

MichU  
DeptE  
ResSIE  
D  
217

## RESEARCH SEMINAR IN INTERNATIONAL ECONOMICS

Department of Economics  
The University of Michigan  
Ann Arbor, Michigan 48109-1220

### SEMINAR DISCUSSION PAPER NO. 217

## ALTERNATIVE SCENARIOS FOR TRADE LIBERALIZATION\*

by

Alan V. Deardorff and Robert M. Stern  
The University of Michigan

\*Prepared for the Tenth Annual Middlebury Conference on Economic Issues, "The Internationalization of U.S. Markets," Middlebury College, Middlebury, Vermont, April 7-9, 1988. An earlier version of this paper was presented to a Workshop on General Equilibrium Trade Modeling held at the University of Western Ontario on March 24, 1988. We would like to thank John Whalley and other participants at the Western Ontario Workshop for their helpful comments. We are grateful also to Bee Aw Roberts and to other participants at the Middlebury conference for their comments. We wish to thank John Alfaro for his computational assistance and Judith Jackson for editorial and typing assistance. Financial assistance was provided in part by a grant from the Ford Foundation to support a program of research on trade policy in the Institute of Public Policy Studies at The University of Michigan.

Revised May 24, 1988

Address correspondence to:

Robert M. Stern  
Institute of Public Policy Studies  
Lorch Hall  
The University of Michigan  
Ann Arbor, MI 48109-1220  
U.S.A.

Telephone: 313-764-2373

JAN 27 1989

The Sumner and  
Laura Foster Library  
The University of Michigan



# ALTERNATIVE SCENARIOS FOR TRADE LIBERALIZATION

by  
Alan V. Deardorff and Robert M. Stern  
The University of Michigan

## I. Introduction

As the world embarks on the eighth GATT (Uruguay) round of multilateral trade negotiations, it is important to consider the potential economic effects of different negotiating options. In this paper, we report on a series of computational experiments involving alternative liberalization scenarios, using the Michigan Model of World Production and Trade. The Michigan Model is well suited for this kind of analysis since it is a multi-country, multi-sectoral computational model covering the eighteen major developed and sixteen major developing countries and allowing for a variety of complex general equilibrium interactions, both globally and within individual countries.

In the previous GATT rounds, efforts were made to reduce existing nominal tariffs, and, particularly in the Tokyo Round that was concluded in 1979, several agreements (codes) were negotiated involving a variety of nontariff measures. The GATT codes were designed inter alia to increase transparency in the use of nontariff measures by the major trading countries, thereby lowering trading costs and improving market access, and to limit the introduction of new barriers. However, little progress was made in reducing or eliminating existing nontariff barriers (NTBs) affecting trade in agricultural or manufactured products. Furthermore, because of the special and differential treatment afforded to developing countries in the GATT, these countries were not obligated to reciprocate the tariff reductions effected by the developed countries. This did not carry over to the GATT codes, however, since participation in the benefits of many of the codes was made conditional on the acceptance of code authority and discipline, which was something that most developing countries were unprepared to accept.

With the negotiations now under way, it is necessary to focus attention on alternative negotiating options. The agenda for the Uruguay Round is rather ambitious. It covers such traditional items as the reduction or elimination of existing tariffs and NTBs on manufactures and agricultural products and unfinished business from the Tokyo Round such as the negotiation of a safeguards code. There are also several new agenda items, including rules governing counterfeiting, rights to intellectual property, investment performance requirements, and the liberalization of trade and investment in service industries.

Countries may have different interests with respect to individual agenda items, and it will be necessary for them to weigh the potential benefits and costs of the various options open to them in the negotiations. It may be difficult, however, to assess the options in a precise and comprehensive manner because of the lack of data and the qualitative nature of some of the agenda items at issue. Nonetheless, in view especially of the importance of merchandise trade in the economies of the major trading countries, it is worthwhile to assess the potential economic effects of alternative liberalization scenarios involving the elimination of existing tariffs and NTBs. At a later point, such quantitative information on trade liberalization may be merged with qualitative judgments on other issues in order to define what the overall interests of individual nations may be in the Uruguay Round negotiations.

Turning now to the task at hand, we present in Section II a brief description of the Michigan Model and the data on post-Tokyo Round tariffs and NTBs that provide the basis for our subsequent analysis. Section III presents the results of various scenarios for the multilateral removal of tariffs and NTBs by the major industrialized and developing countries. Since the results are voluminous, we concentrate our discussion on the effects of the different options on the United States especially, mentioning other nations or regions when appropriate. In Section IV we bring together the various results for the United States and note where the greatest potential benefits might be realized as well as the

problems of adjustment that might be experienced for the different liberalization scenarios. Some suggestions for further research are given in conclusion in Section V.

## **II. Simplified Description of the Michigan Model**

Since the theoretical structure and equations of the Michigan Model are described in detail in Deardorff and Stern (1986b, pp. 9-36 and 235-47), we present here accordingly an overview of the model and call attention to 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 is depicted in Figure 1. It contains separate blocks of equations for each country, each one of which takes the form shown in the figure. The world system, sketched in Figure 2, contains a single set of equations 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, such as tariffs, and of world prices and exchange rates. These functions for each country are then combined to provide the input to the world system in Figure 2 which 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 most complicated economic interactions that are incorporated in the Model are contained in the country blocks depicted in Figure 1. The figure is divided into a number of parts, both horizontally and vertically. The horizontal divisions separate industries, with those variables that pertain to the country as a whole listed across the top. As will be noted below, each of the 34 countries included in the Model has 29 industries. But since these industries are assumed to be identical in structure, we include only two of them in Figure 1, with complete labels and arrows only in the first. The reader should thus imagine Figure 1 extending a considerable distance beyond the bottom of the page, with additional, horizontal blocks for each of the remaining industries.

The vertical divisions in Figure 1 separate exogenous variables on the right, country-specific endogenous variables in the middle, and variables to be determined in the world on the left. For illustrative purposes we include in the right-hand column only two exogenous variables: the country's tariff in each industry and its money wage, which we take here to be common to all industries. The left-hand column contains the country's exchange rate and the world price for each industry. The variables in the center column reflect the complex demand and supply interactions of the consumers and firms represented in the Model.

The world system in Figure 2 is much simpler than the country system. We start with the export-supply and import-demand functions from the country equations which depend on both world prices and exchange rates. To get world prices we simply add these supplies and demands for all countries (along rows in the figure), 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 along columns in Figure 2 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.

It is important to note that 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, we have let aggregate expenditure

vary endogenously so as to maintain aggregate employment unchanged.<sup>1</sup> It is this latter 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 34 countries, plus an aggregate sector representing the rest of the world. We have been using a base of 1976 data on trade, production, and employment for all 34 countries, plus tariffs and constructed measures of NTBs for the 18 major industrialized countries.<sup>2</sup> The countries in the Model are listed in Table 1, together with their assumed exchange regimes, input-output coverage, the average post-Tokyo Round (1987) tariff levels, and the average percentage of trade covered by NTBs. The industries are listed in Table 2, with the assumed elasticities of capital-labor substitution, import-home good substitution, and U.S. import demand, as well as the post-Tokyo Round average tariff levels and trade coverage of NTBs.

---

<sup>1</sup>In both cases, while we do not require equilibrium in individual labor markets, we also do not attempt to model disequilibrium explicitly in terms of which side of the market is rationed and how that rationing may give rise to changes in "effective" supply and demand in other markets.

<sup>2</sup>We are currently updating the data base to 1980 and making a number of improvements in the input-output coverage for individual countries.

**Trade, Production, and Employment** – The import and export data are adapted from United Nations trade tapes, with concordances that relate the Standard International Trade Classification (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.

**Tariffs** – Ad valorem tariff data for the major industrialized countries are from the Office of the U.S. Trade Representative (USTR), based upon information compiled in machine readable form by the Secretariat of the General Agreement on Tariffs and Trade (GATT). The post-Tokyo Round ad valorem tariff rates are available on a line-item basis according to the detailed Brussels Tariff Nomenclature (BTN) together with import data. The BTN classification has been concorded to SITC, and own-country imports are used in calculating the tariff rates. We then concord from SITC to ISIC and aggregate to our ISIC categories used in the Model. The resulting tariff rates, which are listed in Table 3, are thus own-country, import-weighted averages by ISIC sector.

Tariff data for the major developing countries are not readily available in systematic and comprehensive form. We have therefore made an effort to compile such data from a variety of sources and to estimate the rates for particular sectors and countries when the information was incomplete. The tariff rates for the developing countries are listed also in Table 3. Pending more accurate information, the rates for the developing countries should be considered as approximations.

**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.

The coverage indexes are meant to measure the extent to which imports are subject to nontariff restrictions (e.g., quotas, health regulations, etc.). A value of 100 percent indicates that all trade in a given sector/country is covered by NTBs; zero denotes that no NTBs are present. The calculations are based on data in Murray and Walter (1978), who recorded the value of 1973 imports for a given country and SITC commodity category that was subject to some type of NTB, as identified in underlying documents prepared by the U.S. Department of State and UNCTAD. We in turn aggregated their results and concorded them with our ISIC classification. The indexes were updated to take into account more recent restrictions on such products as footwear, iron and steel, and television receivers. The indexes for textiles (ISIC 321) and wearing apparel (ISIC 322) are based upon the proportion of each country's imports in these sectors from all of the world's nonindustrialized countries. The resulting indexes, which are summarized in the last columns of Tables 1 and 2, thus represent the percentage of trade subject to NTBs of all kinds as of the late 1970s.<sup>3</sup> These indexes are used in the basic version of the Model to generate endogenous implicit tariff variables that serve to limit the responsiveness of trade to liberalization measures on the assumption that the NTBs remain in place.

The representation of NTBs in terms of the fractions of trade coverage does not enable us to capture the economic effects that would be experienced if the NTBs themselves were reduced or removed. It is necessary for this purpose to have direct estimates of the price or quantity effects associated with particular NTBs by sector. While such estimates are very difficult to obtain for a variety of reasons discussed at length in Deardorff and Stern (1985), we have nevertheless made an effort to construct *ad valorem*

---

<sup>3</sup>We are currently updating the NTB coverage indexes using more recent information compiled by the UNCTAD Secretariat and made available by the World Bank.

tariff equivalents of existing NTBs by sector for the major industrialized countries and for a subset of the developing countries included in the Model.

The procedures that we followed in constructing these estimates and the sources utilized are given in Deardorff and Stern (1987, App. B). Briefly, we reviewed the relevant sources and extracted from them the NTB ad valorem equivalents that had been calculated.<sup>4</sup> However, there are problems in using these ad valorem equivalents directly inasmuch as the sources varied widely with respect to methodology, year, and the level of aggregation of the trade coverage. For this reason, we decided to construct “high” and “low” estimates of the ad valorem equivalents. The high estimates were based on the assumptions that the available ad valorem equivalents reflected restrictions that were applicable to the entire sector and implemented on a global basis. Since it appeared to us, however, that many of the NTBs did not apply to an entire sector and that they were often bilateral rather than global in character, we adjusted the “high” ad valorem equivalents by multiplying them by NTB percentage trade coverage indexes of the type mentioned above. For this purpose, we used the detailed sectoral indexes that we had already calculated for use in the Model together with more recent indexes calculated from Nogués, Olechowski, and Winters (1985, p. 43). The resulting “low” estimates of the ad valorem equivalents are listed in Table 4. It will be noted that there are blank entries for agriculture (ISIC 1), textiles and wearing apparel (ISIC 321–322), and transport equipment (ISIC 384).<sup>5</sup> As will be discussed below, we used “producer subsidy equivalents” in our agricultural liberalization experiments, and we modeled the NTBs in textiles, wearing apparel, and transport equipment as export taxes in the major supplying countries.

As already noted, we have data on trade, production, and employment for the major developing countries covered in the Model, and we also have constructed preliminary

---

<sup>4</sup>Our information on NTBs is not exhaustive. For example, antidumping and countervailing duties and procedures, which may be used to inhibit trade, are not included.

<sup>5</sup>We assumed that the VER on Japanese autos was in effect for all the industrialized countries that had NTB trade coverage in ISIC 384.

estimates of their nominal tariffs by sector. We have made some limited progress in compiling estimates of the ad valorem equivalents of NTBs for a subset of the developing countries in the Model. But given the tentative nature and incomplete coverage of these NTB estimates, we do not report them here. Thus, in what follows we do not attempt to analyze directly the effects of removing NTBs for the developing countries as a group.

**Exchange Rates** – In the basic version of the Michigan Model, the exchange regimes of most developing countries are characterized as reported in Table 1 in terms of a system of import licensing with exchange-rate pegging. The purpose was to capture elements of the existing NTBs in these countries. In order to analyze the potential effects of liberalization in what follows, however, we assume that all of the industrialized and developing countries in the Model operate under a regime of flexible exchange rates. This assumption can be justified simply on the grounds that trade liberalization is not meaningful under conditions of import licensing.

**Input-Output Tables** – Our input-output coverage currently includes the 1972 input-output table for the United States, the 1976 table for Canada, the 1975 table for Japan, and the 1970 national tables for each of the industrialized EEC-member countries. The U.S. table is applied to the remaining industrialized countries. We use the 1977 table for Israel and the 1970 table for Brazil. The Brazilian table is applied to the remaining developing countries. Each of the national tables used is of necessity concorded to our ISIC classification.

**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).<sup>6</sup> 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. These elasticities of substitution for the United States are listed in Table 2, together with the U.S. import-demand elasticities from which they were calculated. 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. 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 were assumed in our Model to apply for all countries.<sup>7</sup>

### **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

---

<sup>6</sup>These are currently being updated using more recent information.

<sup>7</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.

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.

### **Reporting of Results**

The Model solution yields percentage changes in all of the endogenous variables. While these could be reported directly, we commonly refrain from doing so because of the detail involved. More typically, we multiply the percentage changes by the data values in order to express the results in terms of absolute values. We also calculate percentage changes relative to the base data, which, as mentioned, refer to 1976.

There is a problem in using realistic data for any given year since the data will reflect the economic conditions for that year, including the effects of policies of all kinds. We make allowance conceptually in the Model for a variety of domestic and external policies, but our primary data relate mainly to trade barriers. We have done some analysis of the effects of domestic taxes and subsidies using the Model, but we have been hampered by lack of information. Thus, in interpreting the results of the experiments that follow, with the exception of one of our experiments involving the removal of production subsidies in agriculture in the industrialized countries, the role and importance of domestic taxes and subsidies are not taken into account.

### **Comparison with Other Models**

In addition to the Michigan Model, there are several other empirical trade models in existence. These various models, which are reviewed in Shoven and Whalley (1984), differ greatly among themselves in terms of their industry and country coverage, the extent to which they incorporate general-equilibrium interactions, and the closeness with which they adhere to the theoretical paradigm of smoothly functioning, perfectly competitive markets. In many of these respects the assumptions of the Michigan Model lie somewhere in the middle of the range of assumptions made by other models. The

Michigan Model is, for example, neither the most nor the least disaggregated, nor the most nor least “pure” in its assumptions of competition. If the Michigan Model is unusual in any dimension, it is in the large number of countries that it covers and in its efforts to incorporate aspects of trade policy such as NTBs.

In recent years, empirical trade models have evolved in two main directions. On the one hand, Whalley (1984) and a number of others have continued the development of full Walrasian general equilibrium models. These models are characterized computationally by their use of an algorithm to solve first for a benchmark equilibrium of the system and then for a new equilibrium in the presence of the disturbance being analyzed.

On the other hand, there are models that have taken the same approach as the Michigan Model. That is, the equations of the model are first differentiated and then only the resulting linear system is solved computationally. This second approach is actually older, having been pioneered by Johansen (1960), and while it could easily be used to analyze a complete Walrasian system, it has more typically been applied to models in which some elements of disequilibrium are assumed. Though less accurate than the benchmark-equilibrium approach that has been used for Walrasian models, the Johansen approach has the advantage of permitting greater computational detail. As a result, the Michigan Model and others like it tend to include a greater variety of policy parameters and other sometimes ad hoc institutional details than can be encompassed in models where a full equilibrium solution is to be obtained.

Another source of difference among models is the time frame that they attempt to represent. Since the models are typically static, their time dimension cannot be explicit, but it is nonetheless implicit in the assumptions that are made about what is and is not variable. In full equilibrium models such as Whalley's, for example, it is assumed that both capital and labor are variable, and thus these models implicitly are directed at the fairly long run. In the Michigan Model in contrast, capital is assumed to be fixed and labor

is the only variable factor of production. Together with other of our assumptions such as the fixity of money wages, this means that the Michigan Model is directed more at the short run.

One final direction in modeling activity should also be mentioned. The Michigan Model, despite its allowance for disequilibrium in labor markets, holds otherwise to the assumption of perfect competition in all markets. There has been growing interest in recent years among trade theorists in recasting trade theory to allow for imperfect competition. So far, this interest has carried over to empirical trade models in one notable instance. This is in the work by Harris — see Harris and Cox (1984). Harris allows both economies of scale and forms of non-price-taking behavior on the part of firms in models that otherwise follow the full equilibrium approach of Whalley. While Harris's work is valuable in its effort to incorporate the reality of imperfect competition, there is as yet no consensus that his particular assumptions represent the best road one can take in this direction.

Compared to other models, the Michigan Model perhaps may appear to be less pure theoretically, less sophisticated in its computational procedures, and less comprehensive in terms of efforts to incorporate undoubtedly important but still controversial representations of imperfect competition. Granting all of this, it should be stressed that the Michigan Model has been designed primarily as a practical tool of analysis for trade policy. With that in mind, the Michigan Model is to be viewed as encompassing many important features of trade policy not included in other trade models together with a variety of general-equilibrium interactions among markets that are especially pertinent in the short run.

### III. Computational Results of Alternative Liberalization Scenarios

#### Some Illustrative Features of the Model

In order to help in interpreting the results for the individual scenarios, it may be useful first to describe how the Model functions when existing tariffs and/or NTBs are removed. Thus suppose that we consider the complete elimination of post-Tokyo Round tariffs by the major industrialized countries, but assuming that existing NTBs in these countries remain in place as do the tariffs in the developing countries. Suppose further that the tariffs are eliminated all at once rather than being phased in over some specified period of time. If we represent NTBs in terms of their tariff equivalents, the analysis of the removal of NTBs would be analogous to the removal of tariffs. The analysis is carried out in terms of comparative statics, and we abstract from the process of adjustment that will occur through time.

With the assumed removal of tariffs, imports will rise as domestic prices are lowered. This will cause increases in world prices, and exports will be stimulated in response. The responses of exports and imports will depend upon the sectoral differences in tariffs among the industrialized countries and on elasticities of demand. With NTBs assumed to remain in place, the increase in imports will be moderated depending upon the restrictiveness of NTBs as reflected in the NTB coverage indexes that are built into the Model and that serve to limit the responsiveness of imports to tariff removal. While both the prices and quantities of exports and imports will change, in the tables below we report the changes in the values of exports and imports at constant prices.

When export prices rise relative to the prices of home goods, production for export expands and production of home goods falls. This in turn will lead to the expansion of employment in the export sectors and to a decline in employment in the home-good sectors. When the domestic prices of imports fall, there will be a substitution in demand on the part of both households and firms towards imports and away from home goods, depending upon



the elasticity of substitution. There will accordingly be a further source of decline in employment in the production of home goods.

