, does exist. To these topics, this report now turns.

The Quality of U.S. Employment of Non-U.S. MNEs

Any systematic inquiry into the employment stability of non-U.S. MNEs has yet to be undertaken. Commitment to the U.S. market by foreign direct investors seems quite strong, however. To illustrate, Jedel and Kujawa found in their

TABLE 8

U.S. Employment of U.S. Affiliates
by Industry of Affiliate
1974

Industry	Number of Employees
Mining	22,738
Petroleum	93,700
Manufacturing	550,638
Food	74,721
Textile Products & Apparel	36,831
Lumber & Wood Products, Furniture	6,853
Paper & Allied Products	13,453
Printing & Publishing	26,566
Chemicals	114,695
Rubber & Plastics Products	15,202
Primary & Fabricated Metals	87,842
Machinery, Except Electrical	43,361
Electrical Machinery	56,194
Instruments	23,295
Other Manufacturing	51,625
Transport, Commerce & Public Utilities	44,673
Wholesale Trade	121,905
Retail Trade	120,522
Finance, Insurance, Real Estate	72,614
Other Industries	56,641
Total--All Industries	1,083,431

Source: U.S. Department of Commerce, Foreign Direct Investment in the United States (Washington, D.C.: U.S. Government Printing Office, 1976), Vol. 2 "Benchmark Survey 1974," p. 144.

TABLE 9

U.S. Employment of U.S. Affiliates
by Country of Foreign Parent
1974

Country	Number of Employees
Canada	175,973
Europe	731,091
European Economic Community	604,243
Belgium	9,622
France	57,750
Germany	58,982
Italy	3,575
Luxembourg	12,261
Netherlands	172,171
United Kingdom	284,252
Denmark & Ireland	5,630
Other Europe	126,848
Sweden	21,778
Switzerland	89,387
Japan	70,886
Australia, New Zealand, S. Africa	3,933
Latin America	92,312
Netherlands Antilles	40,991
Middle East	3,009
Others	6,227
Total--All countries	1,083,431
Developed Countries	981,883
Developing Countries	101,548

Source: U.S. Department of Commerce, Foreign Direct Investment in the United States (Washington, D.C.: U.S. Government Printing Office, 1976), Vol. 2, "Benchmark Survey 1974," p. 145.

1974 mail-out survey of foreign direct investors in the U.S. that "proximity to established markets" and "desirable geographical location" were the most frequently cited reasons for commencing operations in the U.S.⁵⁷ These imply a rather long-run perspective and commitment. More pointedly, Jedel and Kujawa reported in their 1976 interview study of 100 foreign direct investors in the U.S. that⁵⁸

The size of the American market was the primary or significant factor favoring the direct investment... Other motivations were concerned with availability of resources or various control oriented factors. Proximity to the market to be served was seen as essential to assure success. Keeping abreast of product design changes, pricing considerations, warranty policies, and the like was viewed as necessitating local operations... These motivational considerations imply a long-term and stable commitment to the United States. If the principal motivational factors had been perceived labor savings, such a conclusion might not have been warranted...

When these same 100 investors were queried on disinvestment prospects, forty respondents reported disinvestment was unthinkable, and the sixty remaining acknowledged disinvestment was possible but that conditions that might cause such a decision were "highly unlikely."⁵⁹

As noted already, hard data on U.S. employment growth of non-U.S. MNEs do not exist. One firm indicator of such growth, however, is the growing capital commitment by foreign investors to the U.S. market. Similarly, Jedel and Kujawa reported in their 1976 interview study⁶⁰

Data collected on employment confirmed the overall impact of these firms on the quantity of jobs... The overall result among start-ups [thirty-one cases] was a net increase in employment of 12,000 (from a base of 4,000). Among the thirty-five cases of acquisitions, employment grew by a total of 76,000 (from a base of 41,000).

