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## The Economic Effects of International Trade in Armaments in the Major Western Industrialized and Developing Countries\*

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**ABSTRACT**

We have used the Michigan Model of World Production and Trade to assess the impact of exports and imports of armaments (based on 1980 data) on sectoral trade and employment and other economic variables in the major Western trading countries. If the United States were to place a unilateral embargo on its arms exports and imports, we calculate that it would experience a comparatively small amount of employment displacement in the aggregate and that most of this displacement would occur in the transport equipment and electric machinery sectors. If all the major Western countries were to place a multilateral embargo on their arms trade, the sectoral effects on the United States would be similarly small. But the sectoral effects in several other industrialized and developing countries, measured as a percentage of sectoral employment, would be larger, indicating potential short-run adjustment problems in labor markets in some cases.



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**INTRODUCTION**

The purpose of our paper is to assess the effects that the level and composition of the international trade in armaments of the major Western trading countries may have on their sectoral trade and employment and other economic variables of interest. We base our assessments on two experiments that we have conducted, using the computational, general equilibrium Michigan Model of World Production and Trade. First, given the existing trade in armaments in 1980, we assume that the United States imposes a unilateral embargo on both its exports and imports of armaments. We then calculate the sectoral effects that may occur in the United States and the other major trading countries. The second experiment assumes that all of the major Western nations, including the United States, jointly place an embargo on their exports and imports of armaments, and we again calculate the sectoral effects involved.

Since the existing trade in armaments is reflected in the sectoral production and employment in each country, the assumed embargoes can be interpreted to indicate how important this trade is to individual sectors and overall if the trade were not permitted to take place. Calculations such as these are of interest if unilateral or multilateral decisions

were to be taken to reduce or eliminate trade in armaments directly or through reductions in military spending in an effort to defuse potential military conflicts.

Our paper proceeds as follows. In the next section, we provide some information on the pattern of trade in armaments for 1980, which is the year we chose for constructing the data. We then present a brief description of the Michigan Model and the computational experiments. Our computational results are summarized in the following section, and we end with some concluding comments.

### **THE PATTERN OF TRADE IN ARMAMENTS FOR 1980**

In Table 1, we show the U.S. dollar value of total trade in armaments for 1980 by source and destination for the major Western industrialized and developing countries/regions. This table is a summation of the separate categories of military goods, including ships, aircraft, communications equipment, and a category that corresponds to Standard International Trade Classification (SITC) 951 that comprises all other types of military goods. The sources and methodology used in constructing the table are described at length in Grobar and Stern (1989).<sup>1</sup>

Total armaments exports in 1980 by the major Western industrialized and developing countries amounted to \$18.3 billion, which constituted about 10% of total world trade in that year. The United States accounted for 34.2% of total military exports, followed by France (14.7%), Italy (10.4%), the United Kingdom (9.8%), West Germany (7.6%), and Israel (5.5%). About 40% of the total exports went to the major industrialized and developing countries themselves and the remaining 60% to the rest of the world, chiefly the Middle East.

The data in Table 1 understate the value of world trade in armaments since they do not include the exports and imports of the Soviet Union, other Eastern Bloc countries, and the Peoples Republic of China (PRC) to one another and to all other countries/regions. According to Grimmett (1988, p. CRS-55), arms deliveries to the Third World in 1980 by the Socialist countries were larger in total than the \$11.2 billion that we show in Table 1

for the Western countries combined. The estimates are \$13.9 billion for the Soviet Union, \$1.2 billion for other Bloc countries, and \$0.3 billion for the PRC. The Middle East (particularly Iran and Iraq) and South Asia were the largest recipients of these arms transfers.

In what follows, we concentrate our attention on the economic effects of the armaments trade of the major Western trading countries that are included in the Michigan Model. A more complete analysis would consider the armaments trade of the Socialist countries just mentioned. However, since the Socialist countries and the remaining developing countries are subsumed in the "rest-of-world" in the Michigan Model, we cannot take the economic effects of their armaments trade directly into account and therefore leave this for future study.

It is also important to note that our choice of 1980 for purposes of analysis was dictated in large measure by the data requirements of the Michigan Model. The choice of year is of importance since there is evidence – see Grimmett (1988) – that arms shipments fluctuate considerably from year to year and do not follow a consistent trend. We could in principle have chosen a number of different years for purposes of comparison, but time and resource constraints have limited our efforts in constructing the requisite data.<sup>2</sup>

Since our computational experiments are carried out in the framework of the Michigan Model, it may be helpful to describe some of its pertinent features and how the unilateral and multilateral embargoes on the arms trade that we have assumed for computational purposes will be reflected in the important variables of the model.

### **BRIEF DESCRIPTION OF THE MICHIGAN MODEL**

Since the theoretical structure and equations of the Michigan Model are described in detail in Deardorff and Stern (1986, pp. 9–36 and 235–47), we present here accordingly an overview of the model and call attention to some of its most important features.

## Structure of the Michigan Model

The model is best thought of as composed of two parts: the country system and the world system. The country system contains separate blocks of equations for the individual tradable and nontradable sectors for each country, and the world system contains a single set of equations for individual tradable sectors for the world as a whole. The country blocks are used first to determine each country's supplies and demands for goods and currencies on world markets, as functions of exogenous variables and of world prices and exchange rates. These functions for each country are then combined to provide the input to the world system that permits world prices and exchange rates to be determined. These variables are finally entered back into the separate country blocks to obtain values for other country-specific variables.

The world system is much simpler than the country system. We start with the export-supply and import-demand functions from the country equations that depend on both world prices and exchange rates. To get world prices we simply add these supplies and demands for all countries and set the difference equal to net demand from the rest of the world. To get exchange rates, when these are flexible, we likewise add the values of these excess supplies for a given country for all industries and equate the resulting trade balances to exogenously given net capital flows. As mentioned, once we obtain the world prices for each traded-good industry and the exchange rate for each country, we can enter them into the separate country blocks in order to determine the rest of the relevant country-specific variables.

The aggregate behavior of the model depends crucially on what is assumed about aggregate expenditure. Since our objective is to concentrate on microeconomic and intersectoral issues, we wanted a neutral characterization of macroeconomic policy such that aggregates would remain largely unaffected when allowing for some policy change. At various times, we have either treated aggregate nominal expenditure as essentially exogenous, or, alternatively, let aggregate expenditure vary endogenously so as to



maintain aggregate employment unchanged. It is the former assumption that underlies all of the experiments that are described below.

In designing the Michigan Model, the objective was to take into account as many as possible of the interconnections among industries and countries at the microeconomic level. This enables us to examine a variety of economic issues that most other existing models cannot address, either because they are too highly aggregated, or because they are specified only in partial-equilibrium terms. By the same token, however, the Michigan Model is far too large to be able to say anything concrete without further specification of its parameters. Thus, to implement the model, we need a realistic selection of countries and industries using, as far as possible, actual data to generate the parameters.

#### Data and parameters

The current version of the model includes 22 tradable and 7 nontradable industries in 18 industrialized and 16 developing countries, plus an aggregate sector representing the rest of the world.<sup>3</sup> We use a base of 1980 data on trade, production, and employment for all 34 countries, plus tariffs and constructed measures of NTBs for the 18 industrialized countries.

#### Trade, production, and employment

The import and export data are adapted from United Nations trade tapes, with concordances that relate the SITC to our International Standard Industrial Classification (ISIC) industry categories. Information on the gross value of production and employment by ISIC sector is directly calculated or estimated from United Nations, *Yearbook of Industrial Statistics*, from Organization for Economic Cooperation and Development (OECD) publications on national accounts and labor statistics, and from various national statistical sources.

### Nontariff barriers

NTBs in the model are represented in two forms: as coverage indexes and as tariff equivalents. The coverage indexes serve to reflect the role of existing NTBs when other barriers are removed. The tariff equivalents, on the other hand, permit analysis of the removal of the NTBs themselves.

### Exchange rates

As is commonly done in real trade theory, we impose a balance-of-trade constraint for the countries in the model. We model the industrialized countries in terms of a flexible exchange-rate regime. Thus, when the trade balance changes due to some exogenous change introduced into the model, we use the exchange rate as the mechanism for restoring the trade balance to its original position. Capital flows are thus exogenous. Most developing countries in the model are assumed to have a system of import licensing with exchange-rate pegging. The purpose here is to capture elements of the existing NTBs in the developing countries.

### Input-output tables

Our input-output coverage currently includes national tables for all of the industrialized countries except Switzerland, taken from various years ranging from 1975 for Japan and members of the EEC to 1982 for Finland. The 1977 table for the United States is applied to Switzerland. For the developing countries our coverage includes the 1975 table for Brazil, Chile 1977, Israel 1977, Korea 1980, Portugal 1981, and Spain 1980. The Brazilian table is applied to the remaining developing countries. The use of national tables allows for differences in technology among the countries included in the model.<sup>4</sup>

### Coefficients and elasticities

In general, the coefficients of explanatory variables that appear in the model are calculated from our data on production, trade, and employment by sector in each country,

from the input-output matrices, and from relevant published estimates of demand and substitution elasticities. The import-demand elasticities used in the model are based upon the "best guesstimates" of U.S. import-demand elasticities calculated by Stern et al. (1976). Using the import-demand elasticities together with data on trade, we calculate the implied elasticities of substitution in demand between imports and home-produced goods in each country. The implicit import-demand elasticities in other countries are derivable from the common elasticities of substitution and differ across countries due to their differences in shares of trade.<sup>5</sup> We use elasticities of substitution between capital and labor in each sector, based upon Zarembka and Chernicoff (1971). These were estimated from U.S. data, but are assumed in our model to apply for all countries.

#### Solution procedure

Given appropriate data and parameter estimates for the countries and sectors noted, solution of the model is, in principle, straightforward. By differentiating the equations of the model, we obtain a system of linear equations relating changes in all of the variables of the system. The coefficients in each of these linear equations are evaluated using the data and elasticity information collected. All that remains is to solve the system. Since the system is linear, it can in principle be solved by any of a variety of means.