Thus, broadly speaking, the removal of tariffs results in an increase in the prices of tradable goods relative to nontradables and to associated changes in employment. In the Model, we calculate both gross and net changes in employment by sector. The gross change in employment represents the sum of all positive sectoral changes in employment in the economy, and it is intended to serve as an indication of labor-market dislocation and aggregate structural adjustment. It includes those workers who might have to move only between the export and home sectors of their industries. The net change in employment, on the other hand, is the algebraic sum of the expansion and contraction in employment that will occur in home and export sectors of an industry, and it shows which industries on balance will experience an increase or decline in employment as tariffs are removed multilaterally. It should be noted that all of the foregoing changes will reflect both direct effects as well as indirect effects that operate through the interindustry (input-output) relations. Also, as already noted, because of the way we have endogenized aggregate expenditure, we prevent any change in total employment from occurring.

Although our Model provides information on changes in prices and changes in production, consumption, and trade, it does not readily lend itself conceptually to analysis of changes in economic welfare. The reason is that we permit trade to be unbalanced initially and, when exports and imports respond differentially to exogenous changes in tariffs, the trade balance will change. When exchange rates are flexible in the Model, we allow for adjustment in trade so that the trade balance is restored to its initial position in terms of dollars. When overall prices change, however, there are implied intertemporal changes in the accumulation or decumulation of real assets associated with variations in the real value of the trade balance that are difficult to measure in terms of economic welfare. We have on numerous occasions used an ad hoc procedure for the calculation of welfare based on the static, partial-equilibrium measure commonly used in the literature to

calculate changes in consumer and producer surplus. Our experience with this ad hoc measure has been that countries may show an increase or decrease in welfare depending on their trade balance position because, when tariffs are eliminated, world prices (exclusive of tariffs) tend to rise and consumer prices fall. To avoid ambiguities in interpreting this ad hoc welfare measure, we have chosen not to use it in the results of our analysis to be presented below. Instead, we report the changes in each country's terms of trade for each of the experiments.

We have indicated in Table 1 the variety of exchange-rate regimes that are assumed to prevail in the countries of the Model. It will be noted that several developing countries are represented as having a system of import licensing and pegging to some basket of currencies. If the industrialized countries only were to remove their existing tariffs, the responses of the developing countries would thus be constrained by the change in their foreign exchange receipts. But if the developing countries themselves were to remove their existing tariffs, this would not have any effect if import licensing were assumed to remain in place. Since in what follows we will be looking at tariff removal by both industrialized and developing countries, we instead allow the exchange rates of all countries to be flexible.

As already noted, the elimination of tariffs will tend to increase world prices and cause consumer prices to fall, with corresponding changes in exports and imports. Depending on the change in a country's trade balance, its currency will either depreciate or appreciate in order to restore the trade balance to its original position. This means that there will be an induced change in a country's exports and imports brought about by the change in the exchange rate that will follow upon the response of trade to the removal of tariffs. This exchange-rate induced change in trade can be substantial in some cases as will be evident in some of our results to be reported below. As an indication of the changes in exchange rates that may occur for a country in given circumstances, we calculate the

weighted percentage change in each country's effective exchange rate, using bilateral exports and imports to weight the changes in bilateral exchange rates that occur.

Since tariff removal will have a significant impact on domestic prices, we calculate an index of the percentage change in import and home prices, using sectoral imports and production as weights to construct the aggregate index. This provides a measure of how each country's price level might be affected by the policy changes being analyzed.

While our analysis of tariff removal concentrates especially on the effects on employment, other factors of production will be affected as well. In order to provide a more complete indication of the adjustment problems that individual industries may encounter, we also calculate the changes in per unit value added across sectors. These represent the incentives for factors of production to move among sectors in response to the removal of the entire structure of tariffs. This is something that is familiar from the theory of effective protection, but, rather than just considering the partial equilibrium effects involved, our Model permits us to take into account the many important interactions that occur both within and between countries.

A final point worth noting is that, since our Model does not distinguish imports by country of origin, we cannot examine changes in tariffs or NTBs on a bilateral or preferential basis. Since such NTBs as the Multifibre Arrangement and the U.S. Voluntary Export Restraint (VER) on Japanese cars are essentially bilateral in character, we chose to treat them as export taxes from the standpoint of the exporting countries and to analyze their removal accordingly.

In the case of agricultural liberalization, we conducted two different experiments. One involved treating the estimated barriers in terms of their ad valorem tariff equivalents, and the second assumed that the estimated barriers represented subsidies to domestic agricultural production.

## Presentation of Computational Results

Let us turn now to our results. In our computations we explored the economic effects of several different liberalization scenarios. These scenarios were chosen to illustrate what might be expected to occur if it were possible to eliminate completely existing tariffs and/or NTBs in the world's major trading countries. We realize of course that the scenarios selected may not in fact correspond to what is being proposed or may actually be implemented in the Uruguay Round negotiations. Nonetheless our results may be useful both in helping individual nations choose among the available options that may best serve their own interests and in developing a consensus about which options might be mutually beneficial for the various nations participating in the negotiations. The scenarios to be analyzed are as follows:

1. Elimination of all post-Tokyo Round (1987) tariffs in the 18 major industrialized countries.
2. Elimination of tariffs in the 16 major developing countries.
3. Elimination of tariffs in both the major industrialized and developing countries (1 + 2).
4. Elimination of NTBs in the major industrialized countries (excluding agriculture and textiles and clothing).
5. Elimination of agricultural NTBs in the major industrialized countries, modeled as ad valorem tariff equivalents.
6. Elimination of agricultural NTBs in the major industrialized countries, modeled as domestic production subsidies.
7. Elimination of NTBs on textiles and clothing in the major industrialized countries.
8. Elimination of all tariffs and NTBs in the major industrialized countries, with agricultural NTBs modeled as tariff equivalents (1 + 4 + 5 + 7).

9. Elimination of all tariffs and NTBs in the major industrialized countries, with agricultural NTBs modeled as domestic subsidies (1 + 4 + 6 + 7).

Since the individual scenarios differ somewhat in terms of the assumptions made in implementing the Model, we shall discuss the results of each of them separately. Then, in Section IV below, the results are presented side by side, and an effort is made to highlight the main differences among them.

### **1. Elimination of Post-Tokyo Round Tariffs in the Major Industrialized Countries**

In this scenario, we eliminated the post-Tokyo Round (1987) nominal tariffs for the 18 major industrialized countries in the Model. The tariff rates used are those listed in Table 3. Existing NTBs are assumed to remain intact as represented by the NTB trade coverage ratios discussed above. All countries are assumed to have flexible exchange rates. The overall results are summarized in Table 5. The principal findings are as follows:

1. Based on 1976 levels, exports will rise by around \$30 billion for all the countries listed, which is about a 4.5% increase. U.S exports rise by \$4.0 billion and imports by \$4.3 billion.

2. We have already noted that aggregate expenditure has been endogenized to prevent any change in total employment from occurring. As an indication of labor-market dislocation and aggregate structural adjustment, we have calculated the "Gross Change in Employment" in Table 5. This is the sum of all positive sectoral employment changes for a country, and is also shown as a percentage of each country's 1976 labor force. The former figure represents the total number of workers in each country who would have to change jobs if post-Tokyo Round tariffs were eliminated. It includes those who might have to move only between the export and home sectors of their industries. For the United States, the gross change in employment is 141 thousand workers, which is 0.16% of the 1976 U.S. labor force. The total for the European Economic Community is 819 thousand workers, which is 0.81% of 1976 employment. For individual EEC-member countries, the

percentages range from 0.56 for the United Kingdom to 1.72 for Belgium-Luxembourg. The total for Japan is 125 thousand workers, which is 0.24% of the 1976 labor force.

By assuming that the existing tariffs are removed all at once, we are abstracting, as mentioned earlier, from the process of adjustment that will occur through time. In this connection, it is important to note that it is a common practice to implement trade liberalization gradually over a period of years. Thus, the Tokyo Round tariff reductions were phased in over a period of seven years, from 1980 to 1987. The case for gradualism can be made on a variety of grounds. First, there may be distortions in the economy that impede labor and capital from making socially correct calculations concerning the sectors in which they can earn maximum returns. Second, the government may wish to mitigate the economic losses that factor owners may experience in protected industries. Finally, if resources in the protected industries become unemployed as the result of liberalization, it may be desirable to liberalize gradually in order to minimize the loss of output.

If, in this light, the post-Tokyo Round tariff reductions were to be phased in over a period of several years, the aggregate results suggest that the adjustment of employment might not add materially to normal labor-market turnover within and between industries. Any serious disruptions in labor markets would therefore be less likely to occur. This would also be the case to the extent that adjustment took place in the context of a growing world. However, as will be noted, our disaggregated results by sector do not fully support such a conclusion since there are numerous sectors in which the *relative* changes in employment are sufficiently large to suggest that there could indeed be difficulties in adjustment.

As for the major developing countries, the gross employment changes recorded in Table 5 are all comparatively small.

3. The terms of trade of the United States show a small improvement of 0.29%, and there are comparably small improvements and declines for the other industrialized countries. Some of the changes for the developing countries are larger, being in excess of

one percent for Argentina and Colombia. It is noteworthy from the mixed signs for the industrialized countries that these countries as a group have not succeeded in uniformly improving their own terms of trade via their tariffs. However, with few exceptions, the tariffs of the industrialized countries can be seen to have worsened the terms of trade of less developed countries.

4. The U.S. dollar will depreciate on an effective basis (by 0.6%), as will the French franc (0.6%), German mark (0.4%), Italian lira (0.2%), British pound (0.8%), and Japanese yen (0.2%). The remaining industrial-country currencies will appreciate, with the changes most notable for Belgium-Luxembourg (1.6%), Ireland (0.9%), and the Netherlands (1.0%). Except for Chile, the currencies of all the developing countries appreciate, which is the principal reason why their exports are shown to decline.

5. Import prices fall, contributing to a small 0.1% drop in consumer prices in the United States. Price declines for most other industrialized countries are significantly greater, ranging from around 0.4% to more than 3%. Prices also fall, though by a relatively small amount, in most of the developing countries.

The country results in Table 5 mask much industry detail that our Model is well able to calculate. The net percentage changes in employment across the 22 tradable and 7 nontradable sectors in each of the 34 countries are recorded in Table 6.<sup>8</sup> It is evident that there are net percentage increases as well as reductions in particular sectors. In the United States, for example, the increases are concentrated in agriculture, machinery, transport equipment, chemicals, and paper products, and the declines in wearing apparel and textiles, leather products and footwear, miscellaneous manufactures, rubber products, nonmetallic mineral products, and certain other tradable sectors. The nontradable sectors, except for mining and quarrying and construction, show net declines in employment. This result is prevalent in most of the countries in the Model, as it was for an earlier analysis

---

<sup>8</sup>We have also calculated the net changes in employment in man-years by sector for this scenario and those that follow. The details are available upon request.

done for the Tokyo Round in Deardorff and Stern (1986). It can be explained by the general substitution toward tradable goods and away from nontradables due to the reduction in the relative prices of tradable goods that would result from the elimination of tariffs.

In discussing the overall gross-employment results in Table 5, we noted that there were several cases in which these changes represented sizable percentages of total 1976 employment. It is evident that the United States is on the low side, as inspection of Table 6 clearly indicates. Indeed, some of the positive and negative percentage changes in other countries are sufficiently large that they suggest sectors in which labor adjustment might present difficulties. This is particularly the case if there are factor market distortions that hinder labor mobility and if there is a mismatch in labor skills between the industries that would expand and contract in response to tariff elimination so that unemployment may occur. Again, if tariff elimination were staged over a period of years, the difficulties would be lessened, but they might not be fully resolved in certain individual sectors. In contrast, large percentage changes in net employment are not so prevalent for the developing countries, reflecting the fact that those countries will in general be less materially affected by tariff elimination in the industrialized countries.

The employment results that we have discussed so far provide a good indication of the most important and difficult structural adjustments that changes in trade can entail, but they are not the only ones. Other factors of production are affected by trade as well, and are subject to adjustment problems of their own. To provide a more complete indication of adjustment problems that may impact entire industries, we show in Table 7 the rankings of sectors in terms of percentage changes in per unit value added that according to our Model will result from tariff elimination. These represent the incentives for factors of production to move among sectors, and are reported here only in the form of ordinal rankings.



For the United States, the industries with the largest percentage increases in per unit value added are agriculture, transport equipment, electrical machinery, chemicals, and mining and quarrying, while the smallest percentage increases (or greatest declines) are in miscellaneous manufactures, nonmetallic mineral products, leather products, rubber products, and wearing apparel. The rankings for other countries can be similarly discerned from Table 7. The results thus permit identification of the sectors that are likely to experience the greatest incentives to expand or contract as industrialized country tariffs are eliminated.

## **2. Elimination of Tariffs in the Major Developing Countries**

In this scenario, we eliminated the tariffs in the 16 major developing countries of the Model. As indicated above, these tariffs were approximated in a number of instances and the results should accordingly be treated only as preliminary, pending more accurate and comprehensive information on the rates. The nominal tariffs and NTBs in the major industrialized countries are assumed here to remain unchanged. It will be recalled that exchange rates are assumed to be flexible for all countries. Import licensing is thus ruled out for the developing countries, since otherwise the tariff reductions would have no effect.

The overall results are summarized in Table 8. The principal findings are as follows:

1. Based on 1976 levels, the imports and exports of the developing countries will rise by nearly \$10 billion. The largest absolute increases are for Brazil, India, Spain, and Greece.<sup>9</sup> Imports decline for 14 of the 18 industrialized countries while exports decline for all 18 industrialized countries. These changes for the industrialized countries appear relatively small. To understand these results, we should note that the elimination of tariffs by the major developing countries will tend to increase world prices and cause consumer prices in developing countries to fall. The resulting increases in developing

---

<sup>9</sup>Greece, Portugal, and Spain are included with the developing countries rather than as members of the European Community in all of the scenarios being analyzed.

country imports will in turn cause their currencies to depreciate and bring about increases in their exports. For the industrialized countries, the increased world prices resulting from developing country tariff elimination will lead instead to a reduction in industrialized country imports, and this will cause their currencies to appreciate and their exports to decline. Because the tariff rates among the developing countries differ substantially, the removal of their tariffs accompanied by the assumed liberalization of their exchange regimes would result in a sizable increase in intra developing country trade.

2. The gross changes in employment are negligible for Hong Kong and Singapore since these countries have zero tariffs for all practical purposes. The largest gross employment change noted is 3.0 million workers for India, which is 1.36% of its labor force. Relatively large gross employment changes are noted for several other countries.

3. The changes in the terms of trade for both the developing and the industrialized countries are relatively small.<sup>10</sup> While the terms of trade show a small improvement overall for the developing countries, there are declines in 10 of the 16 countries listed. The terms of trade improve in 13 of the 18 industrialized countries. These results of tariff elimination are thus consistent with the findings in Deardorff and Stern (1986a) that existing tariffs in a sample of developing countries had positive terms-of-trade effects on these countries as a group and negative effects for many industrialized countries.

4. We have already mentioned the effects on exchange rates that would occur. Greece has the greatest depreciation of 13.7%, and there are substantial depreciations for India, Turkey, Brazil, Colombia, and Spain. The U.S. dollar appreciates by 0.9%, and there are noteworthy appreciations for Germany (0.8%), Italy (0.8%), the United Kingdom (0.7%), and Japan (1.1%).

---

<sup>10</sup>Our terms of trade results are in contrast to the often sizable results obtained in models such as Whalley (1984) and others that rely on the Armington assumption that products are distinguished by country of origin. This approach implies that even small countries may have monopoly power in their export trade and that the optimum tariff and hence terms of trade effects of changes in tariffs can be substantial.

5. Domestic price declines are largest for Greece (7.0%), Taiwan (5.1%), and India (3.2%), and there are declines ranging from less than 1% to nearly 3% for most of the other developing countries. Prices in the industrialized countries change only minimally.

The industry details for the net percentage changes in employment, which are not shown here, indicate that there are substantial differences among the sectors in individual developing countries that would expand or contract in response to tariff elimination. There are numerous instances in which the net percentage changes are quite large, and it is likely therefore that there would be substantial pressures on the labor markets in case the tariffs were eliminated all at once. If the tariff reductions were phased in over a period of years, the adjustments would be more manageable but nonetheless some sectors might continue to experience employment pressures. The staging of tariff reductions would mitigate adjustment pressures in the industrialized countries as well, although these pressures do not appear to be as substantial to begin with because the trade effects on the industrialized countries are muted for the reasons already mentioned.

### **3. Elimination of Tariffs in Both the Major Industrialized and Developing Countries (1 + 2)**

In this scenario, we eliminated simultaneously the tariffs of both the industrialized and developing countries represented in the Model. As in the first scenario, the NTBs in the industrialized countries are assumed to remain intact. All countries are assumed to have flexible rates. The overall results are summarized in Table 9. Because the Model is linear, the results are essentially the algebraic sum of the results in the previous two scenarios. The orders of magnitude thus reflect the considerations mentioned already and need not be repeated here.

#### **4. Elimination of NTBs in the Major Industrialized Countries (Excluding Agriculture, Textiles, and Clothing)**

Having focused thus far on the effects of eliminating tariffs in the major industrialized and developing countries, we turn next to an analysis of the effects of eliminating existing NTBs in the industrialized countries. We first consider all NTBs except for those applying to agriculture (ISIC 1), textiles (ISIC 321), and clothing (ISIC 322), which are the focus of the following scenarios. As already mentioned, we have constructed sets of "high" and "low" NTB ad valorem equivalents, the latter based on an adjustment for the percentage of trade covered by NTBs. In what follows, we report the results based on the "low" estimates. All other NTBs are assumed unchanged as are all nominal tariffs in this scenario.

In all of our NTB elimination scenarios, we decided to exclude the petroleum sector (ISIC 35B) even though the NTB trade coverage indexes indicated the presence of some type of barrier. Our reasoning was that petroleum imports are monitored or controlled for a variety of reasons, perhaps most importantly national defense. Since, in our view, the underlying motivations involving petroleum do not reflect the usual protectionist considerations, it seemed reasonable to treat the petroleum sector as a special case.

We should also note that we decided to model the existing nontariff restrictions affecting imports of automobiles from Japan and textiles and clothing from the developing countries from the export side in terms of an export tax rather than as an ad valorem equivalent duty on imports. The reason is that our Model does not distinguish imports by country of origin, and therefore we are unable to represent from the demand side the bilateral characteristics of the current arrangements that restrict imports of automobiles and textiles and clothing. We thus converted the import ad valorem equivalent estimates to export tax equivalents for ISIC sectors 321 (textiles), 322 (clothing) and 384 (transport equipment). For purposes of the fourth scenario, an export tax equivalent of 11.4% for ISIC 384 was applied only to Japan.

The results for this scenario involving the elimination of NTBs (excluding ISIC 1, 321, and 322) are summarized in Table 10. The principal findings are as follows:

1. Exports increase in total by \$10.7 billion, which is 1.4% above the 1976 level. The largest increases are for France, the United States, Japan, West Germany, and Italy. The exports of the developing countries increase only slightly.