Differences between non-U.S. MNEs' and U.S. firms' wage (compensation) levels were studied by Whichard using the 1974 Commerce Department census data.⁶¹ He reported "affiliate compensation per employee" (CPE) was higher for affiliates than for all U.S. business--i.e., \$12,239 versus \$11,434.⁶² He noted, moreover, that⁶³

Decomposition of the \$805 difference between affiliate and all-U.S.-business CPE...yields: (1) a positive \$1,350 attributable to differences in industry distribution (a tendency for affiliate employment to be concentrated in industries in which CPE was comparatively high); (2) a negative \$338 attributable to differences in CPE for given industries (a tendency for affiliates in given industries to compensate employees at lower rates than the average for all U.S. businesses; and (3) a negative \$207 for the residual interaction term.

Whichard cautions, however, that much of the second term is likely the result of peculiarities associated with investments in a single industry (transportation equipment manufacturing), and therefore the difference between affiliate and all-U.S.-business CPE is likely "...to have resulted from differences in industry distribution."⁶⁴ This finding is consistent with the Jedel and Kujawa 1976 interview study conclusion that wage levels at the participating affiliates were comparable with industry and geographical ranges.⁶⁵

As a final note, it appears obvious that much more information is needed on the U.S. employment effects of non-U.S. MNE. This would include not only data on employment growth and distribution over time, but also data on wage levels, growth in wages, and changes in the composition of affiliate employment over time.

A Theoretical Perspective on Employment
Effects of Non-U.S. MNEs

Regarding the foreign MNE in terms of the PLC model discussed earlier, studies show a considerable extent of direct foreign investment in the U.S. has occurred as yet a somewhat different variant of the defensive strategy theme.⁶⁶ Success in the U.S. market, which is the largest and most sophisticated, consumer-oriented market in the world, should be a prerequisite for success in other markets. Thus, U.S. firms operating unchallenged in the U.S. market should eventually be able to out-compete non-U.S. firms in their own home markets. The foreign firm then must, out of strategic necessity, participate in the U.S. market and generate new products--thus developing the potential to protect its own home territory.

If valid, the PLC model (as thus described) implies a permanent commitment to the U.S. market by the non-U.S. MNE. This in term implies U.S. employment stability and growth. Thus far, the record supports this view.

Conclusions--A Prospective View

Many powerful economic and political forces are at work which will affect MNEs in the future, especially regarding the situs of production and, thus, employment. Two trends felt by the present author to be especially relevant are increasing resource scarcity and declining innovation.⁶⁷

Since the early 1950s, worldwide demands for capital and physical resources have expanded significantly, with resultant, hefty price increases in world financial, commodity and energy markets. Helped along in some cases by producer's cartels, these conditions imply tremendous shifts of purchasing

power away from workers in the more industrialized societies, with accompanying adverse employment dislocation effects. To counter these, governments will maintain generally expensive economic policies which will, in turn, contribute to relatively high inflation. Also, firms will find it to be increasingly necessary to use previously marginal resources, meaning higher extraction and production costs, or harmful environmental effects. These increased resource costs will mean increased product prices--yet, higher inflation. One might expect then a diminished capability for the price mechanism to reflect changes in product market fundamentals and to be less efficient and timely in directing resources among competing consumption needs. Structural unemployment should be more of a problem in the future, and political pressures will continue to expand for national controls on international trade and foreign direct investment to protect, or conserve, domestic employment.

Resource scarcity also alters international industrial competitive structures in very fundamental ways. Resource scarcity means change in comparative production factor costs which, in turn, means firms' product and process capabilities can be rendered less competitive in reasonably short periods of time--at least quicker, in many cases, than firms can develop and bring to market a more competitive response. To illustrate, Franko found some European multinationals, whose technologies were designed around comparatively higher energy and material costs than those in the U.S. after the run-up in energy costs in the early 1970s, were quite favorably positioned competitively and became direct investors in the U.S. market.⁶⁸ Similar reasoning implies less competitiveness for U.S. exports. Witness to the recent plight of the U.S.

automobile firms locked into a product configuration rendered noncompetitive because of changes in energy costs and their displacement in their home markets by more fuel-efficient producers, especially the Japanese. The U.S. employment impacts of these phenomena are obviously significant.