In our solution procedure, we have devised several Fortran subroutines that process large partitioned matrices in which many of the partitioned blocks contain only zeros, and which avoid costly but meaningless computations involving these zeros. We use a Fortran programming technique known as dynamic dimensioning to avoid wasting computer-memory space on these empty blocks, even as the contents of all blocks change during the course of the solution. We apply these techniques first to each of the 34 countries separately to solve for their net exports in terms of world prices, exchange rates, and exogenous variables. We then use the world system equations to complete the solution. We report our results both in terms of the percentage changes in the endogenous

variables of the model as well in absolute magnitudes that are obtained by multiplying the percentage changes by the relevant data in our data base.

#### Comparison with other models

The Michigan Model differs from full Walrasian general equilibrium models, such as Whalley (1984), that use a benchmark-equilibrium approach. Rather, as mentioned above, the Michigan Model is based on the Johansen (1960) approach in which the equations of the model are first differentiated and the resulting linear system is then solved computationally. This has the advantage of permitting greater computational detail and the inclusion of elements of disequilibrium especially in labor markets. It should also be mentioned that the Michigan Model is premised on the existence of profit-maximizing, perfectly competitive firms in all sectors, with constant returns to scale. It does not allow accordingly for imperfect competition and economies of scale.<sup>6</sup> More will be said on this below.

#### **COMPUTATIONAL EXPERIMENTS**

As already noted, the trade in armaments has been disaggregated into military ships, aircraft, communications equipment, and a variety of other items included in SITC 951, and then concorded to the ISIC sectoral breakdown used in the Michigan Model. Thus, the trade in military ships and transport equipment was concorded to ISIC sector 384 (transport equipment), military communications equipment to ISIC 383 (electrical machinery), and SITC 951 trade to six different ISIC sectors (331, 355, 371, 381, 382, and 383). We then calculated the ratios of military exports and imports to total sectoral exports and imports for each of these seven sectors for each country in the model. These ratios are shown in Tables 2 and 3.

We assume throughout that the trade in military goods is based on commercial considerations, and, further, that military goods are perfect substitutes in world markets along with other goods included in the relevant sector aggregates irrespective of country of

origin.<sup>7</sup> However, imported military goods are treated as imperfect substitutes for both military and nonmilitary goods produced domestically for the home market in a given sector, whereas military goods classified in different sectors are not considered substitutes at all.

Our first experiment was to assume that the United States imposed a unilateral embargo designed to reduce its exports and imports of armaments to zero. The reductions in trade were based on the ratios of military to total trade in the seven sectors just noted. It may be useful to indicate briefly how this unilateral embargo would be expected to work in the model. The effects will depend on whether exports or imports are restricted the most in particular sectors. In case imports are restricted more than exports, demand in the United States would be diverted towards domestic industries producing substitutes for the imported armaments. The reduction in U.S. imports would lead to a reduction in world prices. This would tend to reduce arms exports and increase arms imports for the other countries, depending on the sectoral elasticities involved. If U.S. exports are restricted more than imports, there would be a shift of production away from the sectors producing arms exports to other sectors in the economy, including nontradables. In this case, the world price of armaments would increase, leading to an expansion of arms exports and a reduction of imports in other countries.

The net effects on the United States of a unilateral embargo on its arms trade will thus depend on whether the sectors involved are net exporters or importers. The same will be true for other countries. The net export/import positions for each country in the model are indicated in Table 4. It is evident, for example, that the United States was a net importer of military goods classified in the nonelectric machinery sector and a net exporter of military goods especially in the electric machinery and transport equipment sectors.

We should also note that there will be other indirect effects of an embargo arising from the way in which the industry aggregates are constructed, changes in input costs,

and changes in the effective exchange rate. Since military trade is represented as a fraction of total sectoral trade, the price changes that occur will stimulate or reduce trade in other goods within a sector that may in some sense be considered substitutes for military goods. Thus, if the U.S. embargo on its military exports increases the world price of both military goods and other goods that are included in the sector aggregate, U.S. exports in that sector will rise. By the same line of reasoning, U.S. imports of nonmilitary goods within a sector could increase if the world price of these goods were to fall. As mentioned, there will also be effects arising from changes in the prices of intermediate inputs. Finally, since the embargo will not in general be balanced in terms of its direct effects on total exports and imports, the exchange rate will also change and there will be further changes in exports and imports that take place so as to restore the trade balance to its original position. The other countries in the model will be influenced by the various effects described. In all cases, the changes in sectoral employment will mirror the changes in sectoral output.

If all the existing arms exports and imports were confined to the 34 countries in the model, a multilateral embargo on arms trade would not affect world prices since trade would be restricted at both ends. It is important to note, however, as indicated in Table 1, that 60% of the arms exports of the Western countries in 1980 went to the rest-of-world, which is assumed not to take measures to restrict its imports. In this case, since arms exports are greater than imports for the major suppliers, a multilateral embargo will increase the world price. Since the rest-of-world is modeled as having its own export supply and import demand functions vis-a-vis the world market, the price rise will induce the rest-of-world to import less and supply more, at the same time that it induces similar behavior in the countries included in the model.

It thus appears that there will be a variety of responses to the unilateral/multilateral embargo of trade in armaments. Let us turn then to the computational results of the two experiments.

## RESULTS

As already mentioned, our procedure in the two experiments was to reduce the sectoral ratios of military to total exports and imports to zero and enter them as exogenous changes into the model. The model solution yields a variety of percentage changes in endogenous variables by sector as well as economy-wide weighted averages. Absolute changes are calculated using the reference year data.

The summary results for the first experiment of a unilateral U.S. embargo on its arms exports and imports are noted in Table 5. Columns 1 and 3 measure the value of the change in exports and imports at constant prices. U.S. exports decline by \$2.1 billion, which is 1.0% of the 1980 level and imports decline by \$2.3 billion, which is 0.9% of the 1980 level. The gross change in U.S. employment in column 5 measures the number of workers that would have to change jobs in the export and home sectors. This is an estimated 140 thousand workers, which is 0.14% of 1980 U.S. employment. The U.S. terms of trade improve by 0.06%,<sup>8</sup> the dollar depreciates by 0.5%, and domestic prices increase by 0.1%. These changes thus appear to be comparatively small. The same is true of the effects on the other countries in the model.

The results summarized in Table 5 are based on aggregation of the detailed sectoral effects. It is interesting therefore to consider the sectoral detail in order to determine what the intersectoral adjustments might be in response to the unilateral embargo on U.S. arms shipments. The net employment changes are shown as a percent of 1980 sectoral employment in Table 6. These reflect the extent to which sectoral output and therefore employment will have increased or decreased on balance in response to the embargo, assuming fixed money wages. For the United States, the largest largest net employment reductions are in transport equipment (1.9%) and electric machinery (1.7%). These correspond to employment declines of 43 thousand and 38 thousand workers, respectively. All of the other changes are less than 1%, except for leather products.

The results for the other industrialized countries listed in Table 6 indicate an expansion of employment especially in the transport equipment and electric machinery sectors. This reflects both the shift away from imports towards domestic goods resulting from the higher world prices of imports of military goods and the expansion of exports. In France, West Germany, Italy, Japan, and the United Kingdom, it is evident, except for leather products (ISIC 324) and petroleum and related products (ISIC 35B), that the changes are in general 1% or less of 1980 sectoral employment. The sizable percentage changes in leather products and petroleum and related products reflect the unusually high supply elasticities as calculated based on the primary input shares in the input-output tables used in the model, and the results should be viewed in the context of these high elasticities. The effects on the 16 major developing countries included in the model, but not reported in Table 6, are fairly small and qualitatively similar to the effects on the industrialized countries just noted.

The summary results of the multilateral embargo on arms exports and imports are listed in Table 7. In this case, total exports are reduced by \$9.9 billion and total imports by \$9.1 billion, both of which are less than 1% of the 1980 levels. The gross change in U.S. employment is 118 thousand workers, which is 0.12% of 1980 employment. For the other industrialized countries, the largest gross changes in employment are for France (60 thousand), Japan (42 thousand), West Germany (36 thousand), and Italy (31 thousand). In this experiment, the developing countries are assumed as well to place an embargo on their arms exports and imports. Some of them are shown to experience sizable gross changes in employment, especially South Korea (153 thousand), India (141 thousand), Brazil (140 thousand), and Yugoslavia (128 thousand). The percentage changes in the terms of trade, effective exchange rate, and domestic prices are comparatively small in most countries, except for Israel, South Korea, and Yugoslavia.

The net percentage changes in sectoral employment for the industrialized and the developing countries for the multilateral embargo experiment are listed in Table 8. The



results for the United States are broadly similar to those relating to the unilateral U.S. embargo. But there are some noteworthy differences here for the other industrialized countries, depending on whether they are net exporters or net importers of military goods. Thus, France and Italy show employment declines in the transport equipment and electric machinery sectors and several other countries show declines as well in one or the other of these two sectors. Japan shows increases in both of these sectors as do most of the smaller countries, reflecting the switch towards domestic production that would be brought about by the arms embargo. The results in Table 8 suggest more broadly that there might be some significant adjustment pressures in a number of sectors in several industrialized countries, although the orders of magnitude are not of major proportions. For example, there is a percentage decline in employment of 4.1% in the transport equipment sector in France and sizable declines in this sector in Switzerland, the Netherlands, and Belgium-Luxembourg, whereas there are sizable increases in several other countries.

There are some strikingly large percentage employment changes in a number of the developing countries, in particular Israel, South Korea, Portugal, and Yugoslavia. Some of the changes for the developing countries may reflect the uncertain quality of the estimates of their trade in military goods and possible problems in the data used to represent their sectoral input-output characteristics. Granting this, there remains the possibility that a multilateral embargo on arms shipments could be disruptive to labor markets in a number of important sectors in these countries.