2. The gross change in employment is largest for Japan, followed by France, the United States, Italy, and West Germany.

3. Japan's terms of trade decline by 0.53%. The terms of trade of the smaller industrialized countries improve as do the terms of trade of the developing countries, except Hong Kong.

4. Japan's currency appreciates by 0.6%. Belgium has an even larger appreciation of 1.3%, which may reflect its position especially as a net exporter of iron and steel products (ISIC 371).

5. Prices fall by comparatively small percentages in all the industrialized countries. The largest decline is in the case of Belgium, and this may be attributed primarily to the size of its currency appreciation and relatively substantial importance of tradable goods.

The positive sectoral net percentage changes in employment, which are not shown here, are most pronounced for iron and steel products especially in Belgium-Luxembourg and West Germany, leather and footwear, metal products, and nonelectric machinery in France, leather and footwear, nonferrous metals, and machinery in Italy, textiles, leather and footwear, textiles, and miscellaneous manufactures in Switzerland, and leather, agriculture, textiles, chemicals, nonelectric machinery, and miscellaneous manufactures in the United States. Since we modeled Japan as removing the export tax on its transport equipment sector, the result is a substantial net percentage increase in employment in this sector. Japan experiences notable net percentage declines in iron and steel, textiles, and miscellaneous manufactures. The net percentage changes in employment are fairly large

in a number of sectors in the industrialized countries and suggest possible short-run adjustment difficulties unless the barriers were eliminated in stages. The largest net percentage changes in employment in the developing countries are concentrated in leather and footwear in this scenario.

##### **5. Elimination of Agricultural NTBs in the Major Industrialized Countries, Modeled as Ad Valorem Equivalents**

In this scenario, we eliminated the agricultural (ISIC 1) NTB ad valorem equivalents maintained in the industrialized countries. These NTBs are based on the estimated Producer Subsidy Equivalents (PSEs) calculated in OECD (1987, pp. II-1 to II-25). Most of the PSEs reflect the use of domestic market-price-support policies that raise prices to producers and consumers equally. Since these domestic policies would have to be facilitated by some sort of trade barrier, we chose for this scenario to model them all as ad valorem equivalents of NTBs. The estimates used for this purpose are listed in Table 11. As with the NTBs on industrial products, we adjusted them for the percentage of trade covered. The alternative way of modeling the PSEs is as direct subsidies on production, which will be done in the next scenario. In carrying out this scenario and the following one, all other NTBs on industrial products as well as nominal tariffs are assumed unchanged.

The summary results are contained in Table 12. The principal findings are as follows:

1. In terms of total trade, imports expand by \$2.3 billion for the industrialized countries, with the largest increases for Japan (\$1.4 billion), the Netherlands (\$583.4 million), Switzerland (\$215.6 million), and Italy (\$208.9 million). Exports expand by \$3.3 billion, with the largest increase for Japan (\$2.1 billion). The changes in the trade of the developing countries are comparatively small.

2. Japan has the largest gross change in employment among the industrialized countries, followed by the United States, Italy, West Germany, the Netherlands, and

France. There are large absolute gross employment changes in India and Brazil. The relative changes are under 1% of the 1976 labor force in all the countries listed.

3. Australia, Canada, and the United States experience improved terms of trade approaching 1% while most other industrialized countries show a worsening of their terms of trade. Some of the developing countries, especially Argentina, Brazil, Colombia, and Turkey show relatively large terms-of-trade improvements.

4. Certain industrialized countries experience currency appreciation, which in turn serves to dampen the increase in exports and to increase imports. Currency depreciation also occurs, however, especially in Japan, and the effects on trade are the opposite of those just noted. With the exception of Hong Kong and Singapore, the currencies of the developing countries appreciate and this has a dampening effect on their exports. Several developing countries also experience reductions in imports, which can be attributed to their response to the higher world prices of agricultural and related products associated with the removal of the NTBs.

5. Prices decline by small percentages in most of the industrialized countries. There is a mixture of relatively small percentage price decreases and increases among the developing countries.

The sectoral results, which are not shown here, are interesting insofar as they indicate a net increase in employment in agriculture (ISIC 1) in ten of the industrialized countries, with the largest increases in the Netherlands (7.5%) and the United States (3.6%). Switzerland shows a net decline of agricultural employment of 6.7% and Japan, a net decline of 2.9%. There are also net percentage increases in employment in food and kindred products (ISIC 310) in a substantial number of cases. What is further noteworthy are the opposite effects on employment in other sectors, including nontradables. In essence, when the agricultural sector expands or contracts in response to the removal of the NTBs and the associated changes in relative prices, there will tend to be opposite effects on other sectors. This phenomenon can be observed in the developing countries as

well. The sizable percentage effects in a number of countries, both positive and negative, suggest the possibility of significant intersectoral adjustment problems in case the agricultural NTBs were to be eliminated all at once.

As already indicated, this scenario deals only with the assumed removal of nontariff restrictions on agricultural imports. While it reveals that there would be significant impacts on employment in the agricultural and food sectors as well as in the manufacturing and nontradable sectors, the results reflect the existing patterns of production, trade, and employment that have been shaped by domestic incentive programs. Let us consider then an alternative scenario in which we treat all of the existing agricultural policies as subsidies on domestic production.

#### **6. Elimination of Agricultural NTBs in the Major Industrialized Countries, Modeled as Domestic Production Subsidies**

In the preceding scenario, agricultural trade barriers were represented in terms of the ad valorem equivalents of NTBs, using measures of Producer Subsidy Equivalents (PSEs) calculated by the OECD. The rationale was that some sort of trade policy would be required to implement these PSEs. An alternative procedure is to assume that these PSEs are subsidies that apply directly to domestic production and, since they may leave consumer prices unchanged, they cannot be interpreted clearly as ad valorem equivalents of NTBs. In using the PSEs, it is necessary to determine whether they apply to all of agriculture or only to some part thereof. Since it appears from the details in the OECD source that the coverage is less than 100% of the agricultural sector and also because our ISIC sector 1 includes fisheries and forestry as well as agriculture, we thought it appropriate to scale down the PSEs. Lacking production data for the commodities covered in the OECD calculations of PSEs that were comparable with the production data for our ISIC 1, we decided instead to use the same "low" estimates listed in Table 11 for the present scenario.



The summary results are contained in Table 13. The principal findings are as follows:

1. Imports expand by \$3.2 billion for the industrialized countries, with the largest increases for Japan (\$1.2 billion), Italy (\$431.4 million), Switzerland (\$384.4 million), and France (\$374.4 million). Exports expand by \$4.1 billion, with the largest increase for Japan (\$1.6 billion).

2. For the industrialized countries, Japan has the largest gross change in employment of 1.9 million workers, which was 3.5% of its total 1976 employment. Relatively large gross changes in employment were recorded also for several of the European Community countries, and for Finland, Norway, and Switzerland. These gross employment changes are much larger than in the preceding scenario because the policies are assumed to apply to domestic production rather than imports. The gross employment changes in the developing countries are relatively small.

3. Japan's terms of trade decline by 0.61%, and there are declines ranging from 0.10 to 0.36% in various European countries. Terms-of-trade improvements are evident for Australia, Canada, Denmark, Ireland, the Netherlands, New Zealand, and the United States. Several of the developing countries show improved terms of trade, in particular Argentina, Brazil, Colombia, Greece, Mexico, and Turkey.

4. Japan's currency is seen to depreciate by 2.6%, and there are depreciations for a number of the European countries. These depreciations serve in turn to reduce the imports and to increase the exports of these countries. Australia experiences an appreciation of its currency (1.3%) as do Canada, the United States, and some other countries. The trade effects in these cases are opposite to the ones in which the currency has depreciated. All of the developing countries experience an appreciation of their currencies, which serves to reduce their exports, and the rise in the world prices of agricultural products results in lower imports in several of these countries.

5. The assumed removal of the production subsidies is seen to increase domestic prices significantly in most of the industrialized countries, with the largest increases in Japan (3.0%), Finland (2.8%), Switzerland (2.3%), and Norway (2.2%). The price changes in the developing countries are comparatively small since no changes are assumed to be made in their domestic agricultural subsidies.

The sectoral impacts on agriculture (ISIC 1) are much greater in this scenario than in the preceding one for the obvious reason that we are assuming that a subsidy on all domestic agricultural production is being removed. The results, which are not shown here but will appear later in Table 18, indicate that in Japan there is a net decline in employment of 24.3% in ISIC 1 and an even larger decline of 37.1% in Switzerland. There are sizable declines in the other European countries as well. The only countries that experience a net increase in employment in ISIC 1 are New Zealand and the United States. It is somewhat surprising that Australia and Canada show net reductions in their agricultural employment. As far as we can tell, this apparently reflects the reduction in world demand for agricultural products as the result of the increase in world prices together with the effects of the currency appreciations noted above.

As was the case in the preceding scenario, it is evident here as well that there are sizable expansionary effects in other sectors, including nontradables, that reflect the differential changes in agricultural prices relative to the prices of manufactures and nontradables. There are positive employment effects in agriculture and in food and kindred products (ISIC 310) and negative effects in the other sectors in most of the developing countries. What comes through very clearly therefore in both this and the preceding scenario is that there would be very sizable intersectoral adjustments in employment if existing agricultural NTBS and/or domestic production subsidies were to be eliminated all at once.

## **7. Elimination of NTBs on Textiles and Clothing in the Major Industrialized Countries**

We have already mentioned that in our Model imports are not distinguished according to country of origin. This makes it difficult to analyze bilateral import policies such as the Multifibre Arrangement (MFA), which restricts the quantities of textiles and clothing that developing countries can export to individual industrialized countries. What we elected to do therefore was to model the MFA restrictions as an export tax on textiles (ISIC 321) and clothing (ISIC 322) in the developing countries represented in the Model. For this purpose, we constructed weighted averages of the ad valorem equivalents of restrictions on imports of clothing by the industrialized countries from Hong Kong, South Korea, and Taiwan. We used these weighted averages to represent export taxes for the three countries as follows: Hong Kong (20.8%), South Korea (10.7%), and Taiwan (11.6%). The same rate was applied to textiles. For the remaining developing countries, we used the average (11.1%) of the rates calculated for South Korea and Taiwan. It was assumed that there were no NTBs affecting imports of textiles and clothing from the industrialized countries. All other NTBs and tariffs were assumed unchanged and all exchange rates were flexible.

The summary results are listed in Table 14. The principal findings are as follows:

1. There are only minor changes in the total trade of the industrialized countries while the total trade of the developing countries increases by more than \$900 million. Removing the export tax on textiles and clothing tends to lower their world price. Imports of these goods rise in the industrialized countries, and this results in a depreciation of their currencies, with the further effect of reducing their imports overall. Exports of the industrialized countries tend to fall because of the decline in world prices. The increase in exports of the developing countries causes their currencies to appreciate, and this in turn increases their imports. The result therefore is that both exports and imports increase for the developing countries while there are negligible changes in the trade of the industrialized countries.

2. The gross absolute employment changes are the largest in India, Hong Kong, South Korea, Argentina, and Taiwan, and there are substantial percentage changes as well.

3. The terms of trade decline to a small extent for most of the developing countries and change only marginally for the industrialized countries.

4. We have already noted that the currencies of the industrialized countries depreciate while the currencies of the developing countries appreciate.

5. Prices tend to rise in the industrialized countries because of the currency depreciation and to fall in the developing countries because of the currency appreciation.

The net percentage employment changes in textiles and clothing, which are not reported here, are fairly substantial in a number of the industrialized countries. There are sizable net percentage increases in employment in textiles and clothing in several of the developing countries and net declines in employment in many other sectors. Considerable intersectoral adjustment problems might well occur in the developing countries especially if the restrictions on their textile and clothing exports were eliminated all at once.

#### **8. Elimination of All Tariffs and NTBs in the Major Industrialized Countries, with Agricultural NTBs Modeled as Tariff Equivalents (1 + 4 + 5 + 7)**

In this scenario, we combined complete removal of tariffs with removal of NTBs by the industrialized countries. This scenario thus incorporates the earlier results for scenarios 1, 4, 5, and 7. It will be recalled that scenario 5 refers to elimination of agricultural NTBs modeled as ad valorem tariff equivalents.

The summary results are contained in Table 15. As noted in the presentation of results for scenario 3, the results of this combined scenario reflect the combination of the component scenarios. With this in mind, the principal findings are as follows:

1. Based on 1976 levels, exports will rise by more than \$33 billion, which is a 4.6% increase. U.S. exports rise by \$3.6 billion and imports by \$4.2 billion. The comparatively small changes in the trade of the developing countries reflect especially the

responses to the appreciation of their currencies that would be experienced in the context of this broad liberalization.

2. The gross change in employment for the United States is 241 thousand workers, which is 0.28% of the 1976 U.S. labor force. The results for the other industrialized countries range from less than 1% to 2.6% of 1976 employment, and, for the developing countries, from 0.3% to 12.3%.

3. The terms of trade improve for the United States, Australia, Canada, Denmark, Ireland, the Netherlands, New Zealand, and Norway, and they decline for the other industrialized countries. The terms of trade improve between 3 and 5% for Argentina, Brazil, Chile, and Turkey, and there are lesser improvements and declines for the remaining developing countries.

4. The U.S. dollar will depreciate by 1.6%. The Japanese yen also depreciates by 1.3%, and there are depreciations for several other industrialized countries. The currencies of the smaller industrialized countries appreciate. The currencies of the developing countries appreciate for the most part, ranging from 0.8% for Spain to 15.8% for Hong Kong.

5. Import and therefore consumer prices fall by 0.1% in the United States. The declines are more substantial in the other industrialized countries, ranging from 0.6% in Canada to 4.6% in Belgium-Luxembourg.

The sectoral results, which are not reported here, indicate that the United States will have positive net employment changes in agriculture especially and to a lesser extent in leather products, paper, chemicals, petroleum products, electric machinery, and mining and quarrying. There are net declines in the remaining U.S. industries. The details for the other industrialized countries and the developing countries indicate that substantial labor market adjustments might result from liberalization in a number of sectors. The sectoral rankings of the percentage changes in value added that would occur with the elimination of tariffs and NTBs broadly parallel the employment results.

We have assumed in this scenario that the developing countries do not change their tariffs, which is an option that has been available to them in previous GATT negotiations. The same is true for developing country NTBs. This option of not liberalizing may be less applicable in the Uruguay Round, however, as the major developing countries have come under increasing pressure to assume full obligations under the GATT and to reduce their trade barriers. The results of scenario 2, in which the developing countries are assumed to eliminate their tariffs, suggest substantial increases in intra-developing country trade. If tariff elimination by the developing countries were to be undertaken at the same time that the industrialized countries removed their tariffs and NTBs, we would witness a considerable expansion of trade overall. This would be reenforced presumably if developing country NTBs were also eliminated. The precise impacts across sectors would depend upon differences in the levels of existing barriers and upon the response of exchange rates to the assumed liberalization. Our results for the various scenarios involving the removal of tariffs and NTBs suggest the possibility of considerable dislocations in labor markets in many countries and that it might be desirable accordingly to phase in the liberalization over an extended period in an effort to mitigate any adjustment costs that might occur.

**9. Elimination of All Tariffs and NTBS in the Major Industrialized Countries, with Agricultural NTBs Modeled as Domestic Subsidies (1 + 4 + 6 + 7)**

The results for this final scenario parallel those in the preceding one. The difference here is that the agricultural barriers are modeled in terms of subsidies to domestic production rather than as NTBs. The summary results are contained in Table 16.

**IV. Comparisons of Alternative Liberalization Scenarios**

In order to provide some overall perspective on the results, we have prepared a series of tables reporting the results of all nine scenarios side by side. These include tables for each country listing the net percentage changes in employment by sector, and tables

for each sector listing the net percentage changes in employment by country. The reason for focusing on the net percentage changes in employment is that they provide some indication of the intersectoral labor market adjustment problems that might be experienced due to trade liberalization. The results for the United States are contained in Table 17 and the results for selected sectors are contained in Tables 18-21.

Looking at the results for all the scenarios in Table 17, the United States would experience a net percentage increase in employment in agriculture in every case. There are positive and negative signs for the other sectors across all the scenarios. For example, if tariffs were removed in both the industrialized and developing countries, the results for scenario 3 indicate that this liberalization option would reinforce the net expansion of U.S. employment in paper products, printing and publishing, chemicals, metal products, machinery and transport equipment. There are also sectors in which the developing country tariff liberalization offsets declines due to the industrialized country liberalization. These include rubber products, nonmetallic mineral products, glass and glass products, and iron and steel. Finally, there are sectors in which the developing country tariff liberalization reinforces the employment declines due to industrialized country liberalization. Textiles, clothing, leather products, and footwear are the prime examples here.

The results in scenarios 8 and 9 are of interest insofar as they may help in identifying the positive and negative employment effects for the United States that might be associated with the removal of existing tariffs and NTBs by the industrialized countries only. The sectors that would experience net increases in employment include: agriculture, leather products, paper products, chemicals, petroleum products, machinery, and mining and quarrying. There would be net reductions in employment in clothing, footwear, printing and publishing, rubber products, nonmetallic mineral products, glass products, iron and steel, metal products, transport equipment, and miscellaneous manufactures.

There are some sectors with differences in signs depending upon how the agricultural NTBs are modeled.

Comparable results exist for the other countries included in the Michigan Model, but space constraints do not permit us to discuss them. There are differences in employment experiences in these other countries as well, depending upon the scope of liberalization that is considered.

In previous GATT rounds, there has been some interest in the effects that individual countries might experience in certain key sectors as the result of different negotiating options. We present accordingly the net percentage changes in employment by country for agriculture (ISIC 1), wearing apparel (ISIC 322), iron and steel (ISIC 371), and transport equipment (ISIC 384) in Tables 18–21. For example, it can be seen in scenario 9, in which the agricultural barriers have been modeled as production subsidies, that there are substantial percentage net agricultural employment increases especially in Australia, New Zealand, and the United States and substantial declines in the European countries and Japan. In scenario 9 for wearing apparel, on the other hand, there are sizable net percentage increases in most developing countries and declines in the industrialized countries. In scenario 9 for iron and steel, there are net percentage increases in employment in 12 of the 18 industrialized countries and reductions in all of the developing countries. Finally, in scenario 9 for transport equipment, the largest net percentage increase in employment is in Japan. There are increases also in France and Italy, and declines in Canada, Germany, the United Kingdom, the United States, and all of the developing countries. The results for the remaining sectors show interesting variations by country as well and are available on request.

## **V. Suggestions for Further Research**

The scenarios that we have analyzed using the Michigan Model by no means exhaust the universe of multilateral trade liberalization options. There is certainly a great deal more that could be done. While the Model has of necessity to rely on certain



simplifying assumptions and is not well suited to analyze bilateral and preferential policies, it nonetheless can provide insight into the sectors in individual countries that will expand or contract in response to different liberalization measures that might be considered in the Tokyo Round negotiations. Among our most striking findings were the size and ramifications of changes in employment in agriculture in the United States and other countries, the role that the exchange rate can play in a general equilibrium modeling context, and the possible tradeoff between different scenarios. These are certainly issues that deserve further study.