A second, equally important anticipated trend is declining innovation characterized by the maturing of products and industries previously identified as the domain of the multinationals, especially the U.S. MNE. In the 1960s and early 1970s, U.S. MNEs grew rapidly internationally as they transferred and adapted known product and process technologies to foreign markets. Future success requires new technological innovations to sustain the competitiveness of U.S. MNEs' overseas subsidiaries. Innovation, however, has never been easy or routinely realized, and, some might argue, the U.S. domestic environment, especially regarding taxation, stifles innovation. Further affecting U.S. MNEs' foreign market competitiveness, foreign firms are becoming technologically equivalent, if not superior, to U.S. firms in many industries. One result has been an increasing trend towards foreign disinvestment by U.S. MNEs and an increasing sensitivity to comparative costs of production in locating manufacturing facilities internationally (including in the home market).⁶⁹

All of this implies a future global environment where firms' marketing and production decisions are more consistent with the traditional economic theory (that foreign trade and foreign production are substitutes), and that cost differences among production location alternatives will become increasingly important in the locating of plants. This in turn implies that production employment will be less stable for any single location, and that growth in jobs may well

be won at the expense of growth in income--and increasing pressures for political subsidies to sustain both employment and incomes. In this regard, the future may well be a test of the political maturity of the industrialized nations (which are both the major donors and recipients of direct foreign investment), and of their ability to constrain within reasonable bounds the non-competitive subsidies and other potential pressures they could develop to yield short-run, politically rewarding solutions to long-term, difficult and extremely significant economic and social problems.

Appendix

Data on Sales and Employment Levels, 1973-1978
in Selected U.S. Industries

TABLE A-1

Sales and Employment Levels, 1973 & 1978
 Electrical Machinery and Apparatus, Incl. Household Appliances
 (Selected Industries, SIC 36XX)

SIC No.	Industry	Value of Shipments ¹		Total Employment ²		Production Employment ²	
		1973	1978	1973	1978	1973	1978
3612	Transformers	1,663	1,997	51.0	44.0	40.0	34.0
3623	Welding Apparatus, Electric	748	1,335	16.2	19.0	10.8	13.0
3630	Household Appliances	7,751	11,532	174.0	180.0	140.0	143.0
3645, 3646 & 3648	Lighting Fixtures	2,126	2,692	61.0	56.0	47.0	43.0
Column Totals		12,288	17,556	302.2	299.0	237.8	233.0

Notes: ¹Values are in millions of current dollars.

²Entries are in thousands of employees.

Source: U.S. Department of Commerce, Industry and Trade Administration, 1979 U.S. Industrial Outlook (Washington, D.C.: U.S. Government Printing Office, 1979), pp. 33, 246, 259 and 412. (The Outlook, in turn, lists as sources the Bureau of the Census, the Industry and Trade Administration, the Bureau of Labor Statistics and the Bureau of Economic Analysis. These, and certain industry associations, are likewise cited as sources for subsequent tables in this appendix.)

TABLE A-2

Sales and Employment Levels, 1973 & 1978
 Drugs
 (Selected Industries, SIC 283X)

SIC No.	Industry	Value of Shipments ¹		Total Employment ²		Production Employment ²	
		1973	1978	1973	1978	1973	1978
2831	Biologicals	387	917	10.8	13.5	5.8	7.6
2833	Medicinals and Botani- cals	650	1,930	8.2	14.1	4.8	7.8
2834	Pharmaceu- tical Pre- parations	7,712	12,500	120.9	127.5	60.5	63.1
Column Totals		8,749	15,347	139.9	155.1	71.1	78.5

Notes: ¹Values are in millions of current dollars.

²Entries are in thousands of employees.

Source: U.S. Department of Commerce, Industry and Trade Administration,
1979 U.S. Industrial Outlook (Washington, D.C.: U.S. Government
 Printing Office, 1979), pp. 152, 153 and 154.