## **CONCLUSION**

We have made an effort in this paper to assess the impact of exports and imports of armaments on sectoral trade and employment and other economic variables in the major Western industrialized and developing countries. This assessment was based on calculations of what the effects would be if military trade were to be subject to embargo, either unilaterally by the United States or multilaterally by all the major Western trading countries. In the case of a unilateral U.S. embargo, we showed that there would be a

comparatively small amount of employment displacement in the aggregate in the United States, and that most of this displacement would occur in the transport equipment and electrical machinery sectors. Employment in these sectors was seen to expand in the other major trading countries insofar as the world prices of military goods would rise and there would be an increase in exports or a shift towards domestic substitutes in other countries.

If a multilateral embargo on arms trade were to be implemented by all the major Western industrialized and developing countries, the effects on the United States were again fairly small and broadly similar to the unilateral U.S. embargo. The effects in several other industrialized and developing countries, measured as a percentage of employment, were much larger, indicating that there might be some adjustment problems in labor markets as workers were induced to move from one sector to another. However, the adjustment problems would not be of major proportions in most cases.

Our experiments are limited by the choice of a single year, 1980, for purposes of analysis and concentration only on the military trade of the Western countries. Since military trade fluctuates from year to year, the employment effects of an embargo would also vary to the same extent. But it seems unlikely that these effects would be qualitatively much different in size in comparison to what we have obtained. It would be interesting to determine what the effects would be if the embargo were to apply to the arms shipments of the Soviet Bloc countries and the PRC as well as the Western countries. This is something that we plan for future investigation.

Another consideration is that we have modeled all producing sectors as perfectly competitive. This does not take into account the possibility of economies of scale in producing military goods and imperfect competition in the supply and pricing of these goods. We have been constrained by the available data in constructing our industry aggregates and the absence of systematic information pertaining to production technology and pricing behavior. These are clearly formidable problems that require careful attention

in their own right. It remains to be seen therefore whether and how our results would be materially affected by better data and the implementation of other modeling alternatives.

Finally, there is the larger question of what the effects would be of a sizable reduction in domestic military spending in the major countries. To investigate this question, we need information on the sectoral composition of military spending to correspond to the trade in military goods that we have measured in the present paper. Further, we would have to make some assumption about what happens to the spending instead.<sup>9</sup> It would then be possible to use the Michigan Model to assess the aggregate and sectoral effects of unilateral and/or multilateral reductions in military spending together with embargoes on trade in military goods. This also awaits future study.

### Footnotes

<sup>1</sup>Our data sources included primarily publications of various years of the U.S. Arms Control and Disarmament Agency (ACDA), the United Nations (UN), the Stockholm International Peace Research Institute (SIPRI), Leontief and Duchin (1989), and Ball and Leitenberg (1988). On the basis of these sources, we constructed estimates of the direction of the arms trade for each of the 34 countries in the Michigan Model. Adjustments were made to take into account military trade that was already included or apparently excluded from the trade reported in the official UN trade statistics. Finally, the military trade data were concorded to the International Standard Industrial Classification (ISIC) sectors used in the Michigan Model.

<sup>2</sup>To the extent that the relative positions of the major Western arms suppliers remain fairly stable, fluctuations in arms shipments from year to year would be reflected mainly in the absolute magnitudes of the changes in trade, employment, and other variables that we report below based on our computational experiments.

<sup>3</sup>The countries are listed in Tables 2-5, and the industries are listed in Table 6.

<sup>4</sup>But our sector aggregates may obscure technological differences in the production of military and nonmilitary goods in given sectors.

<sup>5</sup>Use of these elasticities is subject to the limitation that they are valid, at most, only for the range of prices for which they were estimated. This should not be a problem for the results reported here, however, for which individual prices changed in most cases on average by only a few percent.

<sup>6</sup>See Brown and Stern (1989) for a Johansen type computational model that incorporates scale economies and at the same time allows for different market structures and pricing behavior of imperfectly competitive firms.

<sup>7</sup>See Glismann and Horn (1988) for an analysis of the international arms trade using a framework in which this trade is governed by political considerations and alliances and subject to constraints imposed on arms production in West Germany and Japan.

<sup>8</sup>Apart from the way we construct our sector aggregates, terms-of-trade effects would depend on whether a country were a net arms exporter or importer insofar as the assumed embargo will raise the world prices of arms. But since, in our model, arms are mixed in with non-arms trade, the embargo will alter world prices for the more broadly defined industries. The terms of trade effects for individual countries reported in Table 5 and in Table 7 below will thus depend on how a country's overall pattern of trade correlates with the pattern of arms trade that is being reduced. This may explain, for example, why Japan's terms of trade are seen to improve in Tables 5 and 7 even though Japan is a net importer of arms.

<sup>9</sup>If overall spending is simply reduced, then there will be a negative effect on overall employment, at least in the countries where spending is reduced. Alternatively, we could have the spending switched to other sectors in proportion to spending overall. The effects would be to reduce prices everywhere for the sectors that produce the military goods that are no longer bought, and there will be an adjustment of output and employment out of these sectors and into others.

## References

- Ball, Nicole and Milton Leitenberg. (1983) Editors. *The Structure of the Defense Industry*. London: Croom Helm.
- Brown, Drusilla K. and Robert M. Stern. (1989). U.S.-Canada Bilateral Tariff Elimination: The role of product differentiation and market structure. In Robert C. Feenstra, editor, *Trade Policies for International Competitiveness*. Chicago: University of Chicago Press.
- Deardorff, Alan V. and Robert M. Stern. (1986). *The Michigan Model of World Production and Trade: Theory and Applications*. Cambridge, MA: MIT Press.
- Glismann, Hans H. and Ernst-Jurgen Horn. (1988). International Arms Trade: revealed political preferences or cartel behaviour? Kiel Working Paper No. 318, The Kiel Institute of World Economics.
- Grimmett, Richard F. (1988). Trends in Conventional Arms Transfers to the Third World by Major Supplier, 1980-1987, CRS Report for Congress 88-352 F, Congressional Research Service, The Library of Congress.
- Grobar, Lisa M. and Robert M. Stern. (1989). A Data Set on International Trade in Armaments for the Western Industrialized and Developing Countries for 1980: Sources and methodological issues. In process.
- Johansen, Leif. (1960). *A Multi-Sectoral Study of Economic Growth*. Amsterdam: North-Holland.
- Leontief, Wassily and Faye Duchin. (1983). *Military Spending*. New York: Oxford University Press.
- Stern, Robert M., Jonathan Francis, and Bruce F. Schumacher. (1976). *Price Elasticities in International Trade*. London: Macmillan Press.
- Stockholm International Peace Research Institute (SIPRI). *World Armaments and Disarmament Yearbook*.
- United Nations. *Yearbook of International Trade Statistics*.

United States Agency for Arms Control and Disarmament (ACDA). *World Military Expenditures and Arms Transfers*.

Whalley, John. (1984). *Trade Liberalization Among Major World Trading Areas*.  
Cambridge, MA: MIT Press.

Zarembka, Paul and Helen Chernicoff. (1973). Further Results on the Empirical  
Relevance of the CES Production Function. *Review of Economics and Statistics*, 53,  
106-110.

Table 1

Source and Destination of Total Trade in Armaments for the  
Major Western Industrialized and Developing Countries, 1980  
(Millions of U.S. Dollars)

Country of Origin	Country/Region of Destination									Total World
	Major Industrialized Countries	Major Developing Countries	Rest of the World					Total ROW		
			Africa	Latin America	Middle East	Asia	Other			
<b>Major Industrialized Countries</b>										
France	66.1	292.6	637.1	153.3	1,309.4	187.0	55.2	2,342.0	2,700.7	14.7%
West Germany	330.0	188.5	388.0	76.1	352.5	65.8	--	882.4	1,400.9	7.6
Italy	389.1	646.6	360.0	173.5	300.0	30.5	--	864.0	1,899.7	10.4
Netherlands	54.7	104.1	--	*	*	*	--	135.0	293.8	1.6
United Kingdom	336.1	292.2	119.0	22.6	908.8	49.2	71.5	1,171.1	1,799.4	9.8
United States	1,836.5	1,626.6	109.4	82.6	1,757.4	850.9	--	2,800.3	6,263.4	34.2
Other	284.3	295.2	*	*	*	*	*	1,387.7	1,967.2	10.7
<b>Subtotal</b>	<b>3,296.8</b>	<b>3,445.8</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>9,582.5</b>	<b>16,325.1</b>	<b>89.0</b>
<b>Major Developing Countries</b>										
Brazil	16.8	22.3	*	*	*	--	--	110.6	149.7	0.8
Israel	100.0	131.1	*	*	*	*	--	768.0	999.1	5.5
South Korea	17.2	--	*	*	--	*	*	233.3	250.5	1.4
Turkey	1.0	--	*	--	--	--	--	109.0	110.0	0.6
Other	3.4	48.6	*	*	*	*	*	434.2	486.2	2.7
<b>Subtotal</b>	<b>138.4</b>	<b>202.0</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>1,655.1</b>	<b>1,995.5</b>	<b>11.0</b>



Country of Origin	Country/Region of Destination								Total ROW	Total World
	Major Industrialized Countries	Major Developing Countries	Rest of the World							
			Africa	Latin America	Middle East	Asia	Other			
<b>Total (Mill. \$)</b>	3,435.2	3,647.8						11,237.6	18,320.6	
<b>%</b>	18.8	19.9						61.3	100.0%	

Note: Greece, Portugal, and Spain are included in industrialized countries in this table but are shown as developing countries in all subsequent tables. Warsaw Pact and People's Republic of China (PRC) are included in Other ROW. The data exclude arms exports and imports of the Soviet Union, other Eastern Bloc countries, and the PRC to one another and to all other countries/regions.

\*Indicates that evidence of trade is occurring between the country and region was found in at least one source, but that the exact amount of that trade is not known.