Perhaps the biggest problem that exists is the availability of data. In particular, there is a need for more accurate and current information especially on NTBs for both the industrialized and the developing countries. The NTB estimates that we have used are subject to an undetermined margin of error because the studies from which the estimates have been obtained vary considerably in terms of their methodology, level of aggregation of trade coverage, and time period. While we are currently working to improve these estimates, progress is slow because many existing NTBs do not lend themselves readily to precise measurement. Further, there is a need for information on the numerous domestic taxes and subsidies that may affect trade. Accordingly, the results that we have presented here should be considered as highly tentative pending better and more comprehensive data. Finally, it would be useful to assess the costs of adjustment for labor and capital as the result of liberalization and to determine what the optimal timing of the liberalization might be.

TABLE 1  
THE COUNTRIES OF THE MODEL, THEIR ASSUMED EXCHANGE REGIMES,  
AND THE SOURCE AND LEVELS OF INPUT-OUTPUT, TARIFF AND NTB DATA FOR EACH

COUNTRY NAME	COUNTRY ABBREVIATION	FLEXIBLE(F), PEGGED(P), OR LICENSED(L), AND COUNTRY PEGGED TO:				INPUT-OUTPUT TABLE	POST-TOKYO-ROUND AVERAGE TARIFF LEVEL (percent)	ASSUMED AVERAGE COVERAGE BY NTBS (percent)
		F	P	L	pegged to:			
<b>INDUSTRIALIZED COUNTRIES:</b>								
Australia	ALA		X		Basket	USA 1972	14.8	12.2
Austria	ATA	X				USA 1972	11.3	6.7
Canada	CND	X				CAN 1976	4.6	11.7
<b>European Community:</b>								
Belgium-Luxembourg	BLX	X				BEL 1970	5.4	4.8
Denmark	DEN	X				DEN 1970	6.4	3.0
France	FR	X				FR 1970	4.9	30.1
Germany	GFR	X				GFR 1970	5.7	17.1
Ireland	IRE	X				IRE 1969	6.6	5.7
Italy	IT	X				IT 1970	4.4	13.3
Netherlands	NL	X				NL 1970	5.7	6.0
United Kingdom	UK	X				UK 1970	4.9	5.3
Finland	FIN		X		Basket	USA 1972	6.2	4.0
Japan	JPN	X				JPN 1975	6.2	56.9
New Zealand	NZ			X	Basket	USA 1972	13.8	13.6
Norway	NOR		X		Basket	USA 1972	4.5	7.4
Sweden	SWD		X		Basket	USA 1972	3.9	3.8
Switzerland	SWZ		X		GFR	USA 1972	3.5	13.2
United States	US	X				USA 1972	3.3	22.3
<b>DEVELOPING COUNTRIES:</b>								
Argentina	ARG			X	Basket	BRZ 1970	---	---
Brazil	BRZ			X	Basket	BRZ 1970	---	---
Chile	CHL			X	Basket	BRZ 1970	---	---
Colombia	COL			X	Basket	BRZ 1970	---	---
Greece	GRC			X	Basket	BRZ 1970	---	---
Hong Kong	HK	X				BRZ 1970	---	---
India	IND			X	Basket	BRZ 1970	---	---
Israel	ISR	X				ISR 1977	---	---
South Korea	SK			X	Basket	BRZ 1970	---	---
Mexico	MEX	X				BRZ 1970	---	---
Portugal	POR			X	Basket	BRZ 1970	---	---
Singapore	SNG		X		Basket	BRZ 1970	---	---
Spain	SP			X	Basket	BRZ 1970	---	---
Taiwan	TWN			X	Basket	BRZ 1970	---	---
Turkey	TRK			X	Basket	BRZ 1970	---	---
Yugoslavia	YUG	X				BRZ 1970	---	---

TABLE 2  
THE INDUSTRIES OF THE MODEL, THEIR ASSUMED ELASTICITIES OF SUBSTITUTION AND DEMAND,  
AND TARIFF AND NTB DATA FOR EACH

INDUSTRY NAME	ISIC CODE	ELASTICITY OF CAPITAL-LABOR SUBSTITUTION	ELASTICITY OF IMPORT-HOME-GOOD SUBSTITUTION	U.S. IMPORT DEMAND ELASTICITY	POST-TOKYO-ROUND AVERAGE TARIFF LEVEL (percent)	ASSUMED AVERAGE COVERAGE BY NTBS (percent)
TRADED GOODS:						
Agr., For., & Fish.	1	0.787	1.139	1.130	6.9	18.4
Food., Bev., & Tob.	310	1.746	1.133	1.130	11.0	23.4
Textiles	321	0.963	1.147	1.140	8.5	29.1
Wearing Apparel	322	1.191	4.269	3.920	17.5	46.5
Leather Products	323	1.230	1.810	1.580	3.0	1.1
Footwear	324	1.436	2.825	2.390	12.0	37.1
Wood Products	331	0.852	1.757	1.690	1.9	0.0
Furniture & Fixt.	332	1.122	3.096	3.000	6.9	0.0
Paper & Paper Prod.	341	1.626	1.585	1.550	4.3	0.6
Printing & Publ.	342	0.810	3.013	3.000	1.5	10.4
Chemicals	35A	1.098	2.612	2.530	6.4	4.1
Petrol. & Rel. Prod.	35B	10.011	2.359	1.960	1.4	47.8
Rubber Products	355	1.647	5.707	5.260	4.1	3.1
Nonmetal. Min. Prod.	36A	1.246	2.784	2.700	4.0	8.4
Glass & Glass Prod.	362	1.267	1.628	1.600	8.0	0.0
Iron & Steel	371	1.382	1.446	1.420	4.3	8.2
Nonferrous Metals	372	1.350	1.430	1.380	1.7	6.9
Metal Products	381	0.943	3.674	3.590	6.2	2.5
Nonelec. Machinery	382	0.677	1.022	1.020	4.7	1.9
Elec. Machinery	383	0.521	2.110	2.000	7.1	7.1
Transport Equip.	384	0.344	3.585	3.280	5.9	10.4
Misc. Manufact.	38A	1.272	1.984	1.780	4.8	2.7
NONTRADED GOODS:						
Mining & Quarrying	2	1.541	---	---	---	---
Elec., Gas, & Water	4	2.266	---	---	---	---
Construction	5	1.105	---	---	---	---
Wh. & Ret. Trade	6	2.266	---	---	---	---
Transp., Stor., & Comm.	7	1.457	---	---	---	---
Fin., Ins. & Real Est.	8	1.657	---	---	---	---
Comm., Soc., & Pers. Serv.	9	1.087	---	---	---	---



Table 3

Estimated Nominal Tariff Levels  
in the Major Industrialized and Developing Countries  
(Per Cent)

	ALA	ATA	BLX	CND	DEN	FIN	FR	GFR	IRE
TRADED GOODS									
AGR., FOR., & FISH. ( 1)	7.5	8.6	4.7	2.2	5.0	11.0	4.6	4.7	5.2
FOOD, BEV., & TOB. (310)	21.9	20.7	10.1	6.1	13.4	23.8	9.1	11.2	10.8
TEXTILES (321)	21.2	15.9	7.2	16.7	8.7	22.5	7.3	7.4	7.8
WEARING APPAREL (322)	61.8	36.2	13.4	24.2	13.2	35.5	13.2	13.4	13.2
LEATHER PRODUCTS (323)	20.3	7.7	2.5	6.3	1.8	9.3	1.6	3.2	1.8
FOOTWEAR (324)	33.8	23.4	11.4	21.9	11.5	17.4	11.3	11.7	11.9
WOOD PRODUCTS (331)	12.5	3.7	2.4	3.2	3.4	0.4	2.4	2.9	2.5
FURNITURE & FIXT. (332)	31.2	22.1	5.6	14.3	5.5	5.5	5.6	5.6	5.7
PAPER & PAPER PROD. (341)	7.7	12.3	6.9	6.7	7.9	4.5	5.5	5.2	8.0
PRINTING & PUBL. (342)	1.8	1.5	1.5	1.0	2.8	1.1	2.2	2.1	1.5
CHEMICALS (35A)	5.4	4.7	8.0	7.5	8.5	1.8	7.6	8.0	7.6
PETROL. & REL. PROD. (35B)	0.2	4.4	1.5	0.3	3.3	0.1	0.5	1.8	3.8
RUBBER PRODUCTS (355)	11.2	9.9	4.2	6.7	4.4	13.5	3.5	3.8	3.7
NONMETALLIC MIN. PROD. (36A)	11.5	5.9	3.7	6.4	5.0	2.9	4.7	3.6	4.5
GLASS & GLASS PROD. (362)	18.9	12.9	8.0	7.2	7.5	22.3	7.4	7.9	7.3
IRON & STEEL (371)	10.8	5.8	4.6	5.4	5.5	4.2	4.9	4.7	5.9
NONFERROUS METALS (372)	4.2	3.3	1.6	3.0	6.6	0.8	2.6	1.9	6.5
METAL PRODUCTS (381)	23.7	10.4	5.4	8.5	5.5	7.7	5.4	5.5	5.4
NONELEC. MACHINERY (382)	13.9	6.4	4.3	4.5	4.4	6.1	4.4	4.5	4.3
ELEC. MACHINERY (383)	21.6	14.7	7.4	5.8	7.1	6.0	7.7	8.3	7.2
TRANSPORT EQUIP. (384)	21.2	22.1	7.9	1.6	7.2	3.8	7.9	7.7	10.2
MISC. MANUFACT. (38A)	12.8	8.7	3.0	5.4	6.1	12.6	5.8	5.6	6.5
TOTAL TRADED	14.8	11.3	5.4	4.6	6.4	6.2	4.9	5.7	6.6

Note: Industrialized country tariffs are post-Tokyo Round (1987) tariffs, weights calculated by Deardorff and Stern (1986), based on information provided by the Office of the U.S. Trade Representative. Developing country tariffs were adapted in part from the data files of the Trade Information System of the United Nations Conference on Trade and Development (UNCTAD) and otherwise estimated from a variety of sources, as detailed in Deardorff and Stern (1987, App. B).

Table 3

Estimated Nominal Tariff Levels  
in the Major Industrialized and Developing Countries  
(Per Cent)

(continued)

		IT	JPN	NL	NZ	NOR	SWD	SWZ	UK	US
TRADED GOODS										
AGR., FOR., & FISH.	( 1)	6.1	21.8	4.7	3.8	1.5	1.8	5.2	4.5	1.8
FOOD, BEV., & TOB.	(310)	7.7	28.5	10.6	16.2	8.7	3.7	13.3	10.3	4.7
TEXTILES	(321)	5.6	3.3	8.5	12.3	13.3	10.3	6.6	6.7	9.2
WEARING APPAREL	(322)	13.2	13.9	13.5	58.5	21.7	14.2	12.4	13.3	22.7
LEATHER PRODUCTS	(323)	0.7	3.1	3.0	15.3	5.8	4.0	2.1	1.2	4.2
FOOTWEAR	(324)	10.4	15.7	11.2	40.7	21.7	13.7	9.0	12.5	8.8
WOOD PRODUCTS	(331)	0.8	0.3	2.8	11.4	1.6	0.7	3.2	3.1	1.7
FURNITURE & FIXT.	(332)	5.6	5.1	5.6	38.3	5.1	4.0	9.2	5.6	4.1
PAPER & PAPER PROD.	(341)	2.6	2.9	6.2	20.5	1.9	2.4	4.3	4.9	0.2
PRINTING & PUBL.	(342)	1.8	0.1	2.2	1.1	4.3	0.2	0.7	2.1	0.7
CHEMICALS	(35A)	8.1	4.8	8.1	8.1	6.2	4.8	0.9	7.9	2.4
PETROL. & REL. PROD.	(35B)	0.6	2.2	1.0	0.6	0.1	0.0	0.0	1.1	1.4
RUBBER PRODUCTS	(355)	2.7	1.1	4.1	9.5	6.6	6.1	1.7	2.7	2.5
NONMETALLIC MIN. PROD.	(36A)	2.8	0.5	3.3	12.7	2.4	2.8	2.5	2.4	5.3
GLASS & GLASS PROD.	(362)	7.6	5.1	7.5	13.5	8.0	7.1	3.1	7.9	6.2
IRON & STEEL	(371)	3.5	2.8	5.6	5.2	1.7	3.7	1.7	4.7	3.6
NONFERROUS METALS	(372)	1.8	1.1	3.6	4.1	0.9	0.7	2.4	1.7	0.7
METAL PRODUCTS	(381)	5.5	5.2	5.4	26.5	4.4	4.0	2.8	5.6	4.8
NONELEC. MACHINERY	(382)	4.5	4.4	4.3	22.1	5.2	3.5	1.2	4.2	3.3
ELEC. MACHINERY	(383)	8.0	4.3	7.8	19.6	6.9	4.5	1.6	8.1	4.4
TRANSPORT EQUIP.	(384)	8.8	1.5	9.0	26.8	2.2	5.1	6.1	7.2	2.5
MISC. MANUFACT.	(38A)	5.8	4.6	5.2	18.2	7.4	4.6	1.1	3.0	4.2
TOTAL TRADED		4.4	6.2	5.7	13.8	4.5	3.9	3.5	4.9	3.3

Table 3

Estimated Tariff Levels  
in the Major Industrialized and Developing Countries  
(Per Cent; Weighted by 1976 Own-Country Imports as Weights)

(continued)

		ARG	BRZ	CHL	COL	GRC	HK	IND	ISR	SK
TRADED GOODS										
AGR., FOR., & FISH.	( 1)	14.7	28.3	12.5	17.3	58.1	0.0	56.5	0.7	12.5
FOOD, BEV., & TOB.	(310)	16.4	39.6	13.0	24.3	72.2	0.0	57.6	4.7	15.2
TEXTILES	(321)	16.6	37.9	10.1	22.1	59.7	0.0	42.3	9.6	10.7
WEARING APPAREL	(322)	9.1	24.4	5.0	16.6	40.9	0.0	23.9	13.6	8.0
LEATHER PRODUCTS	(323)	26.9	63.1	17.2	38.8	106.4	0.0	58.9	2.8	15.9
FOOTWEAR	(324)	35.1	67.8	20.0	53.8	142.4	0.0	95.0	20.0	26.3
WOOD PRODUCTS	(331)	30.0	61.2	18.5	38.2	115.2	0.0	68.9	21.3	23.4
FURNITURE & FIXT.	(332)	15.3	45.9	11.1	23.5	72.7	0.0	51.4	22.1	13.9
PAPER & PAPER PROD.	(341)	12.1	22.9	8.4	13.7	49.6	0.0	37.0	7.8	9.0
PRINTING & PUBL.	(342)	19.2	44.6	14.3	27.1	79.8	0.0	52.8	5.2	12.4
CHEMICALS	(35A)	12.4	24.5	12.4	17.6	56.3	0.0	61.1	6.9	13.5
PETROL. & REL. PROD.	(35B)	9.1	14.1	8.5	9.6	32.0	0.0	35.0	5.9	6.8
RUBBER PRODUCTS	(355)	24.2	67.8	12.2	31.6	98.9	0.0	79.3	8.5	24.2
NONMETALLIC MIN. PROD.	(36A)	28.6	44.8	18.7	25.2	106.9	0.0	90.2	8.5	17.6
GLASS & GLASS PROD.	(362)	27.1	61.7	17.4	28.6	119.5	0.0	84.0	11.9	23.3
IRON & STEEL	(371)	11.3	14.3	7.7	10.1	40.7	0.0	48.5	1.3	6.5
NONFERROUS METALS	(372)	22.2	31.7	15.3	21.1	75.7	0.0	65.6	3.3	16.1
METAL PRODUCTS	(381)	20.6	35.6	13.9	23.0	73.6	0.0	75.4	14.7	15.4
NONELEC. MACHINERY	(382)	10.1	17.3	8.3	8.9	34.2	0.0	31.4	5.1	7.9
ELEC. MACHINERY	(383)	12.4	21.0	8.3	10.6	37.7	0.0	35.1	5.5	8.7
TRANSPORT EQUIP.	(384)	12.6	16.8	9.6	11.7	36.6	0.0	32.1	9.2	7.6
MISC. MANUFACT.	(38A)	13.5	27.5	10.0	15.7	57.6	0.0	60.4	4.5	14.7
TOTAL TRADED		13.0	20.8	10.5	15.0	46.4	0.0	47.0	5.7	10.8

Table 3

Estimated Nominal Tariff Levels  
in the Major Industrialized and Developing Countries  
(Per Cent)

(continued)

		MEX	POR	SNG	SP	TWN	TRK	YUG
TRADED GOODS								
AGR., FOR., & FISH.	( 1)	13.7	1.5	0.3	9.9	18.2	24.2	3.6
FOOD, BEV., & TOB.	(310)	17.1	8.2	12.0	19.4	28.6	21.8	5.3
TEXTILES	(321)	13.7	4.7	0.5	22.3	18.2	29.4	5.7
WEARING APPAREL	(322)	10.1	4.7	0.7	36.0	15.1	24.9	4.4
LEATHER PRODUCTS	(323)	18.6	12.6	0.1	33.1	19.6	103.7	6.6
FOOTWEAR	(324)	34.0	12.6	0.3	23.3	49.0	96.9	16.5
WOOD PRODUCTS	(331)	31.5	10.0	0.0	10.4	34.8	47.7	9.7
FURNITURE & FIXT.	(332)	17.6	10.0	0.9	19.2	25.9	39.0	8.1
PAPER & PAPER PROD.	(341)	11.3	4.1	0.0	15.7	16.1	21.5	4.5
PRINTING & PUBL.	(342)	18.4	4.1	0.0	10.6	22.5	31.8	8.9
CHEMICALS	(35A)	13.8	2.8	0.2	16.2	14.5	20.1	5.5
PETROL. & REL. PROD.	(35B)	5.1	0.0	0.2	1.1	6.6	13.1	3.1
RUBBER PRODUCTS	(355)	27.4	8.0	0.3	23.9	38.4	28.6	9.5
NONMETALLIC MIN. PROD.	(36A)	25.2	2.9	0.0	11.4	28.9	48.9	9.4
GLASS & GLASS PROD.	(362)	27.4	15.6	0.0	27.7	40.0	55.0	12.7
IRON & STEEL	(371)	6.9	1.8	0.0	12.4	8.3	10.6	4.3
NONFERROUS METALS	(372)	17.3	7.7	0.0	15.5	19.4	23.0	7.3
METAL PRODUCTS	(381)	17.3	7.4	0.1	18.4	20.5	25.7	8.0
NONELEC. MACHINERY	(382)	7.6	4.8	0.8	22.1	8.1	13.8	4.6
ELEC. MACHINERY	(383)	7.8	19.0	0.0	29.0	8.9	13.7	4.6
TRANSPORT EQUIP.	(384)	8.5	4.5	1.1	29.4	8.7	14.1	4.2
MISC. MANUFACT.	(38A)	11.1	5.7	0.1	14.5	18.1	22.5	6.6
TOTAL TRADED		10.6	4.4	0.9	13.1	13.4	16.5	5.0



Table 4

Estimated "Low" Ad Valorem Equivalents  
of Non-Tariff Barriers in the Major Industrialized Countries  
(Per Cent)

	ALA	ATA	BLX	CND	DEN	FIN	FR	GFR	IRE
<b>TRADED GOODS</b>									
AGR., FOR., & FISH. ( 1)									
FOOD, BEV., & TOB. (310)	9.2	11.4	14.3	4.1	7.3	8.1	8.8	4.5	6.3
TEXTILES (321)									
WEARING APPAREL (322)									
LEATHER PRODUCTS (323)	9.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FOOTWEAR (324)	13.0	0.0	3.2	5.3	3.5	18.0	1.9	2.5	2.3
WOOD PRODUCTS (331)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FURNITURE & FIXT. (332)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PAPER & PAPER PROD. (341)	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0
PRINTING & PUBL. (342)	0.0	0.0	0.0	0.0	0.0	0.0	10.1	0.0	0.0
CHEMICALS (35A)	1.7	3.0	0.0	0.0	0.0	0.3	1.5	0.0	0.0
PETROL. & REL. PROD. (35B)	17.5	0.2	9.8	0.0	0.0	16.8	89.2	0.0	0.0
RUBBER PRODUCTS (355)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5
NONMETALLIC MIN. PROD. (36A)	0.0	0.0	1.1	0.0	0.0	0.5	2.0	0.2	0.0
GLASS & GLASS PROD. (362)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON & STEEL (371)	16.7	0.0	14.2	0.0	15.0	13.2	22.2	16.1	6.9
NONFERROUS METALS (372)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
METAL PRODUCTS (381)	0.8	0.0	1.9	0.0	0.8	0.7	0.7	0.0	0.0
NONELEC. MACHINERY (382)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELEC. MACHINERY (383)	7.0	0.0	2.8	1.4	1.0	0.0	10.0	1.0	0.1
TRANSPORT EQUIP. (384)									
MISC. MANUFACT. (38A)	2.2	0.3	3.1	0.0	0.5	0.0	4.5	0.0	0.0

Note: The estimated NTBs for agriculture (ISIC 1), textiles and wearing apparel (ISIC 321-322), and transport equipment (ISIC 384) are presented below in our discussion of the results of scenarios 4-7. Additional details on the estimated ad valorem equivalents are given in Deardorff and Stern (1987, App. B).