TABLE A-3

Sales and Employment Levels, 1973 & 1978
 Industrial Chemicals
 (Selected Industries, SIC 28XX)

SIC No.	Industry	Value of Shipments ¹		Total Employment ²		Production Employment ²	
		1973	1978	1973	1978	1973	1978
2812	Alkalies and Chlorine	884	1,975	13.3	13.0	9.7	8.8
2819	Industrial Inorganic Chemicals	4,234	8,450	64.6	75.0	40.1	44.0
2865	Cyclic Crudes & Intermediaries	2,426	5,700	29.5	29.0	19.0	16.9
2869	Industrial Organic Chemicals	10,666	26,100	103.0	111.0	66.0	74.0
Column Totals		18,210	42,225	210.4	228.0	134.8	143.7

Notes: ¹Values are in millions of current dollars.

²Entries are in thousands of employees.

Source: U.S. Department of Commerce, Industry and Trade Administration, 1979 U.S. Industrial Outlook (Washington, D.C.: U.S. Government Printing Office, 1979), pp. 115, 119, 123 and 125.

TABLE 4-A

Sales and Employment Levels, 1973 & 1978
Instruments
(Selected Industries, SIC 38XX)

SIC No.	Industry	Value of Shipments ¹		Total Employment ²		Production Employment ²	
		1973	1978	1973	1978	1973	1978
3811	Engineering & Scientific Instruments	1,244	2,325	41.3	47.5	25.0	28.1
3822, 3823, 3824 3829	Measuring and Controlling & Instruments	2,942	5,300	108.3	119.0	67.9	70.0
3825	Instruments for Measuring Electricity	1,736	3,400	60.2	68.0	38.9	41.0
3832	Optical and Analytical Instruments	595	1,320	18.5	30.7	10.9	17.1
3841	Surgical and Medical In- struments	1,080	2,338	36.0	50.0	26.0	32.0
3842	Surgical Appliances and Supplies	1,615	2,830	46.0	62.0	31.0	42.0
3843	Dental Equipment & Supplies	468	882	14.0	17.0	9.0	13.0
Column Totals		9,680	18,395	324.3	394.2	208.7	243.2

Notes: ¹Values are in millions of current dollars.

²Entries are in thousands of employees.

Source: U.S. Department of Commerce, Industry and Trade Administration,
1979 U.S. Industrial Outlook (Washington, D.C.: U.S. Government Printing
Office, 1979), pp. 316, 320, 323, 325, 331, 332 and 334.

TABLE A-5

Sales and Employment Levels, 1973 & 1978
 Transportation Equipment
 (Selected Industries, SIC 37XX)

SIC No.	Industry	Value of Shipments ¹		Total Employment ²		Production Employment ²	
		1973	1978	1973	1978	1973	1978
3711	Motor Vehicles	50,228	82,700	369.0	345.0	309.0	290.0
3713	Truck & Bus Bodies	1,596	2,950	45.6	46.8	35.8	39.3
3715	Truck Trailers	1,370	2,275	29.9	27.0	23.9	20.7
3721	Aircraft Industry	10,666	18,100	239.0	227.0	138.0	134.0
3724	Aircraft Engines & Engine Parts, and Space Propulsion Units & Parts	5,349	7,435	137.0	131.0	76.0	73.0
3728	Aircraft Equipment	3,467	6,030	107.0	110.0	71.0	73.0
3761	Guided Missiles and Space Vehicles and Space Vehicle Equipment Industry	5,464	7,739	138.0	117.0	52.0	44.0
Column Totals		78,140	127,229	1,065.5	1,003.8	705.7	674.0

Notes: ¹ Values are in millions of current dollars.

² Entries are in thousands of employees.

Source: U.S. Department of Commerce, Industry and Trade Administration, 1979 U.S. Industrial Outlook (Washington, D.C.: U.S. Government Printing Office, 1979), pp. 286, 296, 298 and 303.