Table 2  
Export Arms Trade by ISIC Sector as Percent of Total 1980 Trade

	Wood & Rubber Products	Iron & Steel	Metal Products	Nonelectric Machinery	Electric Machinery	Transportation Equipment
<b>Developed Countries</b>						
Australia	0.6	0.0	0.4	1.2	2.5	5.0
Austria	0.1	0.0	0.0	0.2	2.2	2.2
Canada	0.0	0.1	0.1	0.2	1.4	0.7
<b>European Community</b>						
Belgium-Lux	0.3	0.0	0.0	0.1	1.0	1.5
Denmark	0.3	0.0	0.0	0.4	0.7	0.0
France	0.1	0.0	0.0	0.1	9.2	12.8
W. Germany	0.2	0.0	0.1	0.1	2.1	3.3
Ireland	0.0	0.0	0.0	0.0	0.4	3.0
Italy	0.4	0.9	0.0	3.2	11.9	11.0
Netherlands	0.8	0.2	0.3	0.7	0.4	7.1
U.K.	1.7	1.3	1.3	1.5	5.7	6.2
Finland	0.0	0.0	0.0	0.2	0.2	0.2
Japan	0.2	0.0	0.0	0.0	0.1	0.1
New Zealand	0.0	0.0	0.0	0.2	0.3	0.0
Norway	0.0	0.0	0.0	0.0	0.0	3.2
Sweden	0.0	0.0	0.0	0.1	3.2	1.5
Switzerland	3.6	0.0	0.0	0.2	15.6	13.1
U.S.	1.1	0.8	2.9	0.0	16.9	12.6
<b>Developing Countries</b>						
Argentina	0.1	0.0	0.0	0.7	3.1	0.7
Brazil	0.2	0.0	0.0	0.2	8.9	5.9
Chile	0.0	0.0	0.0	1.7	0.0	0.0
Colombia	0.0	0.0	0.0	0.0	0.0	1.4
Greece	0.0	0.0	0.0	9.5	2.9	0.0
India	0.0	0.0	0.0	0.0	4.9	8.4
Israel	33.4	31.6	20.3	57.0	33.6	31.1
S. Korea	0.0	0.0	0.0	5.8	7.1	6.9
Mexico	0.0	0.0	0.0	0.2	0.3	0.0
Portugal	0.4	0.0	0.0	18.5	9.1	2.9
Singapore	0.0	0.0	0.0	0.0	0.0	0.0
Spain	0.1	0.0	0.1	1.3	1.5	2.3
Taiwan	0.0	0.0	0.0	0.0	0.1	0.4
Turkey	2.7	0.0	0.0	0.8	28.4	39.7
Yugoslavia	0.0	0.0	0.0	0.0	11.9	19.4

Table 3

Import Arms Trade by ISIC Sector as Percent of Total 1980 Trade

	Wood & Rubber Products	Iron & Steel	Metal Products	Nonelectric Machinery	Electric Machinery	Transportation Equipment
<b>Developed Countries</b>						
Australia	0.1	0.0	0.0	0.0	4.1	9.4
Austria	0.3	0.0	0.0	0.6	2.2	1.9
Canada	0.1	0.0	0.0	0.0	1.5	2.0
<b>European Community</b>						
Belgium-Lux	0.2	0.0	0.0	0.3	2.9	3.7
Denmark	0.0	0.0	0.0	0.2	4.9	11.9
France	0.1	0.0	0.0	0.1	0.1	0.2
W. Germany	0.2	0.0	0.0	0.7	1.9	3.0
Ireland	0.0	0.0	0.0	0.0	0.5	1.5
Italy	0.1	0.0	0.0	0.1	0.1	0.7
Netherlands	0.1	0.0	0.0	0.5	2.4	6.1
U.K.	0.0	0.0	0.1	0.2	1.0	1.2
Finland	0.3	0.0	0.0	0.2	3.6	8.7
Japan	0.0	0.0	0.0	0.1	2.4	8.7
New Zealand	1.4	0.0	0.0	0.2	0.5	1.0
Norway	0.1	0.0	0.0	0.1	3.5	9.0
Sweden	0.3	0.0	0.0	0.1	0.9	1.7
Switzerland	0.4	0.0	0.0	0.2	0.2	0.6
U.S.	0.3	0.0	0.0	0.4	0.1	0.2
<b>Developing Countries</b>						
Argentina	0.0	0.0	0.0	0.1	2.6	13.7
Brazil	0.0	0.0	0.0	0.7	2.6	8.1
Chile	0.5	0.0	0.1	0.6	17.6	17.7
Colombia	0.0	0.0	0.1	0.3	6.3	6.5
Greece	0.1	0.0	1.2	0.3	8.9	10.1
India	0.0	0.0	0.0	0.3	21.8	32.0
Israel	0.1	0.0	0.0	11.7	39.1	37.0
S. Korea	1.0	0.0	0.0	2.3	5.1	19.0
Mexico	0.0	0.0	0.0	0.0	0.1	0.4
Portugal	2.7	0.0	0.1	0.8	1.7	4.7
Singapore	0.1	0.0	0.0	0.1	0.1	0.4
Spain	0.7	0.0	0.0	0.4	3.5	11.2
Taiwan	0.0	0.0	0.0	0.0	5.1	31.9
Turkey	0.0	0.0	0.0	0.0	5.0	25.5
Yugoslavia	0.0	0.0	0.0	0.0	7.1	10.2

Table 4  
Net Exports of Arms by ISIC Sector, 1980 in \$Millions

	Wood & Rubber Products	Iron & Steel	Metal Products	Nonelectric Machinery	Electric Machinery	Transportation Equipment	All Sectors
<b>Developed Countries</b>							
Australia	1.8	0.6	1.2	4.0	-51.7	-195.0	-239.1
Austria	-1.2	0.0	-0.3	-11.3	-4.6	-23.0	-40.3
Canada	0.0	1.6	1.1	3.2	-29.3	-153.0	-176.4
<b>European Community</b>							
Belgium-Lux	0.5	-0.0	-0.7	-11.1	-47.3	-134.0	-192.6
Denmark	1.6	0.0	-0.1	3.5	-45.6	-149.0	-189.6
France	-1.5	-0.0	-0.3	-0.4	597.4	2062.0	2657.1
W. Germany	-4.7	-0.2	9.7	-47.1	136.2	674.0	767.9
Ireland	-0.0	-0.0	-0.0	-0.1	-1.1	-5.5	-6.7
Italy	10.2	34.8	0.1	382.9	481.3	917.7	1827.0
Netherlands	6.0	3.3	6.2	-1.8	-84.0	-81.5	-151.7
U.K.	41.3	32.5	63.0	193.6	294.0	756.7	1381.1
Finland	-0.3	0.0	-0.1	-0.2	-30.2	-127.9	-158.7
Japan	10.3	0.0	0.7	2.9	-36.8	-222.0	-244.8
New Zealand	-1.9	0.0	-0.0	-1.0	-1.0	-6.4	-10.3
Norway	-0.4	-0.0	-0.0	-2.6	-36.6	-133.1	-172.8
Sweden	-1.7	0.0	0.4	2.8	52.8	22.8	77.1
Switzerland	12.8	0.0	-0.1	6.3	488.9	136.5	644.4
U.S.	20.5	31.4	224.2	-43.3	2166.0	3710.0	6108.7
<b>Developing Countries</b>							
Argentina	-0.0	0.0	-0.1	0.8	-32.5	-163.0	-194.8
Brazil	1.8	0.2	-0.0	-11.1	15.8	-2.5	4.1
Chile	-0.7	0.0	-0.1	-2.4	-100.3	-148.0	-251.5
Colombia	-0.0	0.0	-0.2	-2.0	-24.2	-42.7	-69.2
Greece	-1.3	-0.0	-3.3	1.9	-44.9	-185.0	-232.6
India	0.0	0.0	0.0	-3.1	-138.1	-519.0	-660.2
Israel	66.2	49.8	99.7	320.7	-586.8	-553.0	-603.4
S. Korea	-3.6	-0.0	0.0	-19.5	73.7	-294.0	-243.3
Mexico	-0.1	0.0	0.0	0.2	-0.7	-11.5	-12.0
Portugal	-0.8	0.0	-0.1	19.4	20.8	-30.0	9.3
Singapore	-0.1	0.0	-0.0	-2.1	-1.7	-6.0	-9.9
Spain	-2.8	0.0	1.4	12.5	-41.4	-128.8	-159.1
Taiwan	-0.0	-0.0	-0.1	-0.2	-104.5	-544.0	-648.9
Turkey	0.6	0.0	0.0	0.3	-8.0	-44.0	-51.1
Yugoslavia	-0.1	0.0	0.1	-0.3	55.6	112.0	167.2

TABLE 5

SUMMARY OF EFFECTS ON THE MAJOR INDUSTRIALIZED  
AND DEVELOPING COUNTRIES DUE TO  
A UNILATERAL U.S. EMBARGO ON EXPORTS AND IMPORTS OF MILITARY GOODS