Table 4

Estimated "Low" Ad Valorem Equivalents  
of Non-Tariff Barriers in the Major Industrialized Countries  
(Per Cent)

(continued)

	IT	JPN	NL	NZ	NOR	SWD	SWZ	UK	US
<b>TRADED GOODS</b>									
AGR., FOR. & FISH. ( 1)									
FOOD, BEV., & TOB. (310)	10.2	27.1	13.3	4.1	15.7	6.3	18.3	8.9	14.5
TEXTILES (321)									
WEARING APPAREL (322)									
LEATHER PRODUCTS (323)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FOOTWEAR (324)	0.1	6.1	3.1	0.0	1.4	29.1	0.0	3.2	4.3
WOOD PRODUCTS (331)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FURNITURE & FIXT. (332)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PAPER & PAPER PROD. (341)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PRINTING & PUBL. (342)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.3
CHEMICALS (35A)	3.4	1.1	0.0	1.7	4.5	1.1	4.3	1.7	0.0
PETROL. & REL. PROD. (35B)	0.0	1.3	3.9	6.1	0.9	0.0	16.8	0.0	0.0
RUBBER PRODUCTS (355)	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NONMETALLIC MIN. PROD. (36A)	1.0	1.1	1.1	0.8	0.0	0.5	0.0	0.0	0.0
GLASS & GLASS PROD. (362)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IRON & STEEL (371)	14.6	0.0	10.6	0.0	0.0	0.0	1.2	12.6	11.3
NONFERROUS METALS (372)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
METAL PRODUCTS (381)	1.4	0.0	1.9	0.8	0.7	0.0	0.2	0.0	0.0
NONELEC. MACHINERY (382)	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ELEC. MACHINERY (383)	1.0	0.0	0.6	0.7	0.0	0.0	4.0	1.8	0.2
TRANSPORT EQUIP. (384)									
MISC. MANUFACT. (38A)	1.0	0.8	0.1	0.4	0.0	0.0	0.1	0.0	0.0

Table 5

SUMMARY OF EFFECTS ON THE MAJOR INDUSTRIALIZED  
AND DEVELOPING COUNTRIES DUE TO  
ELIMINATION OF POST TOKYO ROUND TARIFFS IN DEVELOPED COUNTRIES

	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	000 WKR	PCT			
<b>INDUSTRIALIZED COUNTRIES</b>									
AUSTRALIA	2031.8	14.1	2052.4	17.4	66.0	1.14	0.01	-0.9	-0.9
AUSTRIA	1444.2	15.9	1412.2	12.3	94.2	3.20	-0.15	0.7	-3.1
CANADA	1854.4	4.6	1857.7	4.8	53.9	0.56	-0.02	0.5	-0.7
<b>EUROPEAN COMMUNITY</b>									
BELGIUM LUXEMBOURG	1384.3	4.0	1354.6	3.9	66.7	1.72	-0.08	1.6	-2.8
DENMARK	555.2	5.8	556.9	4.5	37.6	1.56	0.24	0.3	-2.0
FRANCE	3092.4	5.2	3157.1	4.9	144.3	0.69	0.17	-0.6	-0.8
GERMANY	4558.1	4.2	4603.1	5.2	237.4	0.97	-0.12	-0.4	-1.5
IRELAND	176.3	4.8	179.9	4.3	12.6	1.23	0.20	0.9	-2.0
ITALY	1632.1	4.1	1633.0	3.8	123.2	0.65	0.07	-0.2	-0.8
NETHERLANDS	1740.1	4.0	1796.1	4.6	60.2	1.32	0.05	1.0	-2.2
UNITED KINGDOM	2813.2	5.7	2718.5	4.9	137.1	0.56	-0.08	-0.8	-0.6
TOTAL EC	15951.7	4.6	15999.2	4.7	819.0	0.81	0.01	-0.3	-1.2
FINLAND	487.5	7.2	475.3	6.4	37.3	1.74	-0.12	1.0	-1.8
JAPAN	1775.6	2.5	1862.9	2.9	125.4	0.24	0.05	-0.2	-0.4
NEW ZEALAND	456.0	15.6	454.2	13.9	24.2	2.01	0.02	-0.3	-1.3
NORWAY	414.4	4.9	379.6	3.4	16.2	0.91	-0.15	0.0	-0.9
SWEDEN	739.8	3.8	723.7	3.8	32.2	0.79	-0.10	0.4	-1.1
SWITZERLAND	470.9	3.0	449.3	3.0	17.7	0.63	-0.19	0.1	-0.7
UNITED STATES	3988.9	3.3	4261.6	3.3	141.3	0.16	0.29	-0.6	-0.1
TOTAL INDUSTRIALIZED	29615.2	4.5	29928.1	4.6	1427.4	0.53	0.12	-0.3	-0.6
<b>DEVELOPING COUNTRIES</b>									
ARGENTINA	-33.4	-0.8	20.8	0.7	20.9	0.20	1.14	0.7	-0.1
BRAZIL	-73.9	-0.7	0.2	0.0	39.2	0.10	0.85	0.6	-0.1
CHILE	-4.4	-0.2	-14.2	-1.1	5.6	0.20	-0.89	-0.3	0.1
COLOMBIA	-12.7	-0.7	13.9	0.8	11.7	0.15	1.28	1.5	-0.2
GREECE	-4.5	-0.2	-20.9	-0.3	6.5	0.16	0.27	0.1	-0.0
HONG KONG	-1.9	-0.0	1.2	0.0	8.3	0.63	0.23	1.2	-0.3
INDIA	-29.3	-0.5	-28.9	-0.5	140.0	0.06	-0.06	0.6	-0.0
ISRAEL	-1.2	-0.0	-6.7	-0.2	2.0	0.18	0.26	0.5	-0.0
SOUTH KOREA	-24.8	-0.3	4.0	0.0	20.2	0.16	0.37	0.8	-0.1
MEXICO	-31.3	-0.6	-17.2	-0.3	27.1	0.16	0.37	0.6	-0.1
PORTUGAL	-0.4	-0.0	-23.7	-0.5	7.5	0.24	-0.10	0.2	0.0
SINGAPORE	-6.4	-0.1	-19.0	-0.2	2.8	0.32	0.03	0.3	0.0
SPAIN	-23.7	-0.2	-44.2	-0.3	16.0	0.13	0.37	0.3	-0.0
TAIWAN	-16.6	-0.2	7.2	0.1	17.9	0.32	0.18	0.8	-0.0
TURKEY	-8.9	-0.4	-10.2	-0.2	10.7	0.07	0.72	0.1	-0.0
YUGOSLAVIA	-7.0	-0.1	-5.5	-0.1	5.6	0.12	0.27	0.3	-0.0
TOTAL LDC'S	-280.7	-0.3	-143.3	-0.1	341.9	0.09	0.47	0.5	-0.1
ALL COUNTRIES	29334.5	4.0	29784.8	3.9	1769.3	0.28	0.17	-0.2	-0.6

\*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 AND DEVELOPING COUNTRIES DUE TO  
ELIMINATION OF POST TOKYO ROUND TARIFFS IN DEVELOPED COUNTRIES

		ALA	ATA	BLX	CND	DEN	FIN	FR	GFR	IRE
TRADED GOODS										
AGR., FOR., & FISH.	( 1)	4.675	-1.850	1.839	1.656	3.047	-2.644	0.730	-0.384	1.505
FOOD, BEV., & TOB.	(310)	2.755	-1.275	1.192	0.345	4.118	-0.064	0.984	-0.046	2.576
TEXTILES	(321)	25.685	28.769	10.922	-2.221	5.150	17.670	2.547	2.985	4.957
WEARING APPAREL	(322)	-6.961	89.029	11.455	-3.581	7.942	106.831	6.651	-0.876	-0.079
LEATHER PRODUCTS	(323)	88.754	31.546	-0.240	7.271	4.897	32.054	3.925	1.369	2.822
FOOTWEAR	(324)	-3.126	43.418	1.279	0.654	3.183	51.239	5.330	-3.427	-0.971
WOOD PRODUCTS	(331)	-2.585	8.768	-2.156	0.979	0.556	-0.922	-0.525	-0.299	-1.673
FURNITURE & FIXT.	(332)	-3.020	-7.257	9.410	0.111	17.062	5.368	-0.667	3.861	-0.823
PAPER & PAPER PROD.	(341)	-1.387	10.358	4.621	1.843	-2.945	-3.027	-0.519	-1.617	-3.930
PRINTING & PUBL.	(342)	-0.024	-1.001	0.797	-0.158	0.041	-1.379	0.008	-0.332	-0.094
CHEMICALS	(35A)	3.204	1.870	9.184	-1.653	1.645	-0.103	-0.745	3.399	3.238
PETROL. & REL. PROD.	(35B)	10.559	-4.477	-25.231	0.116	-28.041	-2.766	0.872	-3.598	-26.071
RUBBER PRODUCTS	(355)	-11.229	-6.511	1.465	-0.043	-2.683	-22.846	1.251	1.749	0.565
NONMETALLIC MIN. PROD.	(36A)	-2.252	-3.443	-2.776	-1.317	1.116	-2.641	-0.616	-0.078	9.207
GLASS & GLASS PROD.	(362)	-6.198	-1.534	5.725	-2.177	0.361	-5.427	0.044	0.909	9.709
IRON & STEEL	(371)	0.421	1.940	7.598	0.742	-0.310	-4.395	0.667	2.659	-3.398
NONFERROUS METALS	(372)	32.715	5.290	-8.584	11.802	2.326	-4.767	-0.956	0.406	7.382
METAL PRODUCTS	(381)	-4.462	-2.177	-1.467	-1.767	3.214	-3.210	0.651	0.737	3.274
NONELEC. MACHINERY	(382)	-0.324	5.201	1.673	2.014	4.345	-0.971	1.843	1.502	3.672
ELEC. MACHINERY	(383)	-5.684	-0.388	1.082	-0.148	1.274	-0.208	0.560	1.587	-0.006
TRANSPORT EQUIP.	(384)	-5.842	-5.686	16.588	4.423	8.457	1.614	0.395	2.061	-1.850
MISC. MANUFACT.	(38A)	-4.102	5.547	6.393	6.013	9.709	-6.763	-0.135	2.945	7.450
TOTAL TRADED		1.447	5.522	4.023	1.009	3.735	3.682	0.880	1.135	1.749
NONTRADED GOODS										
MINING & QUARRYING	( 2)	8.289	-3.553	-0.100	0.557	-1.837	-3.758	0.040	0.325	0.139
ELEC., GAS, & WATER	( 4)	-0.235	-4.024	-1.313	-0.336	-2.111	-2.437	-0.740	-0.510	-1.311
CONSTRUCTION	( 5)	-0.087	-2.227	-0.938	0.167	-0.926	-0.769	-0.356	-0.834	-0.660
WH. & RET. TRADE	( 6)	-0.740	-3.241	-2.563	-0.279	-1.900	-1.216	-0.728	-0.622	-1.681
TRANSP., STOR., & COMM.	( 7)	-0.160	-1.934	-0.795	-0.086	-1.149	-1.099	-0.368	-0.469	-0.702
FIN., INS., & REAL EST.	( 8)	-0.782	-4.540	-2.157	-0.416	-2.097	-1.987	-0.829	-1.337	-2.081
COMM., SOC., & PERS. SERV.	( 9)	-0.728	-3.007	-1.806	-0.563	-1.729	-1.330	-0.443	-0.960	-1.388
TOTAL NONTRADED		-0.422	-2.983	-1.800	-0.344	-1.655	-1.345	-0.537	-0.802	-1.307
TOTAL, ALL INDUSTRIES		0.107	0.587	0.101	0.011	0.055	0.634	0.006	0.009	0.031

Table 6 (continued)

		ARG	BRZ	CHL	COL	GRC	HK	IND	ISR	SK
TRADED GOODS										
AGR., FOR., & FISH.	( 1)	0.472	0.234	0.639	0.258	0.187	0.696	0.077	1.610	0.120
FOOD, BEV., & TOB.	(310)	-0.068	-0.081	-0.624	-0.216	-0.145	-3.016	-0.031	-0.366	-0.080
TEXTILES	(321)	-3.558	-0.316	-0.473	-1.205	-0.375	-2.145	-0.733	-1.733	-1.382
WEARING APPAREL	(322)	1.302	0.095	0.766	0.203	2.655	2.903	3.516	1.237	3.464
LEATHER PRODUCTS	(323)	-16.433	-3.606	-1.329	-4.414	-9.904	-16.748	-12.271	-2.512	-14.071
FOOTWEAR	(324)	1.259	0.360	0.428	-0.045	2.881	3.314	2.965	0.613	4.482
WOOD PRODUCTS	(331)	0.122	-0.171	-0.145	-0.727	-0.189	-1.829	-0.171	-0.320	-1.136
FURNITURE & FIXT.	(332)	0.667	-0.071	-0.002	-0.283	0.010	0.150	0.047	-0.013	0.965
PAPER & PAPER PROD.	(341)	-0.209	-0.298	0.194	-1.370	-0.321	-2.604	-0.255	-0.534	-0.924
PRINTING & PUBL.	(342)	-0.024	-0.116	-0.174	-0.589	-0.096	-0.770	-0.081	-0.276	-0.003
CHEMICALS	(35A)	-0.054	-0.090	0.645	-0.772	0.354	-0.849	-0.018	0.353	-0.139
PETROL. & REL. PROD.	(35B)	-1.236	-1.271	0.227	-3.175	-0.676	-2.520	-0.997	-6.998	-1.308
RUBBER PRODUCTS	(355)	-0.174	-0.351	0.613	-1.920	0.211	-1.808	-0.140	-0.611	-0.557
NONMETALLIC MIN. PROD.	(36A)	0.063	-0.099	0.019	-0.739	-0.081	-1.675	-0.265	-0.211	-0.439
GLASS & GLASS PROD.	(362)	-0.003	-0.087	0.055	-1.067	-0.105	-2.086	-0.114	-0.445	-0.321
IRON & STEEL	(371)	-1.176	-0.771	-0.525	-1.939	-1.296	-2.738	-1.151	-1.186	-2.090
NONFERROUS METALS	(372)	-1.745	-3.083	-1.651	-2.857	-2.344	-4.522	-3.382	-11.814	-2.500
METAL PRODUCTS	(381)	0.391	0.115	0.942	0.178	0.571	0.503	0.325	1.045	1.048
NONELEC. MACHINERY	(382)	-0.747	-0.189	-0.188	-0.497	-0.173	-1.819	-0.156	-0.326	-0.377
ELEC. MACHINERY	(383)	0.189	0.128	0.364	0.039	0.353	0.093	0.152	0.345	0.454
TRANSPORT EQUIP.	(384)	0.149	0.068	0.410	-0.036	0.430	0.025	0.089	0.262	0.261
MISC. MANUFACT.	(38A)	-0.058	-0.258	0.834	-1.315	0.006	-1.545	-0.235	-0.222	-0.648
TOTAL TRADED		-0.256	0.111	0.358	-0.028	0.093	0.299	0.031	0.215	0.029
NONTRADED GOODS										
MINING & QUARRYING	( 2)	-1.859	-1.879	0.104	-4.515	-0.966	-0.863	-1.423	-0.828	-2.125
ELEC., GAS, & WATER	( 4)	0.133	-0.215	-0.350	-0.113	-0.181	-0.710	-0.159	0.269	-0.117
CONSTRUCTION	( 5)	0.229	-0.025	-0.270	0.278	-0.066	-0.106	-0.006	0.007	0.165
WH. & RET. TRADE	( 6)	0.193	-0.169	-0.327	-0.050	-0.134	-0.535	-0.133	-0.157	-0.026
TRANSP., STOR., & COMM.	( 7)	0.143	-0.104	-0.247	0.056	-0.123	-0.368	-0.072	-0.044	-0.023
FIN., INS., & REAL EST.	( 8)	0.132	-0.110	-0.173	-0.039	-0.097	-0.454	-0.087	-0.078	0.007
COMM., SOC., & PERS. SERV.	( 9)	0.173	-0.063	-0.206	0.140	-0.074	-0.183	-0.036	-0.044	0.042
TOTAL NONTRADED		0.161	-0.127	-0.226	0.038	-0.117	-0.381	-0.116	-0.081	-0.044
TOTAL, ALL INDUSTRIES		0.004	0.000	0.001	0.001	0.004	0.016	0.001	0.004	0.004

Table 6 (continued)