TABLE A-6

Sales and Employment Levels, 1973 & 1978
 Electronic Products & Components
 (Selected Industries, SIC 36XX)

SIC No.	Industry	Value of Shipments ¹		Total Employment ²		Production Employment ²	
		1973	1978	1973	1978	1973	1978
3651	Consumer Electronics	5,147	6,100	92.0	74.0	75.0	55.0
3661	Telephone & Telegraph Equipment	5,025	7,922	140.0	114.0	100.0	83.0
3662	Electronic Systems & Equipment	9,726	15,900	323.0	344.0	163.0	167.0
3670	Electronic Components	10,783	15,735	395.0	367.0	283.0	249.0
Column Totals		30,681	45,657	950.0	899.0	621.0	554.0

Notes: ¹Values are in millions of current dollars.

²Entries are in thousands of employees.

Source: U.S. Department of Commerce, Industry and Trade Administration, 1979 U.S. Industrial Outlook (Washington, D.C.: U.S. Government Printing Office, 1979), pp. 273, 278, 283 and 404.

TABLE A-7

Sales and Employment Levels, 1973 & 1978
 Paper and Allied Products
 (Selected Industries, SIC 26XX)

SIC No.	Industries	Value of Shipments ¹		Total Employment ²		Production Employment ²	
		1973	1978	1973	1978	1973	1978
2611	Pulp Mills	848	2,165	10.8	16.1	9.0	12.0
2621, 2631 & 2661	Paper and Board	12,865	23,300	212.0	209.0	170.0	166.0
2643 & 2650	Paper & Paperboard Containers & Packaging	11,498	18,204	273.0	267.1	218.6	208.2
2640 (Except 2643)	Other Converted paper & Board	7,541	13,955	149.3	157.3	115.0	117.8
Column Totals		32,752	57,624	645.1	649.5	512.6	504.0

Notes: ¹Values are in millions of current dollars.

²Entries are in thousands of employees.

Source: U.S. Department of Commerce, Industry and Trade Administration, 1979 U.S. Industrial Outlook (Washington, D.C.: U.S. Government Printing Office, 1979), pp. 48, 54, 58 and 68.

TABLE A-8

Sales and Employment Levels, 1973 & 1978
Lumber, Wood Products and Furniture
(Selected Industries, SIC 24XX & SIC 2510)

SIC No.	Industry	Value of Shipments ¹		Total Employment ²		Production Employment ²	
		1973	1978	1973	1978	1973	1978
2421	Sawmills and Planning Mills	7,863	11,755	174.0	175.0	156.0	158.0
2451	Mobile Homes	3,360	3,565	76.0	52.0	63.0	42.0
2452	Prefabricated Wood Buildings	1,233	1,560	26.0	20.0	19.0	15.0
2510	Household Furniture	8,217	10,681	327.0	320.0	287.0	273.0
Column Totals		20,673	27,561	603.0	567.0	525.0	488.0

Notes: ¹Values are in millions of current dollars.

²Entries are in thousands of employees.

Source: U.S. Department of Commerce, Industry and Trade Administration,
1979 U.S. Industrial Outlook (Washington, D.C.: U.S. Government
Printing Office, 1979), pp. 27, 29, 39 and 415.

TABLE A-9

Sales and Employment Levels, 1973 & 1978
 Printing and Publishing
 (Selected Industries, SIC 27XX)

SIC No.	Industry	Value of Shipments ¹		Total Employment ²		Production Employment ²	
		1973	1978	1973	1978	1973	1978
2711	Newspaper Publishing	8,868	14,800	382.3	399.0	180.7	163.0
2721	Periodical Publishing	3,856	6,612	70.1	77.4	12.6	15.0
2731	Book Publishing	3,143	4,800	59.2	60.0	15.9	16.0
2732	Book Printing	1,064	1,585	42.8	44.0	34.4	36.0
2751, 2752 & 2754	Commercial Printing	9,961	16,300	347.3	376.9	265.4	282.7
2761	Manifold Business Forms	1,708	2,894	40.9	41.9	30.6	31.0
Column Totals		28,600	46,991	942.6	999.2	539.6	543.7

Notes: ¹Values are in millions of current dollars.

²Entries are in thousands of employees.

Source: U.S. Department of Commerce, Industry and Trade Administration,
 1979 U.S. Industrial Outlook (Washington, D.C.: U.S. Government
 Printing Office, 1979), pp. 92, 94, 96, 99 and 103.