	VALUE OF CHANGE IN EXPORTS		VALUE OF CHANGE IN IMPORTS		GROSS CHANGE IN EMPLOYMENT*		% CHANGE IN TERMS OF TRADE	PCT CHANGE IN EFF. IN RATE#	PCT CHANGE IN PRICES+
	\$ MILL.	PCT	\$ MILL.	PCT	000 WKR	PCT			
<b>INDUSTRIALIZED COUNTRIES</b>									
AUSTRALIA	-33.6	-0.2	-34.6	-0.2	1.7	0.03	-0.14	0.0	-0.0
AUSTRIA	18.6	0.1	-14.4	-0.1	2.6	0.08	0.01	-0.1	0.0
CANADA	-15.8	-0.0	-31.9	-0.1	6.2	0.06	-0.07	0.4	-0.0
<b>EUROPEAN COMMUNITY</b>									
BELGIUM LUXEMBOURG	14.7	0.0	6.4	0.0	2.4	0.06	0.04	-0.0	0.0
DENMARK	12.2	0.1	0.7	0.0	1.3	0.05	0.01	-0.0	0.0
FRANCE	-98.2	-0.1	-90.6	-0.1	11.0	0.05	0.10	0.0	-0.0
GERMANY	-112.1	-0.1	171.7	0.1	17.9	0.06	0.14	0.2	-0.0
IRELAND	10.6	0.1	-4.7	-0.0	0.7	0.06	-0.03	-0.1	0.1
ITALY	42.0	0.1	-4.3	-0.0	15.2	0.07	0.06	0.1	-0.0
NETHERLANDS	-9.5	-0.0	-34.8	-0.0	1.9	0.04	-0.01	-0.0	-0.0
UNITED KINGDOM	-132.1	-0.1	-119.5	-0.1	13.4	0.05	0.03	0.1	-0.0
TOTAL EC	-272.4	-0.0	-75.2	-0.0	63.8	0.06	0.08	0.1	-0.0
FINLAND	-33.6	-0.2	-18.7	-0.1	1.2	0.06	-0.01	0.0	-0.0
JAPAN	-207.2	-0.2	259.5	0.2	20.8	0.04	0.39	0.4	-0.0
NEW ZEALAND	-2.9	-0.1	-9.6	-0.2	0.3	0.02	-0.11	-0.0	-0.0
NORWAY	-63.8	-0.3	-18.8	-0.1	0.9	0.04	-0.13	0.0	-0.0
SWEDEN	39.9	0.1	-12.4	-0.0	5.1	0.12	0.09	0.0	0.0
SWITZERLAND	-102.3	-0.3	-13.0	-0.0	2.1	0.07	0.01	0.1	-0.1
UNITED STATES	-2058.6	-1.0	-2285.5	-0.9	140.1	0.14	0.06	-0.5	0.1
<b>TOTAL INDUSTRIALIZED</b>	<b>-2731.8</b>	<b>-0.2</b>	<b>-2254.5</b>	<b>-0.2</b>	<b>244.8</b>	<b>0.08</b>	<b>0.10</b>	<b>-0.1</b>	<b>0.0</b>
<b>DEVELOPING COUNTRIES</b>									
ARGENTINA	-94.5	-1.2	-121.6	-1.2	9.6	0.10	-0.17	0.0	0.1
BRAZIL	-74.6	-0.4	-80.2	-0.3	11.1	0.03	0.07	0.0	0.0
CHILE	-11.1	-0.3	-17.6	-0.4	0.6	0.02	-0.11	0.0	0.0
COLOMBIA	-0.4	-0.0	-15.8	-0.4	1.5	0.03	-0.13	0.0	0.1
GREECE	-174.1	-3.4	-208.1	-2.0	26.6	0.70	-0.12	0.0	0.6
HONG KONG	19.0	0.1	-23.7	-0.1	5.3	0.26	0.00	-0.1	0.1
INDIA	-5.3	-0.1	-12.9	-0.1	11.3	0.00	0.02	0.0	0.0
ISRAEL	4.7	0.1	-5.0	-0.1	0.5	0.04	0.03	0.0	0.0
SOUTH KOREA	9.9	0.1	4.3	0.0	2.7	0.02	0.09	0.0	-0.0
MEXICO	-27.7	-0.3	-66.1	-0.5	4.6	0.02	-0.20	0.1	0.0
PORTUGAL	-26.9	-0.6	-47.6	-0.5	3.8	0.10	0.01	0.0	0.3
SINGAPORE	-60.9	-0.3	-70.0	-0.3	2.1	0.20	-0.00	0.0	0.0
SPAIN	-77.5	-0.4	-106.9	-0.3	4.1	0.04	0.12	0.0	0.1
TAIWAN	75.3	0.4	96.7	0.7	15.0	0.22	-0.01	0.0	-0.5
TURKEY	-34.5	-1.2	-52.7	-0.7	12.3	0.09	0.00	0.0	0.1
YUGOSLAVIA	-14.2	-0.1	-38.0	-0.2	3.7	0.05	0.07	-0.2	0.0
<b>TOTAL LDC'S</b>	<b>-492.9</b>	<b>-0.3</b>	<b>-765.2</b>	<b>-0.3</b>	<b>114.9</b>	<b>0.02</b>	<b>-0.02</b>	<b>0.0</b>	<b>0.0</b>
<b>ALL COUNTRIES</b>	<b>-3224.7</b>	<b>-0.2</b>	<b>-3019.7</b>	<b>-0.2</b>	<b>359.7</b>	<b>0.04</b>	<b>0.08</b>	<b>-0.1</b>	<b>0.0</b>

\*REFERS TO SUM OF CHANGES IN THE HOME AND EXPORT SECTORS WITHIN INDUSTRIES.

#POSITIVE = APPRECIATION.

+INDEX OF IMPORT AND HOME PRICES.

TABLE 6  
NET PERCENTAGE CHANGES IN EMPLOYMENT BY ISIC SECTOR  
IN THE MAJOR INDUSTRIALIZED COUNTRIES DUE TO  
A UNILATERAL U.S. EMBARGO ON EXPORTS AND IMPORTS OF MILITARY GOODS

		ALA	ATA	BLX	CND	DEN	FIN	FR	GFR	IRE
<b>TRADED GOODS</b>										
AGR., FOR., & FISH.	( 1)	-0.21	-0.18	-0.11	-0.21	-0.10	-0.15	-0.09	-0.11	0.02
FOOD, BEV., & TOB.	(310)	-0.11	-0.03	-0.03	-0.06	-0.12	0.01	-0.09	-0.05	0.02
TEXTILES	(321)	-0.21	-0.49	-0.16	0.04	-0.16	-0.85	-0.57	-0.41	0.04
WEARING APPAREL	(322)	-0.13	-0.89	-0.30	-0.08	-0.36	-1.92	-0.44	-0.38	0.01
LEATHER PRODUCTS	(323)	-1.12	-1.14	-0.32	-0.92	-0.46	-1.71	-0.76	-0.70	0.00
FOOTWEAR	(324)	-0.14	-0.16	-0.15	-0.09	-0.06	-0.25	-0.12	-0.12	0.11
WOOD PRODUCTS	(331)	-0.05	-0.30	-0.08	-0.36	-0.14	-0.15	-0.26	-0.20	0.03
FURNITURE & FIXT.	(332)	-0.00	0.00	0.03	-0.05	-0.04	-0.06	-0.05	-0.10	0.22
PAPER & PAPER PROD.	(341)	-0.09	-0.35	-0.21	-0.49	-0.12	-0.50	-0.27	-0.20	0.08
PRINTING & PUBL.	(342)	-0.02	-0.04	-0.08	-0.07	-0.03	-0.08	-0.09	-0.09	0.09
CHEMICALS	(35A)	-0.02	-0.04	-0.07	-0.09	-0.04	-0.06	-0.11	-0.29	0.15
PETROL. & REL. PROD.	(35B)	-4.36	-2.59	-11.82	-1.19	-3.30	-1.90	-1.00	-4.58	-1.97
RUBBER PRODUCTS	(355)	0.25	0.40	0.17	0.41	0.13	0.35	0.12	-0.10	0.34
NONMETALLIC MIN. PROD.	(36A)	0.06	0.08	0.11	0.02	0.06	-0.06	-0.01	-0.31	1.05
GLASS & GLASS PROD.	(362)	0.08	0.10	0.04	-0.04	0.04	-0.00	-0.10	-0.97	0.73
IRON & STEEL	(371)	0.43	0.21	0.19	0.65	-0.09	0.32	0.08	-0.16	0.35
NONFERROUS METALS	(372)	0.19	-0.48	-0.73	-1.86	-0.53	-0.38	-0.23	-0.49	-0.03
METAL PRODUCTS	(381)	0.12	0.32	0.16	0.22	0.08	0.27	0.17	-0.01	0.31
NONELEC. MACHINERY	(382)	-0.02	-0.08	-0.12	-0.08	-0.12	-0.09	-0.04	-0.15	0.12
ELEC. MACHINERY	(383)	0.68	1.40	0.64	0.79	0.95	1.89	0.78	0.68	0.56
TRANSPORT EQUIP.	(384)	0.46	1.16	1.10	1.54	2.00	0.91	0.76	0.60	0.57
MISC. MANUFACT.	(38A)	0.03	0.01	-0.03	-0.11	-0.04	-0.03	-0.06	-0.26	0.23
<b>TOTAL TRADED</b>		<b>-0.00</b>	<b>0.04</b>	<b>0.01</b>	<b>0.03</b>	<b>0.07</b>	<b>-0.09</b>	<b>0.03</b>	<b>-0.03</b>	<b>0.13</b>
<b>NONTRADED GOODS</b>										
MINING & QUARRYING	( 2)	-0.61	-0.23	-0.07	-0.86	-0.12	-0.39	-0.68	-0.34	0.06
ELEC., GAS, & WATER	( 4)	0.00	0.04	0.05	-0.01	0.03	-0.14	0.02	-0.08	0.00
CONSTRUCTION	( 5)	-0.02	-0.01	0.00	-0.01	-0.02	-0.00	-0.00	0.03	-0.08
WH. & RET. TRADE	( 6)	-0.01	0.01	0.04	0.02	0.02	0.01	0.01	0.02	-0.02
TRANSP., STOR., & COMM.	( 7)	-0.01	0.01	0.02	-0.00	0.01	-0.02	-0.03	-0.00	0.01
FIN., INS., & REAL EST.	( 8)	-0.02	0.05	0.02	0.01	0.01	0.01	0.01	0.03	-0.01
COMM., SOC., & PERS. SERV.	( 9)	-0.01	-0.01	-0.00	-0.00	0.00	-0.01	-0.00	0.01	-0.01
<b>TOTAL NONTRADED</b>		<b>-0.02</b>	<b>0.00</b>	<b>0.01</b>	<b>-0.02</b>	<b>0.00</b>	<b>-0.01</b>	<b>-0.01</b>	<b>0.01</b>	<b>-0.02</b>

TABLE 6  
(continued)NET PERCENTAGE CHANGES IN EMPLOYMENT BY ISIC SECTOR  
IN THE MAJOR INDUSTRIALIZED COUNTRIES DUE TO  
A UNILATERAL U.S. EMBARGO ON EXPORTS AND IMPORTS OF MILITARY GOODS