		IT	JPN	NL	NZ	NOR	SWD	SWZ	UK	US
TRADED GOODS										
AGR., FOR., & FISH.	( 1)	-0.387	-1.077	4.265	6.773	1.134	0.174	-0.221	0.015	1.506
FOOD, BEV., & TOB.	(310)	0.305	0.871	4.719	3.804	-0.175	-0.590	0.383	-0.589	0.059
TEXTILES	(321)	0.673	0.624	22.871	30.242	14.703	10.325	1.297	0.173	-0.643
WEARING APPAREL	(322)	4.886	-0.373	12.892	5.537	13.968	34.490	7.982	-0.320	-1.316
LEATHER PRODUCTS	(323)	2.232	-0.199	7.865	99.337	34.755	9.492	-1.777	0.785	-1.253
FOOTWEAR	(324)	14.161	0.631	10.496	1.134	19.681	34.365	5.044	-2.115	-0.785
WOOD PRODUCTS	(331)	0.053	0.771	-2.256	-0.206	-0.031	-0.246	-1.362	-0.923	0.097
FURNITURE & FIXT.	(332)	2.387	0.068	-1.023	-0.905	1.458	5.214	-3.717	1.730	0.022
PAPER & PAPER PROD.	(341)	-0.314	0.622	-0.202	5.819	3.245	0.791	-0.596	-1.467	0.414
PRINTING & PUBL.	(342)	-0.120	0.100	-0.058	-0.708	-1.305	-0.583	-0.302	-0.049	0.000
CHEMICALS	(35A)	-1.548	0.457	6.829	-2.905	0.856	-0.600	2.215	0.639	0.460
PETROL. & REL. PROD.	(35B)	-2.907	-1.580	-3.354	39.892	0.222	-1.353	-0.694	-0.236	0.497
RUBBER PRODUCTS	(355)	2.611	2.553	1.675	-9.601	-2.257	-5.281	-1.103	2.393	-0.593
NONMETALLIC MIN. PROD.	(36A)	0.995	0.291	-2.679	-5.163	-0.868	-1.709	-1.536	2.320	-0.654
GLASS & GLASS PROD.	(362)	0.351	0.422	10.832	-3.102	-3.854	-1.831	-1.033	2.682	-0.101
IRON & STEEL	(371)	0.173	0.373	-2.270	-3.735	1.613	-1.404	-0.864	1.539	-0.145
NONFERROUS METALS	(372)	-1.365	-0.351	-2.206	26.849	4.983	-0.307	-0.757	1.007	-0.242
METAL PRODUCTS	(381)	1.228	0.540	-0.304	-9.042	0.124	1.302	1.992	1.106	0.146
NONELEC. MACHINERY	(382)	0.803	0.326	0.944	-2.735	0.657	0.758	0.543	1.736	0.341
ELEC. MACHINERY	(383)	0.140	1.089	1.477	-6.493	0.579	3.070	2.005	0.294	0.568
TRANSPORT EQUIP.	(384)	2.187	1.196	0.777	-12.596	3.977	2.714	-2.110	0.233	0.480
MISC. MANUFACT.	(38A)	0.970	2.553	6.768	-5.677	0.039	2.837	2.107	4.814	-0.714
TOTAL TRADED		0.672	0.151	3.477	3.538	1.770	1.668	0.905	0.686	0.215
NONTRADED GOODS										
MINING & QUARRYING	( 2)	-0.329	-0.226	-1.998	3.657	0.877	-1.619	-0.592	0.688	0.299
ELEC., GAS, & WATER	( 4)	-0.274	0.182	-1.241	-2.380	-1.074	-1.236	-0.792	-0.103	-0.118
CONSTRUCTION	( 5)	-0.525	-0.143	-0.392	-0.995	-0.455	-0.391	-0.440	-0.252	0.005
WH. & RET. TRADE	( 6)	-0.899	-0.038	-1.539	-1.941	-0.907	-0.790	-0.660	-0.385	-0.087
TRANSP., STOR., & COMM.	( 7)	-0.220	-0.008	-1.107	-1.058	-0.457	-0.515	-0.336	-0.032	-0.038
FIN., INS., & REAL EST.	( 8)	-0.663	-0.088	-1.743	-2.565	-1.289	-1.174	-0.830	-0.491	-0.097
COMM., SOC., & PERS. SERV.	( 9)	-0.514	-0.149	-1.562	-1.759	-0.935	-0.770	-0.617	-0.421	-0.078
TOTAL NONTRADED		-0.595	-0.088	-1.368	-1.669	-0.815	-0.756	-0.604	-0.334	-0.072
TOTAL, ALL INDUSTRIES		0.013	0.002	0.057	0.229	0.027	0.048	0.009	0.004	0.001

Table 6 (continued)

		MEX	POR	SNG	SP	TWN	TRK	YUG
<b>TRADED GOODS</b>								
AGR., FOR., & FISH.	( 1)	0.252	0.254	2.666	0.328	0.510	0.069	0.212
FOOD, BEV., & TOB.	(310)	-0.172	-0.732	-3.392	-0.296	-0.649	0.006	-0.056
TEXTILES	(321)	-1.399	-0.774	-2.895	-0.584	-1.861	-0.780	-0.339
WEARING APPAREL	(322)	0.408	4.219	5.804	1.130	3.304	1.546	1.767
LEATHER PRODUCTS	(323)	-0.507	-1.074	-12.667	-2.467	-15.775	-7.470	-0.900
FOOTWEAR	(324)	0.032	1.631	5.272	1.698	4.302	0.071	1.617
WOOD PRODUCTS	(331)	-0.575	-0.547	-1.770	-0.472	-1.520	-0.047	-0.293
FURNITURE & FIXT.	(332)	0.051	-0.147	3.088	0.283	0.923	0.034	0.201
PAPER & PAPER PROD.	(341)	-0.407	-0.951	-1.153	-0.384	-0.737	-0.136	-0.376
PRINTING & PUBL.	(342)	-0.132	-0.262	-0.577	-0.226	0.178	-0.047	-0.018
CHEMICALS	(35A)	0.179	0.217	0.574	0.134	-0.189	0.346	0.219
PETROL. & REL. PROD.	(35B)	-0.843	-0.737	-0.622	-0.835	-1.480	-0.450	-1.057
RUBBER PRODUCTS	(355)	-0.159	0.001	-0.110	-0.042	-0.776	0.232	-0.072
NONMETALLIC MIN. PROD.	(36A)	-0.270	-0.300	-0.185	-0.161	-0.247	-0.033	-0.089
GLASS & GLASS PROD.	(362)	-0.210	-0.226	-0.379	-0.135	-1.228	-0.006	-0.121
IRON & STEEL	(371)	-0.818	-1.208	-2.320	-0.881	-1.984	-0.656	-0.919
NONFERROUS METALS	(372)	-2.163	-1.919	-2.711	-1.357	-2.127	-1.531	-1.749
METAL PRODUCTS	(381)	0.672	0.889	1.789	0.389	1.261	0.695	0.542
NONELEC. MACHINERY	(382)	-0.962	-0.404	-0.702	-0.605	-1.092	-0.051	-0.382
ELEC. MACHINERY	(383)	0.680	0.430	0.891	0.210	0.387	0.249	0.315
TRANSPORT EQUIP.	(384)	0.215	0.245	0.588	0.214	0.265	0.242	0.263
MISC. MANUFACT.	(38A)	-0.244	0.018	0.278	-0.088	-0.812	-0.026	-0.129
<b>TOTAL TRADED</b>		<b>0.110</b>	<b>0.238</b>	<b>0.531</b>	<b>0.112</b>	<b>-0.114</b>	<b>0.019</b>	<b>0.054</b>
<b>NONTRADED GOODS</b>								
MINING & QUARRYING	( 2)	-1.424	-1.087	-1.078	-1.285	-2.349	-0.724	-1.343
ELEC., GAS, & WATER	( 4)	-0.264	-0.413	-0.288	-0.171	0.142	-0.075	-0.102
CONSTRUCTION	( 5)	-0.087	-0.238	-0.182	-0.030	0.414	-0.019	0.071
WH. & RET. TRADE	( 6)	-0.210	-0.390	-0.250	-0.130	0.211	-0.055	0.016
TRANSP., STOR., & COMM.	( 7)	-0.162	-0.286	-0.232	-0.093	0.195	-0.047	0.002
FIN., INS., & REAL EST.	( 8)	-0.141	-0.283	-0.157	-0.087	0.240	-0.020	0.019
COMM., SOC., & PERS. SERV.	( 9)	-0.094	-0.206	-0.157	-0.043	0.233	-0.025	0.024
<b>TOTAL NONTRADED</b>		<b>-0.178</b>	<b>-0.277</b>	<b>-0.207</b>	<b>-0.103</b>	<b>0.166</b>	<b>-0.055</b>	<b>-0.035</b>
<b>TOTAL, ALL INDUSTRIES</b>		<b>0.001</b>	<b>0.004</b>	<b>0.009</b>	<b>0.001</b>	<b>0.005</b>	<b>0.000</b>	<b>0.001</b>

Table 7

RANKINGS OF SECTORS ACCORDING TO PERCENTAGE CHANGES IN VALUE ADDED  
IN THE MAJOR INDUSTRIALIZED COUNTRIES AND BRAZIL DUE TO  
ELIMINATION OF POST TOKYO ROUND TARIFFS IN DEVELOPED COUNTRIES

		ALA	ATA	BLX	CND	DEN	FIN	FR	GFR	IRE	IT
TRADED GOODS											
AGR., FOR., & FISH.	( 1)	3	27	7	3	4	27	3	26	7	28
FOOD, BEV., & TOB.	(310)	7	17	14	11	9	7	9	16	10	12
TEXTILES	(321)	4	2	2	24	5	3	4	2	3	10
WEARING APPAREL	(322)	22	1	5	27	6	1	2	23	15	2
LEATHER PRODUCTS	(323)	1	5	18	5	8	4	6	9	11	5
FOOTWEAR	(324)	18	4	15	12	12	2	5	29	20	1
WOOD PRODUCTS	(331)	23	3	27	9	15	17	27	21	25	15
FURNITURE & FIXT.	(332)	20	24	4	14	1	6	23	5	19	4
PAPER & PAPER PROD.	(341)	17	8	9	7	26	18	21	28	27	20
PRINTING & PUBL.	(342)	10	13	16	18	18	16	16	20	16	18
CHEMICALS	(35A)	6	10	3	28	13	8	28	3	8	29
PETROL. & REL. PROD.	(35B)	8	14	29	29	29	12	13	24	29	25
RUBBER PRODUCTS	(355)	28	25	13	15	28	29	8	10	12	6
NONMETALLIC MIN. PROD.	(36A)	21	22	23	23	16	19	24	15	5	11
GLASS & GLASS PROD.	(362)	25	16	11	26	17	25	15	12	6	14
IRON & STEEL	(371)	9	11	8	10	19	20	12	8	26	16
NONFERROUS METALS	(372)	2	9	28	2	14	24	25	14	2	26
METAL PRODUCTS	(381)	24	20	24	25	10	23	11	11	9	7
NONELEC. MACHINERY	(382)	15	7	10	6	7	15	1	6	4	9
ELEC. MACHINERY	(383)	27	12	12	20	11	9	10	7	14	13
TRANSPORT EQUIP.	(384)	29	29	1	1	3	5	7	1	28	3
MISC. MANUFACT.	(38A)	26	6	6	4	2	28	18	4	1	8
NONTRADED GOODS											
MINING & QUARRYING	( 2)	5	26	17	8	27	26	14	13	13	22
ELEC., GAS, & WATER	( 4)	14	23	22	19	24	21	26	19	23	19
CONSTRUCTION	( 5)	11	18	21	13	21	11	19	25	17	23
WH. & RET. TRADE	( 6)	16	21	26	17	23	13	22	18	22	27
TRANSP., STOR., & COMM.	( 7)	12	19	19	16	22	14	20	17	18	17
FIN., INS., & REAL EST.	( 8)	19	28	25	21	25	22	29	27	24	24
COMM., SOC., & PERS. SERV.	( 9)	13	15	20	22	20	10	17	22	21	21



Table 7 (continued)

	JPN	NL	NZ	NOR	SWD	SWZ	UK	US	BRZ
<b>TRADED GOODS</b>									
AGR., FOR., & FISH. ( 1)	29	2	2	6	11	20	16	1	1
FOOD, BEV., & TOB. (310)	6	10	7	19	21	9	26	11	11
TEXTILES (321)	13	1	3	3	4	7	15	24	25
WEARING APPAREL (322)	26	5	9	5	2	3	22	25	6
LEATHER PRODUCTS (323)	24	7	1	2	7	19	4	26	29
FOOTWEAR (324)	14	8	10	4	1	6	29	23	2
WOOD PRODUCTS (331)	5	29	11	18	17	27	28	8	21
FURNITURE & FIXT. (332)	18	18	12	11	8	28	5	12	9
PAPER & PAPER PROD. (341)	10	15	8	8	12	15	27	7	20
PRINTING & PUBL. (342)	17	14	14	25	20	12	18	14	19
CHEMICALS (35A)	8	3	23	10	23	1	7	4	17
PETROL. & REL. PROD. (35B)	28	19	5	17	16	10	19	10	14
RUBBER PRODUCTS (355)	4	13	25	27	29	21	3	27	24
NONMETALLIC MIN. PROD. (36A)	15	27	24	24	26	26	9	28	15
GLASS & GLASS PROD. (362)	12	6	19	29	25	22	8	19	13
IRON & STEEL (371)	11	26	18	12	22	17	12	18	26
NONFERROUS METALS (372)	27	25	4	7	13	18	13	22	28
METAL PRODUCTS (381)	7	17	28	15	9	5	6	9	5
NONELEC. MACHINERY (382)	9	12	21	13	10	8	2	6	23
ELEC. MACHINERY (383)	2	9	27	14	6	4	11	3	3
TRANSPORT EQUIP. (384)	1	11	29	1	3	29	14	2	4
MISC. MANUFACT. (38A)	3	4	26	16	5	2	1	29	22
<b>NONTRADED GOODS</b>									
MINING & QUARRYING ( 2)	25	28	6	9	28	24	10	5	27
ELEC., GAS, & WATER ( 4)	16	23	20	26	24	23	20	20	18
CONSTRUCTION ( 5)	23	16	15	20	15	13	24	13	7
WH. & RET. TRADE ( 6)	20	22	17	23	19	16	23	17	16
TRANSP., STOR., & COMM. ( 7)	19	20	16	22	18	14	17	16	12
FIN., INS., & REAL EST. ( 8)	22	24	22	28	27	25	25	21	10
COMM., SOC., & PERS. SERV. ( 9)	21	21	13	21	14	11	21	15	8

Table 8

SUMMARY OF EFFECTS ON THE MAJOR INDUSTRIALIZED  
AND DEVELOPING COUNTRIES DUE TO  
ELIMINATION OF TARIFFS IN DEVELOPING COUNTRIES

	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	-51.2	-0.4	-70.1	-0.6	5.4	0.09	-0.14	0.1	0.0
AUSTRIA	-26.6	-0.3	-24.7	-0.2	6.4	0.22	0.02	0.2	0.0
CANADA	-55.5	-0.1	-63.1	-0.2	9.4	0.10	-0.02	0.2	-0.0
<b>EUROPEAN COMMUNITY</b>									
BELGIUM LUXEMBOURG	-26.2	-0.1	-6.0	-0.0	7.0	0.18	0.06	0.3	0.0
DENMARK	-9.5	-0.1	-4.1	-0.0	3.2	0.13	0.05	0.3	0.0
FRANCE	-189.0	-0.3	-88.8	-0.1	21.9	0.11	0.16	0.5	0.0
GERMANY	-106.3	-0.1	49.7	0.1	25.4	0.10	0.15	0.8	-0.0
IRELAND	-5.1	-0.1	-6.3	-0.1	1.8	0.17	-0.03	-0.0	0.1
ITALY	-26.4	-0.1	9.1	0.0	29.2	0.15	0.08	0.8	0.0
NETHERLANDS	-102.6	-0.2	-87.1	-0.2	7.4	0.16	0.04	0.2	0.0
UNITED KINGDOM	-25.7	-0.1	30.6	0.1	17.9	0.07	0.11	0.7	-0.0
TOTAL EC	-490.9	-0.1	-102.8	-0.0	113.8	0.11	0.12	0.6	0.0
FINLAND	-19.7	-0.3	-18.9	-0.3	3.7	0.17	0.01	0.2	0.1
JAPAN	-208.3	-0.3	12.7	0.0	30.3	0.06	0.33	1.1	-0.0
NEW ZEALAND	-9.4	-0.3	-16.3	-0.5	1.1	0.09	-0.23	0.0	0.0
NORWAY	-20.2	-0.2	-29.0	-0.3	2.6	0.15	-0.09	0.1	-0.0
SWEDEN	-45.8	-0.2	-27.0	-0.1	4.7	0.12	0.10	0.5	0.0
SWITZERLAND	-22.7	-0.1	-8.3	-0.1	5.6	0.20	0.09	0.6	0.0
UNITED STATES	-493.1	-0.4	-115.1	-0.1	37.5	0.04	0.31	0.9	-0.0
TOTAL INDUSTRIALIZED	-1443.5	-0.2	-462.8	-0.1	220.5	0.08	0.21	0.8	-0.0
<b>DEVELOPING COUNTRIES</b>									
ARGENTINA	325.5	7.8	334.7	11.1	144.4	1.39	0.21	-2.4	-1.7
BRAZIL	2349.0	21.4	2373.2	17.3	395.1	0.98	0.21	-7.0	-1.5
CHILE	121.5	6.1	114.5	9.1	22.3	0.80	-0.44	0.9	-2.2
COLOMBIA	126.9	6.6	133.1	7.8	100.6	1.26	0.30	-6.3	-1.4
GREECE	1101.8	37.8	1101.5	18.2	234.2	5.85	-0.02	-13.7	-7.0
HONG KONG	-3.9	-0.1	-20.4	-0.2	2.4	0.18	-0.21	-0.0	0.1
INDIA	1731.0	30.0	1727.8	32.0	3037.8	1.36	-0.06	-12.1	-3.2
ISRAEL	137.5	5.2	140.0	3.4	9.1	0.81	0.11	-1.5	-1.5
SOUTH KOREA	617.8	7.3	613.0	7.0	200.5	1.60	-0.06	-1.7	-2.6
MEXICO	453.7	8.6	451.4	7.5	179.7	1.04	-0.02	-3.1	-1.0
PORTUGAL	69.8	3.6	65.8	1.5	25.0	0.81	-0.12	-1.6	-0.9
SINGAPORE	23.2	0.3	23.9	0.3	3.7	0.42	-0.01	-0.1	-0.5
SPAIN	1293.0	13.5	1310.6	7.6	195.7	1.58	0.13	-6.0	-1.7
TAIWAN	664.5	7.6	651.7	8.5	154.8	2.73	-0.15	-1.1	-5.1
TURKEY	459.3	21.8	464.2	9.3	121.7	0.83	0.22	-7.6	-1.3
YUGOSLAVIA	196.6	3.7	195.2	2.6	31.6	0.65	-0.02	-1.8	-0.7
TOTAL LDC'S	9667.3	11.2	9680.1	8.8	4858.7	1.34	0.07	-5.9	-1.9
ALL COUNTRIES	8223.8	1.1	9217.2	1.2	5079.2	0.80	0.19	-0.2	-0.3

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

#POSITIVE = APPRECIATION.