TABLE A-10

Sales and Employment Levels, 1973 & 1978
Textiles and Apparel
(Selected Industries, SIC 2200 & SIC 2300)

SIC No.	Industry	Value of Shipments ¹		Total Employment ²		Production Employment ²	
		1973	1978	1973	1978	1973	1978
2200	Textile Mill Products	31,073	40,694	980.3	862.7	919.0	804.8
2300	Apparel and Other Textile Products	30,084	37,946	1,400.2	1,256.6	1,227.7	1,093.8
Column Totals		61,157	78,640	2,380.5	2,119.3	2,146.7	1,898.6

Notes: ¹Values are in millions of current dollars.

²Entries are in thousands of employees.

Source: U.S. Department of Commerce, Industry and Trade Administration,
1979 U.S. Industrial Outlook (Washington, D.C.: U.S. Government
Printing Office, 1979), pp. 362 and 372.

ENDNOTES

1. See, U.S., Congress, Senate, Senator Hartke introducing "The Foreign Trade and Investment Act of 1972," S. Res. 2592, 92d Cong., 1st sess., September 28, 1971, Congressional Record, CXVII, No. 142, S15135-42, for an analysis of the bills provisions. (The legislation was never enacted.)
2. U.S., Senate, Committee on Finance, Implications of Multinational Firms for World Trade and Investment and for U.S. Trade and Labor (Washington, D.C.: U.S. Government Printing Office, 1973). (Hereafter cited as Implications.) For a critical review of this report, see Duane Kujawa, "Review of Implications of Multinational Firms...", Law and Policy in International Business, Vol. 6, No. 2 (Spring 1974), pp. 615-26.
3. See, for example, Raymond Vernon, "International Investment and International Trade in the Product Life Cycle," Quarterly Journal of Economics, LXXX (May 1966), pp. 190-207.
4. See Robert B. Stobaugh, Nine Investments Abroad and Their Impact at Home (Boston: Division of Research, Graduate School of Business Administration, Harvard University, 1976).
5. See, for example, U.S., Congress, House of Representatives, Committee on Foreign Affairs, Foreign Investment in the United States, Hearings before the Subcommittee on Foreign Economic Policy, 93d Cong., 2d sess., 1974, pp. 9-10.
6. U.S. Department of Commerce, Foreign Direct Investment in the United States (Washington, D.C.: U.S. Government Printing Office, 1976). (Hereafter cited as FDI.) (See especially Volume 2, "Benchmark Survey, 1974".)
7. The International Investment Survey Act of 1976 requires comprehensive benchmark surveys every five years. Hopefully, the situation will soon be remedied.
8. Judd Polk, "American Labor and the U.S. Multinational Enterprise in an Emerging World Economy," American Labor and the Multinational Corporation, ed. by Duane Kujawa (New York: Praeger Publishers, Inc., 1973), pp. 278 and 280. (Note that "international production includes both exports and the local production of foreign affiliates.)
9. Peggy B. Musgrave, Direct Investment Abroad and the Multinationals: Effects on the United States Economy, a report prepared for the United States Senate, Committee on Foreign Relations, Subcommittee on Multinational Corporations (Washington, D.C.: U.S. Government Printing Office, 1975), pp. 13 & 14.
10. Obie G. Whichard, "U.S. Direct Investment Abroad in 1978," Survey of Current Business, August 1979, p. 15.