		IT	JPN	NL	NZ	NOR	SWD	SWZ	UK	US
TRADED GOODS										
AGR., FOR., & FISH.	( 1)	-0.03	-0.11	-0.11	-0.04	-0.20	-0.13	-0.22	-0.05	0.34
FOOD, BEV., & TOB.	(310)	-0.05	0.09	-0.10	-0.05	-0.02	-0.07	-0.11	-0.02	0.20
TEXTILES	(321)	-0.29	-0.59	-0.17	0.02	-0.54	-0.90	-1.40	-0.30	0.98
WEARING APPAREL	(322)	-0.33	-0.15	-0.52	-0.14	-0.74	-2.42	-0.89	-0.29	0.54
LEATHER PRODUCTS	(323)	-0.40	-0.34	-0.66	-0.75	-1.87	-4.58	-0.64	-0.34	1.98
FOOTWEAR	(324)	-0.14	-0.18	-0.10	-0.02	-0.07	-0.35	-0.50	-0.05	0.46
WOOD PRODUCTS	(331)	-0.09	-0.08	-0.05	-0.02	-0.10	-0.10	-0.27	-0.17	0.29
FURNITURE & FIXT.	(332)	-0.04	-0.09	0.01	0.02	0.00	-0.13	-0.12	-0.08	0.27
PAPER & PAPER PROD.	(341)	-0.17	-0.25	-0.16	-0.15	-0.26	-0.57	-0.74	-0.16	0.58
PRINTING & PUBL.	(342)	-0.06	-0.06	-0.01	-0.01	-0.01	-0.06	-0.30	-0.06	0.18
CHEMICALS	(35A)	-0.10	-0.27	0.04	0.03	-0.08	-0.03	-0.53	-0.19	0.59
PETROL. & REL. PROD.	(35B)	-4.04	-1.74	-2.12	-7.02	-1.74	-21.13	-1.24	-10.28	0.63
RUBBER PRODUCTS	(355)	0.18	-0.54	0.31	0.29	0.47	0.32	-0.19	0.21	0.35
NONMETALLIC MIN. PROD.	(36A)	-0.22	-0.03	0.16	0.07	0.09	0.14	-0.15	-0.17	0.29
GLASS & GLASS PROD.	(362)	-0.23	-0.11	0.12	0.05	0.15	0.10	-0.14	-0.65	0.85
IRON & STEEL	(371)	0.05	-0.24	0.23	0.49	0.36	0.37	-0.24	0.01	0.03
NONFERROUS METALS	(372)	-0.26	-0.30	-0.29	-1.46	-0.84	-0.30	-1.54	-2.64	0.87
METAL PRODUCTS	(381)	0.12	-0.00	0.15	0.16	0.22	0.34	-0.15	0.13	-0.13
NONELEC. MACHINERY	(382)	-0.18	-0.07	-0.02	0.01	-0.05	-0.10	-0.68	-0.19	0.44
ELEC. MACHINERY	(383)	0.62	0.48	0.69	0.54	1.23	2.30	1.29	0.60	-1.66
TRANSPORT EQUIP.	(384)	1.20	0.45	0.75	0.53	0.74	1.36	1.33	0.83	-1.93
MISC. MANUFACT.	(38A)	-0.14	-0.35	-0.08	0.05	-0.03	-0.03	-0.50	-0.28	0.57
TOTAL TRADED		0.05	-0.06	0.05	0.01	0.00	0.16	-0.22	-0.02	0.01
NONTRADED GOODS										
MINING & QUARRYING	( 2)	-0.16	-0.50	-1.38	-0.48	-5.49	-0.87	-1.01	-0.35	0.70
ELEC., GAS, & WATER	( 4)	0.02	-0.06	0.13	-0.00	-0.27	0.05	-0.18	-0.05	0.15
CONSTRUCTION	( 5)	0.01	0.04	-0.01	-0.03	-0.02	0.01	0.01	0.01	0.04
WH. & RET. TRADE	( 6)	0.03	0.01	0.01	-0.01	-0.02	0.02	-0.04	-0.00	0.05
TRANSP., STOR., & COMM.	( 7)	0.04	-0.01	0.01	-0.01	-0.03	0.02	-0.09	-0.01	0.07
FIN., INS., & REAL EST.	( 8)	0.03	-0.01	0.00	-0.00	0.00	0.02	-0.05	0.01	0.11
COMM., SOC., & PERS. SERV.	( 9)	0.01	0.01	-0.01	-0.02	0.01	-0.01	-0.01	-0.01	0.06
TOTAL NONTRADED		0.02	0.01	-0.00	-0.02	-0.06	0.00	-0.04	-0.01	0.07



TABLE 7

SUMMARY OF EFFECTS ON THE MAJOR INDUSTRIALIZED  
AND DEVELOPING COUNTRIES DUE TO  
A MULTILATERAL EMBARGO ON EXPORTS AND IMPORTS OF MILITARY GOODS

	VALUE OF CHANGE IN EXPORTS		VALUE OF CHANGE IN IMPORTS		GROSS CHANGE IN EMPLOYMENT*		% CHANGE IN TERMS OF TRADE	PCT CHANGE IN EFF. EX. RATE#	PCT CHANGE IN PRICES+
	\$ MILL.	PCT	\$ MILL.	PCT	OOO WKR	PCT			
<b>INDUSTRIALIZED COUNTRIES</b>									
AUSTRALIA	-135.1	-0.6	-259.8	-1.3	6.5	0.10	-0.26	0.0	0.1
AUSTRIA	-68.2	-0.4	-102.7	-0.4	3.8	0.12	-0.01	0.0	0.1
CANADA	-211.8	-0.3	-256.8	-0.4	12.5	0.12	-0.12	0.3	0.0
EUROPEAN COMMUNITY									
BELGIUM LUXEMBOURG	-266.5	-0.4	-263.5	-0.4	7.3	0.19	0.05	0.0	0.3
DENMARK	-111.9	-0.7	-125.4	-0.6	5.0	0.21	-0.01	0.3	0.1
FRANCE	-829.3	-0.7	-754.0	-0.6	59.6	0.28	0.15	-0.4	0.2
GERMANY	-1010.6	-0.5	-564.5	-0.3	35.8	0.13	0.23	0.3	0.0
IRELAND	0.2	0.0	-18.2	-0.2	1.0	0.09	-0.08	-0.1	0.2
ITALY	-515.5	-0.7	-553.6	-0.6	31.1	0.15	0.06	-0.2	0.1
NETHERLANDS	-322.0	-0.4	-358.2	-0.5	12.7	0.26	-0.03	-0.0	0.2
UNITED KINGDOM	-737.8	-0.7	-705.4	-0.6	19.5	0.08	0.05	0.0	0.1
TOTAL EC	-3793.4	-0.6	-3342.8	-0.5	172.1	0.16	0.12	-0.0	0.1
FINLAND	-22.3	-0.2	-121.0	-0.8	4.9	0.23	-0.03	0.0	0.2
JAPAN	-702.2	-0.5	97.8	0.1	41.8	0.08	0.64	0.5	-0.0
NEW ZEALAND	-11.0	-0.2	-23.6	-0.4	0.7	0.05	-0.22	0.0	0.0
NORWAY	-85.9	-0.5	-135.2	-0.8	4.6	0.24	-0.18	0.0	0.1
SWEDEN	36.2	0.1	-101.9	-0.3	6.3	0.15	0.15	0.0	0.1
SWITZERLAND	-503.7	-1.7	-161.5	-0.4	0.7	0.02	-0.02	0.2	-0.1
UNITED STATES	-2496.5	-1.2	-2574.2	-1.0	118.1	0.12	0.07	-0.4	0.1
<b>TOTAL INDUSTRIALIZED</b>	<b>-7994.1</b>	<b>-0.7</b>	<b>-6981.7</b>	<b>-0.5</b>	<b>372.0</b>	<b>0.13</b>	<b>0.15</b>	<b>-0.0</b>	<b>0.1</b>
<b>DEVELOPING COUNTRIES</b>									
ARGENTINA	-66.2	-0.8	-104.8	-1.0	8.1	0.09	-0.31	0.0	0.1
BRAZIL	-257.5	-1.3	-260.4	-1.0	139.5	0.32	0.06	0.0	0.2
CHILE	-10.9	-0.3	-22.2	-0.5	0.6	0.02	-0.24	0.0	0.1
COLOMBIA	-1.1	-0.1	-17.5	-0.5	1.2	0.02	-0.25	0.0	0.1
GREECE	-131.4	-2.6	-171.8	-1.6	21.4	0.56	-0.25	0.0	0.5
HONG KONG	12.0	0.1	-28.7	-0.1	4.2	0.20	-0.01	-0.0	0.1
INDIA	-29.2	-0.4	-37.2	-0.4	141.2	0.05	-0.01	0.0	0.0
ISRAEL	-279.3	-5.0	-289.6	-3.6	27.7	2.19	-0.01	-2.0	2.2
SOUTH KOREA	-466.3	-2.7	-466.1	-2.1	153.2	1.13	0.11	0.0	1.5
MEXICO	-50.1	-0.6	-97.0	-0.8	4.4	0.02	-0.30	0.1	0.0
PORTUGAL	-130.6	-2.8	-149.0	-1.6	18.3	0.47	0.01	0.0	1.0
SINGAPORE	-84.3	-0.4	-94.1	-0.4	3.2	0.30	-0.00	0.0	0.1
SPAIN	-169.1	-0.8	-181.6	-0.5	11.0	0.10	0.15	0.0	0.1
TAIWAN	-50.6	-0.3	-32.7	-0.2	8.3	0.12	-0.03	0.0	0.1
TURKEY	-50.8	-1.7	-67.3	-0.9	36.0	0.25	-0.07	0.0	0.2
YUGOSLAVIA	-123.7	-1.3	-140.4	-0.9	128.5	1.58	0.10	-0.5	0.6
<b>TOTAL LDC'S</b>	<b>-1889.0</b>	<b>-1.1</b>	<b>-2160.4</b>	<b>-0.9</b>	<b>706.8</b>	<b>0.15</b>	<b>-0.05</b>	<b>-0.1</b>	<b>0.2</b>
<b>ALL COUNTRIES</b>	<b>-9883.0</b>	<b>-0.7</b>	<b>-9142.0</b>	<b>-0.6</b>	<b>1078.8</b>	<b>0.14</b>	<b>0.12</b>	<b>-0.0</b>	<b>0.1</b>

\*REFERS TO SUM OF CHANGES IN THE HOME AND EXPORT SECTORS WITHIN INDUSTRIES.