+INDEX OF IMPORT AND HOME PRICES



Table 10

SUMMARY OF EFFECTS ON THE MAJOR INDUSTRIALIZED  
AND DEVELOPING COUNTRIES DUE TO  
ELIMINATION OF NONTARIFF BARRIERS IN OTHER THAN AGRICULTURE AND TEXTILES IN DEVELOPED COUNTRIES

	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	000 WKR	PCT			
<b>INDUSTRIALIZED COUNTRIES</b>									
AUSTRALIA	241.0	1.7	311.1	2.6	14.1	0.24	0.45	0.0	-0.1
AUSTRIA	95.4	1.0	91.8	0.8	11.7	0.40	0.03	-0.0	-0.2
CANADA	90.3	0.2	113.9	0.3	15.2	0.16	0.06	0.0	-0.0
<b>EUROPEAN COMMUNITY</b>									
BELGIUM LUXEMBOURG	614.9	1.8	606.8	1.7	49.9	1.29	-0.02	1.3	-1.6
DENMARK	109.7	1.1	135.7	1.1	12.8	0.53	0.35	1.0	-0.7
FRANCE	1854.3	3.1	1775.8	2.8	86.2	0.41	-0.10	-0.3	-0.5
GERMANY	1223.0	1.1	985.5	1.1	73.9	0.30	-0.29	0.0	-0.4
IRELAND	21.8	0.6	38.9	0.9	3.9	0.38	0.51	0.8	-0.3
ITALY	967.7	2.5	871.5	2.0	78.1	0.41	-0.21	-0.4	-0.4
NETHERLANDS	593.7	1.4	677.6	1.7	21.6	0.48	0.16	0.2	-0.5
UNITED KINGDOM	816.9	1.7	689.9	1.2	50.4	0.21	-0.20	-0.4	-0.2
TOTAL EC	6201.9	1.8	5781.7	1.7	376.7	0.37	-0.15	-0.1	-0.5
FINLAND	66.8	1.0	60.8	0.8	5.3	0.25	-0.07	0.0	-0.2
JAPAN	1542.2	2.2	1192.9	1.8	144.5	0.27	-0.53	0.6	-0.2
NEW ZEALAND	5.2	0.2	30.1	0.9	6.2	0.52	0.88	0.5	-0.1
NORWAY	91.0	1.1	100.7	0.9	5.4	0.30	0.13	-0.1	-0.2
SWEDEN	135.6	0.7	92.4	0.5	10.9	0.27	-0.23	-0.4	-0.1
SWITZERLAND	280.7	1.8	281.0	1.9	13.1	0.47	-0.02	-0.1	-0.5
UNITED STATES	1836.4	1.5	1673.1	1.3	76.6	0.09	-0.12	-0.4	-0.0
TOTAL INDUSTRIALIZED	10586.6	1.6	9729.7	1.5	679.8	0.25	-0.16	-0.1	-0.2
<b>DEVELOPING COUNTRIES</b>									
ARGENTINA	0.3	0.0	24.9	0.8	11.4	0.11	0.51	0.4	-0.1
BRAZIL	17.8	0.2	55.1	0.4	30.0	0.07	0.42	0.3	-0.1
CHILE	-1.3	-0.1	5.0	0.4	1.7	0.06	0.26	0.1	-0.1
COLOMBIA	0.1	0.0	7.5	0.4	3.2	0.04	0.36	0.3	-0.0
GREECE	4.0	0.1	17.2	0.3	3.7	0.09	0.50	0.0	-0.0
HONG KONG	0.9	0.0	-15.2	-0.2	1.6	0.12	-0.12	-0.2	0.0
INDIA	1.0	0.0	10.8	0.2	85.1	0.04	0.15	0.3	-0.0
ISRAEL	5.3	0.2	2.1	0.1	0.9	0.08	0.07	0.1	-0.0
SOUTH KOREA	2.8	0.0	6.3	0.1	7.3	0.06	0.05	-0.0	-0.0
MEXICO	7.5	0.1	24.6	0.4	8.6	0.05	0.34	0.3	-0.0
PORTUGAL	6.4	0.3	0.7	0.0	2.6	0.08	0.15	-0.0	0.0
SINGAPORE	5.3	0.1	-2.4	-0.0	1.3	0.15	0.00	-0.1	0.0
SPAIN	30.1	0.3	3.1	0.0	10.4	0.08	0.02	0.0	-0.0
TAIWAN	-4.3	-0.0	14.5	0.2	10.7	0.19	0.18	0.3	-0.1
TURKEY	7.5	0.4	8.1	0.2	2.9	0.02	0.29	-0.1	-0.0
YUGOSLAVIA	10.2	0.2	5.5	0.1	3.4	0.07	0.01	-0.1	0.0
TOTAL LDC'S	93.6	0.1	167.6	0.2	184.9	0.05	0.25	0.2	-0.0
ALL COUNTRIES	10680.1	1.4	9897.2	1.3	864.7	0.14	-0.10	-0.1	-0.2

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

#POSITIVE = APPRECIATION.

+INDEX OF IMPORT AND HOME PRICES.

Table 11

Estimated Producer Subsidy Equivalents (PSE) in the Agricultural  
Sector (ISIC 1) in the Major Industrialized Countries  
(Per Cent)

Industrialized Countries	Estimated Producer Subsidy Equivalents
Australia	1.7
Austria	14.1
Canada	3.8
European Community	
Belgium-Luxembourg	23.9
Denmark	12.2
France	14.1
Germany	4.7
Ireland	10.6
Italy	17.1
Netherlands	22.2
United Kingdom	14.9
Finland	17.7
Japan	36.1
New Zealand	1.3
Norway	21.6
Sweden	1.8
Switzerland	38.7
United States	0.2

Note: The PSE estimates in OECD (1987, pp. II-1 to II-25) have been adjusted downward based upon the NTB trade coverage ratios for ISIC 1. For details, see Deardorff and Stern (1987, App. B).

Table 12

SUMMARY OF EFFECTS ON THE MAJOR INDUSTRIALIZED  
AND DEVELOPING COUNTRIES DUE TO  
ELIMINATION OF NONTARIFF BARRIERS IN AGRICULTURE IN DEVELOPED COUNTRIES

	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	-141.0	-1.0	-8.8	-0.1	11.2	0.19	0.93	0.4	-0.0
AUSTRIA	47.6	0.5	19.8	0.2	6.2	0.21	-0.28	-0.1	-0.1
CANADA	-218.2	-0.5	-33.5	-0.1	14.7	0.15	0.46	0.0	-0.0
<b>EUROPEAN COMMUNITY</b>									
BELGIUM LUXEMBOURG	237.6	0.7	134.8	0.4	29.5	0.76	-0.29	0.0	-0.8
DENMARK	-5.9	-0.1	18.7	0.2	9.3	0.39	0.31	0.3	-0.3
FRANCE	194.1	0.3	156.2	0.2	37.5	0.18	-0.05	-0.1	-0.1
GERMANY	278.8	0.3	-380.4	-0.4	48.5	0.20	-0.70	-0.4	0.1
IRELAND	-9.7	-0.3	-9.4	-0.2	8.2	0.80	0.04	0.5	-0.5
ITALY	406.8	1.0	208.9	0.5	54.2	0.29	-0.46	-0.4	-0.2
NETHERLANDS	565.1	1.3	583.4	1.5	43.3	0.95	0.00	1.1	-1.0
UNITED KINGDOM	485.4	1.0	152.4	0.3	28.9	0.12	-0.62	-0.4	-0.1
TOTAL EC	2152.0	0.6	864.7	0.3	259.4	0.26	-0.39	-0.2	-0.2
FINLAND	64.2	0.9	38.2	0.5	5.8	0.27	-0.37	-0.2	-0.2
JAPAN	2081.8	2.9	1439.7	2.2	246.3	0.47	-0.97	-0.9	-0.4
NEW ZEALAND	-9.0	-0.3	-11.8	-0.4	2.4	0.20	-0.10	-0.1	0.0
NORWAY	42.6	0.5	54.6	0.5	5.1	0.28	0.17	0.0	-0.3
SWEDEN	-2.2	-0.0	-63.3	-0.3	7.1	0.17	-0.31	-0.1	0.1
SWITZERLAND	296.4	1.9	215.6	1.5	21.9	0.78	-0.53	-0.2	-0.7
UNITED STATES	-976.4	-0.8	-237.6	-0.2	117.7	0.13	0.64	0.1	0.0
<b>TOTAL INDUSTRIALIZED</b>	<b>3337.8</b>	<b>0.5</b>	<b>2277.4</b>	<b>0.3</b>	<b>697.8</b>	<b>0.26</b>	<b>0.02</b>	<b>-0.1</b>	<b>-0.1</b>
<b>DEVELOPING COUNTRIES</b>									
ARGENTINA	-65.4	-1.6	53.6	1.8	39.5	0.38	2.85	1.4	-0.2
BRAZIL	-163.1	-1.5	74.7	0.5	108.5	0.27	2.27	1.2	-0.2
CHILE	-7.3	-0.4	-9.9	-0.8	10.3	0.37	-0.46	0.2	-0.0
COLOMBIA	-30.6	-1.6	56.9	3.3	36.5	0.46	4.60	3.6	-0.6
GREECE	-18.3	-0.6	12.9	0.2	9.2	0.23	1.14	0.8	-0.1
HONG KONG	7.4	0.1	-65.6	-0.7	3.8	0.29	-0.85	-0.4	0.3
INDIA	-55.2	-1.0	-71.7	-1.3	293.0	0.13	-0.40	1.1	-0.1
ISRAEL	-9.7	-0.4	-13.9	-0.3	4.1	0.36	0.13	0.6	0.0
SOUTH KOREA	-35.3	-0.4	-29.9	-0.3	32.3	0.26	0.07	0.7	-0.0
MEXICO	-51.8	-1.0	12.6	0.2	62.1	0.36	1.25	0.7	-0.3
PORTUGAL	-8.3	-0.4	-41.9	-1.0	9.1	0.29	-0.77	0.1	0.2
SINGAPORE	-8.2	-0.1	-18.3	-0.2	3.7	0.42	-0.09	-0.2	0.4
SPAIN	-53.8	-0.6	-69.1	-0.4	29.1	0.23	0.29	0.4	-0.0
TAIWAN	-25.6	-0.3	-61.7	-0.8	28.1	0.50	-0.48	0.3	0.1
TURKEY	-21.4	-1.0	46.2	0.9	25.8	0.18	3.01	1.2	-0.2
YUGOSLAVIA	-13.3	-0.2	-6.7	-0.1	5.7	0.12	0.19	0.3	0.1
<b>TOTAL LDC'S</b>	<b>-560.0</b>	<b>-0.6</b>	<b>-131.8</b>	<b>-0.1</b>	<b>700.8</b>	<b>0.19</b>	<b>1.14</b>	<b>0.9</b>	<b>-0.1</b>
<b>ALL COUNTRIES</b>	<b>2777.8</b>	<b>0.4</b>	<b>2145.6</b>	<b>0.3</b>	<b>1398.6</b>	<b>0.22</b>	<b>0.18</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 13

SUMMARY OF EFFECTS ON THE MAJOR INDUSTRIALIZED  
AND DEVELOPING COUNTRIES DUE TO  
ELIMINATION OF AGRICULTURAL SUBSIDIES IN DEVELOPED COUNTRIES

	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	000 WKR	PCT			
<b>INDUSTRIALIZED COUNTRIES</b>									
AUSTRALIA	-35.0	-0.2	45.5	0.4	7.7	0.13	0.57	1.3	0.2
AUSTRIA	179.7	2.0	170.1	1.5	63.4	2.15	-0.10	-0.4	1.5
CANADA	-45.9	-0.1	30.0	0.1	22.1	0.23	0.19	0.1	0.3
<b>EUROPEAN COMMUNITY</b>									
BELGIUM LUXEMBOURG	109.8	0.3	64.7	0.2	29.9	0.77	-0.13	0.2	0.5
DENMARK	13.2	0.1	39.3	0.3	26.2	1.09	0.31	-0.3	1.0
FRANCE	413.0	0.7	374.4	0.6	282.0	1.35	-0.05	-0.3	1.1
GERMANY	290.2	0.3	-51.3	-0.1	97.2	0.40	-0.36	0.3	0.3
IRELAND	21.7	0.6	33.7	0.8	16.6	1.63	0.34	-0.6	1.1
ITALY	561.7	1.4	431.4	1.0	433.1	2.29	-0.31	-0.7	1.8
NETHERLANDS	-5.1	-0.0	36.2	0.1	59.8	1.32	0.08	-0.6	1.0
UNITED KINGDOM	267.6	0.5	90.0	0.2	118.7	0.49	-0.33	0.1	0.5
TOTAL EC	1672.0	0.5	1018.4	0.3	1063.5	1.06	-0.21	-0.1	0.8
FINLAND	159.8	2.4	154.8	2.1	59.8	2.79	-0.07	-0.8	2.8
JAPAN	1638.6	2.3	1229.3	1.9	1863.9	3.54	-0.61	-2.6	3.0
NEW ZEALAND	-9.7	-0.3	9.5	0.3	1.4	0.12	0.66	0.9	0.2
NORWAY	177.4	2.1	185.8	1.7	42.1	2.35	0.10	-0.8	2.2
SWEDEN	23.0	0.1	-6.2	-0.0	6.4	0.16	-0.15	0.6	0.2
SWITZERLAND	423.0	2.7	384.4	2.6	116.0	4.12	-0.25	-1.4	2.3
UNITED STATES	-104.0	-0.1	22.2	0.0	49.1	0.06	0.12	0.7	0.0
<b>TOTAL INDUSTRIALIZED</b>	<b>4078.9</b>	<b>0.6</b>	<b>3243.8</b>	<b>0.5</b>	<b>3295.3</b>	<b>1.22</b>	<b>-0.09</b>	<b>-0.1</b>	<b>0.8</b>
<b>DEVELOPING COUNTRIES</b>									
ARGENTINA	-15.9	-0.4	35.4	1.2	13.8	0.13	1.24	1.4	-0.1
BRAZIL	-32.6	-0.3	71.0	0.5	39.7	0.10	0.97	1.2	-0.1
CHILE	-2.0	-0.1	-0.7	-0.1	3.7	0.13	-0.02	0.6	-0.1
COLOMBIA	-7.8	-0.4	20.1	1.2	11.6	0.15	1.45	1.6	-0.2
GREECE	-2.9	-0.1	8.2	0.1	4.8	0.12	0.44	1.2	-0.1
HONG KONG	1.9	0.0	-32.9	-0.4	1.0	0.08	-0.41	0.3	0.2
INDIA	-12.6	-0.2	-9.8	-0.2	130.6	0.06	0.02	1.2	-0.1
ISRAEL	-2.3	-0.1	-4.4	-0.1	1.5	0.14	0.01	0.7	0.0
SOUTH KOREA	-7.5	-0.1	-8.8	-0.1	16.1	0.13	-0.01	1.3	-0.0
MEXICO	-8.6	-0.2	16.8	0.3	20.5	0.12	0.48	0.6	-0.1
PORTUGAL	0.7	0.0	-8.0	-0.2	4.4	0.14	-0.07	0.8	0.1
SINGAPORE	0.9	0.0	-2.9	-0.0	1.1	0.13	-0.02	0.9	0.1
SPAIN	0.1	0.0	-7.5	-0.0	13.6	0.11	0.10	0.8	-0.0
TAIWAN	-10.4	-0.1	-14.4	-0.2	15.0	0.27	-0.07	1.1	-0.1
TURKEY	-2.5	-0.1	22.4	0.4	7.9	0.05	1.07	1.2	-0.1
YUGOSLAVIA	0.3	0.0	5.1	0.1	3.5	0.07	0.11	0.8	0.0
<b>TOTAL LDC'S</b>	<b>-101.1</b>	<b>-0.1</b>	<b>89.7</b>	<b>0.1</b>	<b>289.0</b>	<b>0.08</b>	<b>0.48</b>	<b>1.0</b>	<b>-0.1</b>
<b>ALL COUNTRIES</b>	<b>3977.8</b>	<b>0.5</b>	<b>3333.4</b>	<b>0.4</b>	<b>3584.3</b>	<b>0.57</b>	<b>-0.01</b>	<b>0.1</b>	<b>0.7</b>

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

#POSITIVE = APPRECIATION.

+INDEX OF IMPORT AND HOME PRICES.

Table 14

SUMMARY OF EFFECTS ON THE MAJOR INDUSTRIALIZED  
AND DEVELOPING COUNTRIES DUE TO  
ELIMINATION OF NONTARIFF BARRIERS IN TEXTILES IN DEVELOPED COUNTRIES

	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			
INDUSTRIALIZED COUNTRIES									
AUSTRALIA	-7.3	-0.1	-3.3	-0.0	1.3	0.02	0.02	-0.5	0.0
AUSTRIA	-9.0	-0.1	-9.5	-0.1	4.7	0.16	-0.00	-0.2	0.1
CANADA	5.2	0.0	13.3	0.0	1.5	0.02	0.02	-0.1	0.0
EUROPEAN COMMUNITY									
BELGIUM LUXEMBOURG	3.7	0.0	2.5	0.0	2.9	0.07	-0.00	-0.1	0.0
DENMARK	-0.7	-0.0	1.2	0.0	0.8	0.03	0.02	-0.1	0.0
FRANCE	-21.2	-0.0	-22.5	-0.0	10.9	0.05	-0.00	-0.1	0.0
GERMANY	16.6	0.0	30.2	0.0	8.0	0.03	0.01	-0.2	0.0
IRELAND	-1.0	-0.0	-0.4	-0.0	0.5	0.05	0.02	-0.1	0.0
ITALY	1.7	0.0	-15.7	-0.0	11.7	0.06	-0.04	-0.2	0.0
NETHERLANDS	-9.3	-0.0	2.4	0.0	1.7	0.04	0.03	-0.1	0.0
UNITED KINGDOM	13.0	0.0	10.2	0.0	7.2	0.03	-0.00	-0.3	0.0
TOTAL EC	2.8	0.0	7.8	0.0	43.7	0.04	0.00	-0.2	0.0
FINLAND	-7.1	-0.1	-9.8	-0.1	4.5	0.21	-0.04	-0.2	0.1
JAPAN	5.5	0.0	0.6	0.0	12.2	0.02	-0.01	-0.9	0.0
NEW ZEALAND	-3.9	-0.1	-4.2	-0.1	0.7	0.06	-0.01	-0.4	0.0
NORWAY	-0.4	-0.0	1.1	0.0	0.6	0.03	0.02	-0.1	0.0
SWEDEN	-6.3	-0.0	-3.6	-0.0	2.2	0.05	0.01	-0.2	0.0
SWITZERLAND	-9.6	-0.1	-6.4	-0.0	2.3	0.08	0.02	-0.3	0.0
UNITED STATES	-2.9	-0.0	28.3	0.0	14.9	0.02	0.03	-0.6	0.0
TOTAL INDUSTRIALIZED	-33.0	-0.0	14.3	0.0	88.8	0.03	0.01	-0.4	0.0
DEVELOPING COUNTRIES									
ARGENTINA	0.7	0.0	3.6	0.1	122.9	1.18	0.06	1.0	-0.8
BRAZIL	24.7	0.2	28.3	0.2	23.2	0.06	0.04	0.1	-0.0
CHILE	0.5	0.0	0.6	0.1	1.9	0.07	-0.01	-0.1	-0.0
COLOMBIA	14.0	0.7	15.2	0.9	23.8	0.30	0.06	0.9	-0.2
GREECE	42.5	1.5	40.0	0.7	26.0	0.65	-0.05	1.1	-0.4
HONG KONG	314.2	4.3	292.0	3.3	166.0	12.53	-0.30	16.4	-8.6
INDIA	69.6	1.2	66.2	1.2	394.0	0.18	-0.06	1.1	-0.2
ISRAEL	16.3	0.6	15.1	0.4	6.7	0.59	-0.01	0.5	-0.3
SOUTH KOREA	141.7	1.7	128.3	1.5	132.2	1.05	-0.16	2.1	-0.8
MEXICO	25.3	0.5	25.1	0.4	53.1	0.31	0.00	0.6	-0.2
PORTUGAL	35.5	1.8	32.7	0.8	47.9	1.55	-0.10	1.9	-1.0
SINGAPORE	0.4	0.0	-1.2	-0.0	13.5	1.55	-0.01	-0.2	-1.0
SPAIN	29.8	0.3	27.1	0.2	27.2	0.22	0.00	0.2	-0.1
TAIWAN	138.8	1.6	128.7	1.7	73.8	1.30	-0.12	1.5	-0.8
TURKEY	54.5	2.6	53.3	1.1	38.3	0.26	-0.02	1.3	-0.3
YUGOSLAVIA	47.9	0.9	45.0	0.6	29.2	0.60	-0.04	0.9	-0.4
TOTAL LDC'S	956.4	1.1	900.2	0.8	1179.7	0.33	-0.01	0.9	-0.4
ALL COUNTRIES	923.4	0.1	914.6	0.1	1268.5	0.20	0.01	-0.3	-0.0

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

#POSITIVE = APPRECIATION.