11. Comptroller General of the United States, Domestic Policy Issues Stemming from U.S. Direct Investment Abroad (Washington, D.C.: U.S. General Accounting Office, 1978), p. 76.
12. Implications, p. 161. (Percentages calculated by the author. The reader is cautioned that these data relate to conditions ten years ago, or more.)
13. Ibid, p. 160.
14. Ibid, p. 327.
15. Domestic Policy Issues, p. 3.
16. Ibid.
17. W.G. Dewald, "Do Imports and Exports Affect the Number of Jobs?" Bulletin of Business Research (The Ohio State University, Center for Business and Economic Research), June 1975, p. 6.
18. Stephen P. Magee, "Jobs and the Multinational Corporation: The Home-Country Perspective," Research in International Business and Finance, Volume 1, "The Economic Effects of Multinational Corporations," ed. by Robert G. Hawkins (Greenwich, Conn.: JAI Press, Inc., 1979), p. 11.
19. Ibid.
20. Stanley H. Ruttenberg & Associates, Needed: A Constructive Foreign Trade Policy (Washington, D.C.: Industrial Union Department, AFL-CIO, 1971).
21. This latter classification excludes imported products not produced in the United States and those imported but in short supply. Ibid, p. 66.
22. Ibid, pp. 62-63.
23. Ibid, p. 63.
24. Nathaniel Goldfinger, "An American Trade Union View of International Trade and Investment," Kujawa (ed.), American Labor, p. 35.
25. Ibid, pp. 37-38.
26. For an informative and thought-provoking analysis of several of these studies, see Michael Jay Jedel and John H. Stamm, "The Battle over Jobs: An Appraisal of Recent Publications on the Employment Effects of U.S. Multinational Corporations," Kujawa (ed.), American Labor, pp. 144-91.
27. The Impact of U.S. Foreign Direct Investment on U.S. Employment and Trade: An Assessment of Critical Claims and Proposals (New York: National Foreign Trade Council, Inc., 1971).
28. Ibid.

29. Implications. (The discussion which follows is based on the section of the Tariff Commission report "The Impact of the MNCs on U.S. Labor: Job Creation vs. Job Destruction," pp. 645-672).
30. Implications, pp. 671-72.
31. Robert H. Frank and Richard T. Freeman, "The Impact of United States Direct Foreign Investment on Domestic Unemployment," a report on a research project sponsored by the U.S. Departments of Labor, State and Treasury (mimeographed), May 1975. (This section of the paper is based wholly on this report.) This report was published as Distributional Effects of Multinational Enterprises, New York Basic Books, 1978.
32. A ratio of 100 percent would indicate U.S. production and foreign-based production were perfectly substitutable. The ratios ranged from 18.2 percent for the transportation industry to 61.5 percent for petroleum. For a discussion of the study, see Domestic Policy Issues, pp. 34-37.
33. Robert G. Hawkins, "Jobs, Skills and U.S. Multinationals," a statement to the Subcommittee of International Economic Policy, Committee on International Relations, U.S. House of Representatives (mimeographed), February 1976. (This section of the paper is based wholly on this report, especially pp. 10-15.)
34. Ibid, p. 11.
35. Ibid, pp. 17 and 19.
36. Jose de la Torre, Robert B. Stobaugh and Piero Telesio, "U.S. Multinational Enterprises and Changes in the Skill Composition of U.S. Employment," Kujawa (ed.), American Labor, p. 127.
37. Ibid, pp. 131-33.
38. Ibid, pp. 134 and 137.
39. Hawkins, "Jobs," p. 16.
40. Ibid, pp. 16 and 17.
41. Robert H. Frank and Richard T. Freeman, "The Distributional Consequences of Direct Foreign Investment," a paper presented at the Bureau of International Labor Affairs, U.S. Department of Labor Conference on "The Impact of International Trade and Investment on Employment: The Department of Labor Research Results" (Washington, D.C.), December 1976.
42. The presentation in this section borrows heavily from ideas developed and presented earlier by the present author in Duane Kujawa, "The Labour Relations of United States Multinationals abroad: Comparative and Prospective Views," Labour and Society, Vol. 4, No. 1 (January 1979), pp. 14-17.