#POSITIVE = APPRECIATION.

+INDEX OF IMPORT AND HOME PRICES.

TABLE 8  
NET PERCENTAGE CHANGES IN EMPLOYMENT BY ISIC SECTOR  
IN THE MAJOR INDUSTRIALIZED AND DEVELOPING COUNTRIES DUE TO  
A MULTILATERAL EMBARGO ON EXPORTS AND IMPORTS OF MILITARY GOODS

		ALA	ATA	BLX	CND	DEN	FIN	FR	GFR	IRE
<b>TRADED GOODS</b>										
AGR., FOR., & FISH.	( 1)	-0.43	-0.21	-0.03	-0.37	-0.37	0.01	0.29	-0.03	0.07
FOOD, BEV., & TOB.	(310)	-0.25	0.01	0.08	-0.12	-0.46	0.04	0.32	0.05	0.03
TEXTILES	(321)	-0.37	-0.76	-0.03	0.09	-0.67	-0.30	1.60	-0.35	0.16
WEARING APPAREL	(322)	-0.18	-1.60	-0.14	-0.10	-1.23	-1.51	0.97	-0.33	0.07
LEATHER PRODUCTS	(323)	-2.00	-1.82	-0.19	-1.57	-1.43	-1.33	1.50	-0.68	0.10
FOOTWEAR	(324)	-0.36	-0.42	-0.08	-0.18	-0.27	-0.11	0.53	-0.03	0.13
WOOD PRODUCTS	(331)	-0.07	-0.30	-0.44	-0.23	-0.57	0.15	1.16	-0.08	0.16
FURNITURE & FIXT.	(332)	0.00	-0.04	-0.01	-0.09	-0.82	0.10	0.45	-0.06	0.20
PAPER & PAPER PROD.	(341)	-0.18	-0.70	-0.05	-0.94	-0.56	-0.42	0.89	-0.17	0.17
PRINTING & PUBL.	(342)	-0.07	-0.22	-0.06	-0.17	-0.23	-0.01	0.40	-0.08	0.09
CHEMICALS	(35A)	-0.31	-0.34	-0.14	-0.53	-0.55	-0.09	0.55	-0.41	0.02
PETROL. & REL. PROD.	(35B)	-3.47	-2.55	-8.12	-0.85	-4.79	-1.55	0.81	-3.55	-0.55
RUBBER PRODUCTS	(355)	-0.05	0.14	0.00	0.17	-0.89	0.41	0.68	-0.21	0.43
NONMETALLIC MIN. PROD.	(36A)	-0.10	-0.24	-0.27	-0.38	-1.65	-0.09	0.63	-0.54	0.20
GLASS & GLASS PROD.	(362)	-0.25	-0.41	-0.58	-1.11	-1.83	-0.28	1.33	-1.72	0.12
IRON & STEEL	(371)	-0.28	-0.25	-0.14	-0.43	-0.93	0.29	0.87	-0.42	0.29
NONFERROUS METALS	(372)	-0.35	-1.01	-0.48	-3.27	-2.16	-0.56	0.42	-0.56	0.04
METAL PRODUCTS	(381)	0.04	-0.07	0.11	0.07	-1.03	0.17	0.89	-0.15	0.28
NONELEC. MACHINERY	(382)	-0.20	-0.15	-0.31	-0.23	-1.01	-0.22	0.34	-0.12	0.29
ELEC. MACHINERY	(383)	2.27	1.91	0.91	1.45	1.76	4.20	-1.38	0.90	0.36
TRANSPORT EQUIP.	(384)	2.34	1.67	-2.53	2.74	6.26	3.87	-4.10	0.03	-1.06
MISC. MANUFACT.	(38A)	0.00	-0.16	0.04	-0.66	-1.09	-0.00	0.76	-0.25	0.19
<b>TOTAL TRADED</b>		<b>0.07</b>	<b>-0.07</b>	<b>-0.26</b>	<b>-0.05</b>	<b>-0.21</b>	<b>0.26</b>	<b>-0.03</b>	<b>-0.08</b>	<b>0.07</b>
<b>NONTRADED GOODS</b>										
MINING & QUARRYING	( 2)	-0.88	-0.43	-0.06	-1.13	-0.75	-0.31	0.77	-0.34	0.15
ELEC., GAS, & WATER	( 4)	-0.01	-0.03	0.12	-0.04	0.19	0.04	0.34	-0.06	0.06
CONSTRUCTION	( 5)	-0.03	0.05	0.20	0.02	0.02	0.05	0.16	0.12	-0.03
WH. & RET. TRADE	( 6)	0.04	0.07	0.32	0.08	0.17	0.13	0.17	0.12	0.07
TRANSP., STOR., & COMM.	( 7)	-0.07	0.00	0.09	0.00	-0.01	0.08	0.16	0.03	0.03
FIN., INS., & REAL EST.	( 8)	0.06	0.07	0.21	0.09	0.17	0.16	0.16	0.18	0.08
COMM., SOC., & PERS. SERV.	( 9)	-0.02	0.06	0.16	0.05	0.11	0.12	0.13	0.09	0.06
<b>TOTAL NONTRADED</b>		<b>-0.02</b>	<b>0.05</b>	<b>0.20</b>	<b>0.02</b>	<b>0.11</b>	<b>0.11</b>	<b>0.16</b>	<b>0.09</b>	<b>0.05</b>

TABLE 8  
(continued)NET PERCENTAGE CHANGES IN EMPLOYMENT BY ISIC SECTOR  
IN THE MAJOR INDUSTRIALIZED AND DEVELOPING COUNTRIES DUE TO  
A MULTILATERAL EMBARGO ON EXPORTS AND IMPORTS OF MILITARY GOODS

		IT	JPN	NL	NZ	NOR	SWD	SWZ	UK	US
<b>TRADED GOODS</b>										
AGR., FOR., & FISH.	( 1)	0.07	-0.21	-0.09	-0.10	0.09	-0.03	-0.13	0.02	0.19
FOOD, BEV., & TOB.	(310)	0.12	0.18	-0.13	-0.18	0.00	0.08	-0.01	0.09	0.16
TEXTILES	(321)	0.39	-1.04	-0.12	0.13	-0.26	-0.32	-1.05	0.12	0.71
WEARING APPAREL	(322)	0.27	-0.26	-0.39	-0.31	-0.56	-2.23	-0.87	0.03	0.34
LEATHER PRODUCTS	(323)	0.33	-0.61	-0.23	-1.36	-1.62	-3.66	-0.52	-0.01	1.27
FOOTWEAR	(324)	0.22	-0.36	0.27	-0.04	0.00	-0.28	-0.45	0.09	0.30
WOOD PRODUCTS	(331)	-0.07	-0.15	-0.31	0.28	0.03	0.19	-0.83	-0.40	0.28
FURNITURE & FIXT.	(332)	0.13	-0.20	0.14	0.01	0.10	0.03	-0.22	0.13	0.20
PAPER & PAPER PROD.	(341)	0.24	-0.51	0.09	-0.37	-0.15	-0.24	-0.78	0.05	0.41
PRINTING & PUBL.	(342)	0.12	-0.13	0.13	-0.09	0.12	-0.05	-0.41	0.02	0.12
CHEMICALS	(35A)	0.25	-0.65	-0.04	-0.23	-0.20	-0.11	-0.71	-0.01	0.33
PETROL. & REL. PROD.	(35B)	0.21	-2.70	-1.48	-7.92	-1.45	-16.78	-0.56	-4.06	0.36
RUBBER PRODUCTS	(355)	0.90	-1.71	-0.32	0.61	0.60	0.35	-2.92	0.17	0.20
NONMETALLIC MIN. PROD.	(36A)	0.79	-0.16	0.09	-0.06	-0.08	0.04	-0.45	0.08	0.16
GLASS & GLASS PROD.	(362)	0.81	-0.43	0.07	0.04	0.15	-0.32	-0.82	0.08	0.39
IRON & STEEL	(371)	0.08	-0.86	-0.11	-0.00	0.17	0.18	-1.10	-0.16	-0.06
NONFERROUS METALS	(372)	0.05	-0.52	-0.28	-2.82	-1.27	-0.32	-2.26	-0.66	0.43
METAL PRODUCTS	(381)	0.44	-0.11	-0.17	0.06	-0.20	0.25	-0.52	-0.20	-0.21
NONELEC. MACHINERY	(382)	-1.48	-0.09	-0.58	0.04	-0.03	0.05	-0.55	-0.40	0.41
ELEC. MACHINERY	(383)	-1.52	0.87	1.17	1.03	3.35	1.91	-4.94	-0.39	-1.32
TRANSPORT EQUIP.	(384)	-0.28	1.08	-4.58	1.44	2.06	1.94	-9.91	-0.31	-1.47
MISC. MANUFACT.	(38A)	0.59	-0.86	-0.35	-0.03	-0.12	0.00	-0.66	0.29	0.39
<b>TOTAL TRADED</b>		<b>-0.04</b>	<b>-0.14</b>	<b>-0.29</b>	<b>-0.00</b>	<b>0.28</b>	<b>0.28</b>	<b>-1.23</b>	<b>-0.13</b>	<b>-0.04</b>
<b>NONTRADED GOODS</b>										
MINING & QUARRYING	( 2)	0.25	-0.83	-0.74	-0.58	-4.35	-0.70	-1.47	-0.12	0.40
ELEC., GAS, & WATER	( 4)	0.08	-0.18	0.43	-0.01	-0.05	0.15	-0.43	0.03	0.12
CONSTRUCTION	( 5)	0.05	0.08	0.18	-0.05	-0.11	0.02	0.10	0.08	0.04
WH. & RET. TRADE	( 6)	0.09	0.03	0.32	0.00	0.27	0.09	-0.09	0.07	0.05
TRANSP., STOR., & COMM.	( 7)	0.01	-0.03	0.23	-0.03	0.10	0.04	-0.21	0.01	0.06
FIN., INS., & REAL EST.	( 8)	0.06	-0.01	0.28	0.00	0.11	0.08	-0.07	0.05	0.11
COMM., SOC., & PERS. SERV.	( 9)	0.07	0.02	0.25	-0.02	0.17	-0.01	0.07	0.04	0.06
<b>TOTAL NONTRADED</b>		<b>0.07</b>	<b>0.02</b>	<b>0.26</b>	<b>-0.02</b>	<b>0.10</b>	<b>0.03</b>	<b>-0.04</b>	<b>0.05</b>	<b>0.07</b>