43. For information on the testing of the PLC model and refinements during its development, see Louis T. Wells, Jr., The Product Life Cycle and International Trade (Boston: Harvard Business School, Division of Research, 1972).
44. For evidence on the source of export orders, see Claude L. Simpson, Jr. and Duane Kujawa, "The Export Decision Process: An Empirical Inquiry," Journal of International Business Studies, Spring 1974, pp. 107-17.
45. Stobaugh, Nine Investments.
46. See Raymond Vernon, Storm over the Multinationals: The Real Issues (Cambridge, Mass.: Harvard University Press, 1977), pp. 98-101, and Robert B. Stobaugh, "Multinational Competition for U.S. Manufacturing Companies," Journal of International Business Studies, Spring/Summer 1977, pp. 33-44.
47. Vernon, Storm, p. 100.
48. This section is included in the present report in response to a specific request by the International Labour Office that there be some discussion of employment spanning the 1974 recession. (The years 1973 and 1978 were selected for these comparisons since immediately after each major recessions developed.) Time and resource constraints necessitated using, and adapting, readily available data in response to this directive.
49. Implications, p. 561.
50. Given the convenience nature, and perhaps incompleteness, of the data presented in the appendix, no statistical tests on differences between means of the two groupings were prepared.
51. See note 12, Supra.
52. Paul J. Bailey, "Employment Effects of Multinational Enterprises: A Survey of Relevant Studies Relating to the Federal Republic of Germany," Working Paper No. 2 in the Multinational Enterprise Programme "Research on Employment Effects of Multinational Enterprises" of the International Labour Office (Geneva), 1979 (mimeographed), p. 26, and D. Van Den Bulcke and E. Halsberghe, "Employment Effects of Multinational Enterprises: A Belgian Case Study," Working Paper No. 1 in the Multinational Enterprise Program "Research on Employment Effects of Multinational Enterprises" of the International Labour Office (Geneva), 1979 (mimeographed), pp. 25-38.
53. FDI, "Benchmark Survey, 1974" Volume 2.
54. Data on 1976, 1977 and 1978 levels are from Gregory G. Fouch and L. A. Lupo, "Foreign Direct Investment in the United States in 1978," Survey of Current Business, August 1979, p. 39. Data on 1974 are from FDI, Vol. 2, p. 31.

55. The data in this paragraph are all taken from "Foreign Direct Investment in the United States: Report to the Congress by the Secretary of Commerce--Principal Findings," a report issued by the Office of Foreign Investment in the United States, U.S. Department of Commerce, June 1976 (mimeographed), especially pp. 2 and 3.
56. For a recent, interesting and rather thorough overview of foreign direct investors in the U.S., see Earl H. Fry, Financial Invasion of the U.S.A. (New York: McGraw-Hill Book Company, 1980). Also, for an interesting study including the potential negative employment effects in Japan of Japanese direct investment in the U.S., see "Japans Direct Investment in the United States," report of a study conducted by the Nikko Research Center, Ltd. (Tokyo), 1979.
57. Michael Jay Jedel and Duane Kujawa, "Industrial Relations Profiles of Foreign Owned Manufacturers in the United States," Multinationals, Unions and Labor Relations in Industrialized Countries, ed. by Robert F. Banks and Jack Stieber (Ithaca, N.Y.: New York State School of Industrial and Labor Relations, Cornell University, 1977), p. 60.
58. FDI, "Management and Labor Practices," Vol. 5, Appendix I, p. I-57. (Michael Jay Jedel and Duane Kujawa were project co-directors to the U.S. Department of Commerce on this study and were the authors of the report.)
59. Ibid, p. I-60.
60. Ibid, pp. I-10 and I-11.
61. Obie G. Whichard, "Employment and Employee Compensation of U.S. Affiliates of Foreign Companies, 1974," Survey of Current Business, December 1978, pp. 23-34+.
62. Ibid, pp. 24 and 25.
63. Ibid, pp. 25 and 26.
64. Ibid, p. 26.
65. FDI, Vol. 5, Appendix I, p. I-24.
66. See, for example, Lawrence G. Franko, The European Multinationals (Stamford, Conn.: Greylock Publishers, 1976), pp. 162-185.
67. For an expanded discussion of these trends, see Duane Kujawa, "The Multinationals and the State: Commentary and a Look to the Future," Contemporary Perspectives in International Business (Chicago: Rand McNally Publishing Company, 1979), pp. 300-303.
68. Franko, Multinationals, p. 173.
69. See, for example, Vernon, Storm, p. 100.