TABLE 8  
(continued)NET PERCENTAGE CHANGES IN EMPLOYMENT BY ISIC SECTOR  
IN THE MAJOR INDUSTRIALIZED AND DEVELOPING COUNTRIES DUE TO  
A MULTILATERAL EMBARGO ON EXPORTS AND IMPORTS OF MILITARY GOODS

		ARG	BRZ	CHL	COL	GRC	HK	IND	ISR	SK
<b>TRADED GOODS</b>										
AGR., FOR., & FISH.	( 1)	-0.01	0.14	0.01	-0.01	0.30	-0.04	0.04	2.48	1.51
FOOD, BEV., & TOB.	(310)	-0.12	-0.32	-0.07	-0.07	0.09	0.16	0.07	3.61	0.06
TEXTILES	(321)	-0.01	0.08	0.04	0.01	-0.05	0.09	0.02	4.01	-1.26
WEARING APPAREL	(322)	0.12	0.35	-0.01	-0.04	-0.06	-0.21	-0.19	2.98	-1.64
LEATHER PRODUCTS	(323)	-0.32	-0.23	0.10	-0.11	-2.33	-0.33	-0.36	3.41	-2.94
FOOTWEAR	(324)	-0.04	0.21	-0.04	-0.06	-0.17	-0.01	0.04	2.85	-1.96
WOOD PRODUCTS	(331)	0.74	0.10	0.08	0.24	0.94	0.22	0.06	-14.45	-0.16
FURNITURE & FIXT.	(332)	-0.11	0.42	0.19	0.09	0.73	0.42	0.23	2.53	-0.44
PAPER & PAPER PROD.	(341)	0.68	0.38	0.25	0.55	3.15	0.12	0.24	3.26	1.46
PRINTING & PUBL.	(342)	0.13	0.26	0.05	0.06	0.47	-0.01	0.05	2.20	0.58
CHEMICALS	(35A)	0.68	1.41	0.10	0.60	2.96	0.04	0.20	4.40	0.72
PETROL. & REL. PROD.	(35B)	-31.52	-3.72	-1.14	-3.14	-57.91	-48.38	-2.94	10.28	2.94
RUBBER PRODUCTS	(355)	0.35	-0.13	0.29	0.28	13.49	0.50	-0.01	-14.58	-0.67
NONMETALLIC MIN. PROD.	(36A)	0.04	0.31	0.10	0.00	0.49	0.02	0.12	2.05	0.63
GLASS & GLASS PROD.	(362)	0.30	0.23	0.27	0.13	2.39	0.00	0.04	4.22	0.14
IRON & STEEL	(371)	0.63	0.06	0.14	0.87	2.21	0.29	0.10	-16.55	-1.04
NONFERROUS METALS	(372)	0.19	0.53	0.01	0.34	-0.72	-0.10	0.01	12.22	-0.77
METAL PRODUCTS	(381)	-0.02	0.06	0.18	0.03	0.41	0.24	0.07	-7.42	0.09
NONELEC. MACHINERY	(382)	-0.11	0.09	-0.02	-0.01	-2.62	0.25	0.04	-51.92	-2.41
ELEC. MACHINERY	(383)	0.05	-1.78	0.19	0.19	-0.34	2.25	-0.27	0.81	-6.42
TRANSPORT EQUIP.	(384)	0.01	-2.80	0.14	-0.08	0.78	1.28	-0.94	-5.32	-3.15
MISC. MANUFACT.	(38A)	0.89	0.36	0.23	0.24	1.72	0.31	0.41	5.66	-0.42
<b>TOTAL TRADED</b>		<b>-0.92</b>	<b>0.05</b>	<b>0.03</b>	<b>0.01</b>	<b>0.16</b>	<b>0.33</b>	<b>0.03</b>	<b>-0.75</b>	<b>0.38</b>
<b>NONTRADED GOODS</b>										
MINING & QUARRYING	( 2)	-2.99	-0.50	-0.24	-0.45	-12.36	-0.63	-0.34	3.80	0.54
ELEC., GAS, & WATER	( 4)	-0.02	0.23	-0.05	0.00	0.31	-0.00	0.04	1.32	0.32
CONSTRUCTION	( 5)	-0.17	0.23	-0.08	-0.17	0.02	-0.13	0.05	1.50	0.77
WH. & RET. TRADE	( 6)	0.03	0.71	-0.23	0.02	1.21	0.05	0.14	3.23	1.35
TRANSP., STOR., & COMM.	( 7)	-0.12	0.26	-0.06	-0.04	-0.41	-0.15	0.05	1.50	0.94
FIN., INS., & REAL EST.	( 8)	0.00	0.14	-0.01	0.00	0.24	0.01	0.03	1.96	1.89
COMM., SOC., & PERS. SERV.	( 9)	0.03	0.38	-0.02	-0.00	0.75	-0.02	0.08	0.82	0.88
<b>TOTAL NONTRADED</b>		<b>-0.10</b>	<b>0.39</b>	<b>-0.09</b>	<b>-0.02</b>	<b>0.37</b>	<b>-0.01</b>	<b>0.06</b>	<b>1.50</b>	<b>1.11</b>

TABLE 8  
(continued)NET PERCENTAGE CHANGES IN EMPLOYMENT BY ISIC SECTOR  
IN THE MAJOR INDUSTRIALIZED AND DEVELOPING COUNTRIES DUE TO  
A MULTILATERAL EMBARGO ON EXPORTS AND IMPORTS OF MILITARY GOODS

		MEX	POR	SNG	SP	TWN	TRK	YUG
<b>TRADED GOODS</b>								
AGR., FOR., & FISH.	( 1)	-0.00	0.45	-0.19	0.10	0.06	0.12	0.78
FOOD, BEV., & TOB.	(310)	0.02	-0.38	-0.08	-0.01	-0.07	0.22	2.39
TEXTILES	(321)	0.02	-0.17	-0.03	0.06	-0.12	0.05	1.05
WEARING APPAREL	(322)	0.00	0.24	-0.64	0.08	-0.25	-0.08	1.81
LEATHER PRODUCTS	(323)	0.01	0.53	-0.76	-0.04	-0.84	-0.16	1.43
FOOTWEAR	(324)	-0.01	0.05	-0.37	0.03	-0.07	0.23	1.69
WOOD PRODUCTS	(331)	-0.11	-0.39	0.03	0.17	-0.01	0.04	1.11
FURNITURE & FIXT.	(332)	0.03	0.29	-0.53	-0.01	-0.46	0.48	2.40
PAPER & PAPER PROD.	(341)	0.05	-0.22	-0.19	0.18	0.11	0.68	1.44
PRINTING & PUBL.	(342)	0.03	0.75	-0.15	0.05	-0.03	0.24	1.10
CHEMICALS	(35A)	0.03	0.71	-0.12	0.20	0.30	1.44	1.31
PETROL. & REL. PROD.	(35B)	-20.70	-0.93	-28.66	-1.26	-32.68	4.04	79.18
RUBBER PRODUCTS	(355)	0.37	-1.62	0.09	-0.01	0.25	-0.15	1.58
NONMETALLIC MIN. PROD.	(36A)	-0.01	0.55	0.05	0.12	-0.01	0.28	1.41
GLASS & GLASS PROD.	(362)	0.11	0.41	-0.14	0.19	0.07	0.37	0.77
IRON & STEEL	(371)	0.18	-0.25	0.15	0.03	0.71	0.31	0.01
NONFERROUS METALS	(372)	0.09	1.48	-0.51	0.15	0.55	-0.33	-0.32
METAL PRODUCTS	(381)	0.12	0.63	0.11	0.01	0.12	0.37	0.88
NONELEC. MACHINERY	(382)	-0.06	-7.35	-0.01	-0.66	0.06	0.17	0.79
ELEC. MACHINERY	(383)	0.51	-4.34	2.61	-0.06	1.43	-1.06	-6.30
TRANSPORT EQUIP.	(384)	0.73	-0.19	1.67	-0.38	0.10	-4.31	-9.93
MISC. MANUFACT.	(38A)	0.15	0.25	0.08	0.21	0.14	0.69	1.56
<b>TOTAL TRADED</b>		<b>-0.25</b>	<b>0.04</b>	<b>0.52</b>	<b>0.02</b>	<b>0.07</b>	<b>0.10</b>	<b>0.70</b>
<b>NONTRADED GOODS</b>								
MINING & QUARRYING	( 2)	-2.46	-0.32	-8.87	-0.16	-5.17	0.90	7.36
ELEC., GAS, & WATER	( 4)	-0.08	0.33	-0.39	0.12	-0.07	0.24	1.07
CONSTRUCTION	( 5)	-0.04	0.29	0.13	0.07	-0.03	0.20	1.35
WH. & RET. TRADE	( 6)	-0.06	0.88	-0.82	0.12	-0.06	0.71	3.10
TRANSP., STOR., & COMM.	( 7)	-0.19	0.33	-1.90	0.07	-0.41	0.34	1.67
FIN., INS., & REAL EST.	( 8)	-0.01	0.51	-0.07	0.20	0.00	0.13	0.57
COMM., SOC., & PERS. SERV.	( 9)	-0.02	0.53	0.05	0.09	0.05	0.37	1.71
<b>TOTAL NONTRADED</b>		<b>-0.13</b>	<b>0.54</b>	<b>-0.59</b>	<b>0.10</b>	<b>-0.16</b>	<b>0.41</b>	<b>2.10</b>