+INDEX OF IMPORT AND HOME PRICES.



Table 15

SUMMARY OF EFFECTS ON THE MAJOR INDUSTRIALIZED  
AND DEVELOPING COUNTRIES DUE TO  
ELIMINATION OF TARIFF AND NONTARIFF BARRIERS IN ALL INDUSTRIES IN ALL DEVELOPED COUNTRIES

	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	1293.2	9.0	1498.3	12.7	59.4	1.02	1.32	-0.5	-0.8
AUSTRIA	849.7	9.3	813.7	7.1	50.7	1.72	-0.19	-0.0	-2.1
CANADA	1328.1	3.3	1506.3	3.9	60.9	0.64	0.43	0.4	-0.6
<b>EUROPEAN COMMUNITY</b>									
BELGIUM LUXEMBOURG	1677.8	4.8	1574.9	4.5	100.0	2.59	-0.29	2.2	-4.1
DENMARK	463.5	4.8	529.7	4.3	38.5	1.60	0.96	1.7	-2.5
FRANCE	4158.8	7.0	4061.4	6.3	197.9	0.95	-0.08	-1.0	-1.2
GERMANY	4485.0	4.1	3726.8	4.2	266.9	1.09	-0.95	-0.6	-1.4
IRELAND	125.8	3.4	153.2	3.7	14.9	1.46	0.89	2.2	-2.1
ITALY	2602.7	6.6	2324.6	5.4	203.9	1.08	-0.59	-1.3	-1.2
NETHERLANDS	2294.8	5.3	2483.1	6.3	86.6	1.91	0.32	2.2	-3.1
UNITED KINGDOM	3160.2	6.4	2697.9	4.8	155.4	0.64	-0.76	-1.6	-0.7
TOTAL EC	18968.5	5.5	17551.6	5.1	1064.1	1.06	-0.48	-0.6	-1.5
FINLAND	399.6	5.9	359.0	4.9	19.3	0.90	-0.52	-0.3	-1.2
JAPAN	4898.6	6.8	3957.0	6.1	343.5	0.65	-1.46	-1.3	-0.8
NEW ZEALAND	269.8	9.2	300.0	9.2	21.6	1.79	1.11	0.1	-1.1
NORWAY	427.1	5.0	434.0	3.9	15.7	0.88	0.23	-0.3	-1.1
SWEDEN	576.0	2.9	463.4	2.4	33.6	0.82	-0.59	-0.5	-0.7
SWITZERLAND	810.3	5.1	762.8	5.2	35.0	1.24	-0.38	-0.4	-1.7
UNITED STATES	3562.4	3.0	4195.0	3.3	241.3	0.28	0.60	-1.3	-0.1
TOTAL INDUSTRIALIZED	33383.2	5.1	31841.2	4.9	1945.1	0.72	-0.08	-0.9	-0.8
<b>DEVELOPING COUNTRIES</b>									
ARGENTINA	-70.5	-1.7	88.1	2.9	111.2	1.07	3.63	3.1	-1.0
BRAZIL	-130.8	-1.2	148.5	1.1	126.7	0.31	2.85	1.8	-0.3
CHILE	-8.9	-0.4	-11.1	-0.9	13.9	0.50	-0.68	-0.1	-0.1
COLOMBIA	-17.5	-0.9	77.4	4.5	42.0	0.53	4.92	5.0	-0.8
GREECE	27.5	0.9	66.2	1.1	29.9	0.75	1.75	1.8	-0.5
HONG KONG	319.3	4.4	194.4	2.2	163.1	12.31	-1.34	15.8	-8.3
INDIA	8.2	0.1	1.7	0.0	514.4	0.23	-0.27	2.6	-0.3
ISRAEL	15.8	0.6	5.2	0.1	9.3	0.83	0.39	1.4	-0.4
SOUTH KOREA	102.2	1.2	103.3	1.2	127.5	1.02	0.05	3.0	-0.8
MEXICO	-26.9	-0.5	55.9	0.9	106.7	0.62	1.68	1.8	-0.5
PORTUGAL	36.2	1.9	-13.8	-0.3	45.8	1.48	-0.61	1.9	-0.8
SINGAPORE	-4.8	-0.1	-32.4	-0.4	14.6	1.67	-0.08	-0.1	-0.6
SPAIN	8.5	0.1	-48.2	-0.3	55.9	0.45	0.50	0.8	-0.2
TAIWAN	103.0	1.2	100.0	1.3	80.4	1.42	-0.19	2.7	-0.9
TURKEY	40.0	1.9	90.8	1.8	54.4	0.37	3.07	2.0	-0.5
YUGOSLAVIA	47.6	0.9	43.3	0.6	29.6	0.61	0.24	1.1	-0.3
TOTAL LDC'S	448.8	0.5	869.4	0.8	1525.3	0.42	1.46	2.1	-0.6
ALL COUNTRIES	33832.0	4.6	32710.6	4.3	3470.3	0.55	0.14	-0.5	-0.7

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

+INDEX OF IMPORT AND HOME PRICES.

Table 16

SUMMARY OF EFFECTS ON THE MAJOR INDUSTRIALIZED  
AND DEVELOPING COUNTRIES DUE TO  
ELIMINATION OF AGRICULTURAL SUBSIDIES, ALL TARIFFS AND NTBS IN DEVELOPED COUNTRIES

	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	000 WKR	PCT			
<b>INDUSTRIALIZED COUNTRIES</b>									
AUSTRALIA	1403.6	9.7	1556.2	13.2	53.7	0.93	0.95	0.4	-0.6
AUSTRIA	987.4	10.9	969.7	8.4	75.9	2.58	-0.00	-0.4	-0.6
CANADA	1498.4	3.7	1567.7	4.1	50.4	0.53	0.16	0.4	-0.3
<b>EUROPEAN COMMUNITY</b>									
BELGIUM LUXEMBOURG	1555.0	4.4	1509.7	4.3	88.0	2.28	-0.12	2.3	-2.9
DENMARK	483.1	5.0	550.7	4.4	32.4	1.35	0.95	1.2	-1.2
FRANCE	4396.4	7.4	4298.9	6.7	310.1	1.49	-0.09	-1.2	-0.0
GERMANY	4494.4	4.1	4053.9	4.6	245.5	1.00	-0.61	0.1	-1.2
IRELAND	158.6	4.3	197.4	4.7	15.8	1.54	1.19	1.0	-0.6
ITALY	2818.1	7.2	2608.7	6.1	464.8	2.46	-0.43	-1.6	0.7
NETHERLANDS	1726.2	4.0	1936.5	4.9	55.4	1.22	0.39	0.4	-1.1
UNITED KINGDOM	2947.5	6.0	2641.9	4.7	175.2	0.72	-0.46	-1.1	-0.1
TOTAL EC	18579.3	5.3	17797.9	5.2	1387.1	1.38	-0.29	-0.5	-0.6
FINLAND	500.4	7.4	481.1	6.5	62.5	2.91	-0.22	-0.9	1.7
JAPAN	4573.6	6.4	3866.4	6.0	1931.1	3.66	-1.10	-3.0	2.5
NEW ZEALAND	268.7	9.2	320.6	9.8	21.9	1.82	1.87	1.2	-0.9
NORWAY	565.4	6.7	569.0	5.1	41.7	2.33	0.17	-1.2	1.3
SWEDEN	600.6	3.1	520.2	2.7	28.1	0.69	-0.43	0.2	-0.6
SWITZERLAND	952.7	6.0	947.5	6.4	114.5	4.07	-0.10	-1.6	1.2
UNITED STATES	4383.9	3.7	4404.3	3.4	184.1	0.21	0.08	-0.7	-0.1
TOTAL INDUSTRIALIZED	34314.0	5.2	33000.4	5.1	3951.2	1.46	-0.19	-0.9	0.1
<b>DEVELOPING COUNTRIES</b>									
ARGENTINA	-20.9	-0.5	69.5	2.3	114.0	1.10	1.99	3.1	-1.0
BRAZIL	-0.3	-0.0	144.4	1.1	98.3	0.24	1.54	1.8	-0.2
CHILE	-3.6	-0.2	-1.8	-0.1	8.3	0.30	-0.23	0.3	-0.1
COLOMBIA	5.3	0.3	40.5	2.4	23.6	0.30	1.76	2.9	-0.4
GREECE	42.9	1.5	61.4	1.0	28.4	0.71	1.04	2.2	-0.4
HONG KONG	313.8	4.3	227.7	2.6	162.9	12.30	-0.90	16.6	-8.4
INDIA	50.8	0.9	63.5	1.2	428.4	0.19	0.14	2.7	-0.3
ISRAEL	23.1	0.9	14.8	0.4	8.0	0.71	0.27	1.6	-0.4
SOUTH KOREA	130.0	1.5	124.6	1.4	123.1	0.98	-0.03	3.6	-0.8
MEXICO	16.3	0.3	60.0	1.0	72.3	0.42	0.90	1.6	-0.4
PORTUGAL	45.1	2.3	20.2	0.5	45.8	1.48	0.08	2.6	-0.9
SINGAPORE	4.2	0.1	-16.9	-0.2	14.3	1.65	-0.01	1.0	-0.9
SPAIN	62.1	0.7	13.6	0.1	48.1	0.39	0.31	1.2	-0.2
TAIWAN	118.3	1.4	147.4	1.9	71.7	1.27	0.22	3.5	-1.1
TURKEY	58.8	2.8	67.1	1.3	41.6	0.28	1.11	2.0	-0.3
YUGOSLAVIA	61.1	1.1	55.2	0.7	30.5	0.63	0.17	1.6	-0.3
TOTAL LDC'S	906.9	1.1	1091.3	1.0	1319.3	0.36	0.80	2.2	-0.5
ALL COUNTRIES	35220.8	4.7	34091.7	4.5	5270.4	0.83	-0.05	-0.4	0.0

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

#POSITIVE = APPRECIATION.

+INDEX OF IMPORT AND HOME PRICES



Table 18

Net Percentage Changes in Employment in  
Agriculture, Forestry, & Fishing (ISIC 1)  
Due to Each of Nine Scenarios  
for Elimination of Tariffs and/or NTBs

	1	2	3	4	5	6	7	8	9
	DC Tariffs	LDC Tariffs	DC & LDC Tariffs	DC NTBs exclud. Agric. & Text.	DC NTBs Agric. Only Tar. Eq.	DC NTBs Ag. Only Domestic Subs.	DC NTBs Text. Only	DC Tar + NTBs All Sect Ag T-Eq	DC Tar + NTBs All Sect. Ag D-Sub
Australia	4.68	0.50	5.20	1.78	2.96	-0.21	0.12	7.92	4.58
Austria	-1.85	0.07	-1.79	0.82	-0.81	-15.51	0.15	0.10	-14.75
Belgium Luxembourg	1.84	0.52	2.37	0.74	2.90	-17.20	0.17	4.71	-15.76
Canada	1.66	0.31	1.97	0.94	2.43	-1.49	0.08	4.41	0.40
Denmark	3.05	0.16	3.21	0.98	2.89	-8.45	0.14	5.91	-5.79
Finland	-2.64	0.08	-2.57	0.47	-1.67	-17.46	0.25	-0.70	-16.67
France	0.73	0.04	0.77	0.68	0.58	-10.64	0.09	1.98	-9.40
Germany	-0.38	0.20	-0.18	0.10	1.80	-4.81	0.06	1.99	-4.64
Ireland	1.51	0.26	1.77	0.79	2.28	-5.38	0.14	3.72	-4.05
Italy	-0.39	0.09	-0.29	0.05	-0.41	-13.23	0.04	-0.41	-13.24
Japan	-1.08	-0.00	-1.08	-0.43	-2.92	-24.34	-0.00	-3.38	-24.70
Netherlands	4.27	0.26	4.54	3.22	7.52	-13.80	0.18	13.47	-9.07
New Zealand	6.77	0.16	6.94	2.86	0.56	0.29	0.25	9.36	9.08
Norway	1.13	0.21	1.34	1.02	-0.36	-20.85	0.12	1.43	-19.43
Sweden	0.17	0.13	0.30	0.65	2.38	-1.06	0.10	3.20	-0.28
Switzerland	-0.22	-0.10	-0.32	0.76	-6.68	-37.10	0.06	-5.88	-36.58
United Kingdom	0.02	0.20	0.21	0.29	-0.82	-12.15	0.04	-0.27	-11.67
United States	1.51	0.34	1.85	0.54	3.63	1.10	0.10	4.71	2.15
Argentina	0.47	0.68	1.16	0.10	1.19	0.37	-1.05	0.30	-0.51
Brazil	0.23	0.94	1.17	0.09	0.59	0.23	-0.02	0.70	0.33
Chile	0.64	-0.98	-0.35	0.08	1.56	0.49	-0.01	1.74	0.66
Colombia	0.26	1.05	1.31	0.03	0.85	0.26	-0.25	0.62	0.04
Greece	0.19	-2.17	-1.99	0.10	0.55	0.24	-0.41	0.29	-0.02
Hong Kong	0.70	0.67	1.37	0.18	4.89	1.59	-11.47	-7.11	-10.04
India	0.08	-0.89	-0.81	0.02	0.18	0.07	-0.10	0.13	0.01
Israel	1.61	2.19	3.84	0.32	5.20	1.66	-0.33	5.07	1.53
South Korea	0.12	-1.19	-1.07	0.05	0.58	0.24	-0.53	0.07	-0.26
Mexico	0.25	-0.02	0.23	0.03	0.82	0.25	-0.19	0.63	0.06
Portugal	0.25	-0.24	0.01	0.16	1.08	0.44	-1.32	-0.03	-0.67
Singapore	2.67	1.73	4.45	0.17	9.16	2.49	-1.18	7.72	1.13
Spain	0.33	0.19	0.52	0.10	1.05	0.38	-0.13	1.00	0.33
Taiwan	0.51	-1.91	-1.41	0.17	1.68	0.65	-0.70	1.16	0.13
Turkey	0.07	-0.08	-0.01	0.01	0.18	0.06	-0.10	0.10	-0.02
Yugoslavia	0.21	-0.17	0.04	0.10	0.67	0.30	-0.35	0.45	0.08

Table 19

Net Percentage Changes in Employment in  
Wearing Apparel (ISIC 322)  
Due to Each of Nine Scenarios  
for Elimination of Tariffs and/or NTBs

	1	2	3	4	5	6	7	8	9
	DC Tariffs	LDC Tariffs	DC & LDC Tariffs	DC NTBs exclud. Agric. & Text.	DC NTBs Agric Only Tar. Eq.	DC NTBs Ag. Only Domestic Subs.	DC NTBs Text. Only	DC Tar + NTBs All Sect. Ag T-Eq	DC Tar + NTBs All Sect. Ag D-Sub
Australia	-6.96	-0.16	-7.11	-0.09	0.03	-0.04	-0.64	-0.56	-0.63
Austria	89.03	-2.87	83.61	0.04	1.27	4.30	-7.87	-6.65	-3.14
Belgium Luxembourg	11.45	-2.11	9.11	-4.88	2.50	0.17	-3.96	-8.43	-10.50
Canada	-3.58	-0.19	-3.77	-0.04	-0.04	0.03	-0.82	-0.80	-0.72
Denmark	7.94	-1.32	6.52	-2.89	-0.57	1.45	-3.10	-8.38	-6.44
Finland	106.83	-3.48	99.64	-0.70	1.43	6.28	-10.53	-10.45	-5.12
France	6.65	-1.44	5.12	0.30	0.26	1.83	-3.16	-1.92	-0.28
Germany	-0.88	-0.90	-1.77	-0.53	-0.07	0.29	-1.75	-1.99	-1.68
Ireland	-0.08	-0.88	-0.95	-1.99	-1.14	2.68	-2.53	-6.94	-3.22
Italy	4.89	-1.32	3.50	0.95	0.95	2.38	-2.39	-0.65	0.90
Japan	-0.37	-0.28	-0.65	-0.37	0.44	4.23	-0.78	-0.63	2.95
Netherlands	12.89	-1.64	11.04	-2.19	-3.28	2.78	-4.10	-10.88	-5.04
New Zealand	5.54	-0.31	5.20	-0.72	0.38	-0.60	-1.75	-1.93	-2.94
Norway	13.97	-1.35	12.43	0.78	0.12	4.16	-4.03	-2.40	1.71
Sweden	34.49	-2.99	30.47	1.37	0.24	-0.46	-6.52	-6.65	-7.12
Switzerland	7.98	-2.00	5.83	0.31	1.28	6.66	-4.44	-4.60	0.65
United Kingdom	-0.32	-0.72	-1.04	0.25	0.24	0.44	-1.55	-0.79	-0.71
United States	-1.32	-0.28	-1.59	0.11	-0.23	-0.15	-0.80	-0.90	-0.80
Argentina	1.30	6.73	8.12	0.37	1.58	0.56	-0.32	2.22	1.19
Brazil	0.10	0.75	0.85	-0.17	-0.28	-0.21	1.79	1.14	1.21
Chile	0.77	-0.00	0.77	-0.16	-0.34	-0.31	0.07	-0.61	-0.57
Colombia	0.20	3.04	3.25	-0.21	-1.98	-0.77	5.60	2.94	4.22
Greece	2.66	58.52	62.73	-0.36	-1.25	-0.97	24.12	21.28	21.66
Hong Kong	2.90	-0.45	2.44	0.07	0.82	0.08	70.29	70.09	68.88
India	3.52	91.21	97.94	-1.10	-3.50	-2.22	48.18	38.95	40.87
Israel	1.24	1.18	2.44	-0.17	-0.67	-0.43	12.00	10.43	10.71
South Korea	3.46	16.41	20.45	-0.40	-1.28	-1.05	38.69	34.34	34.72
Mexico	0.41	0.70	1.11	-0.10	-0.47	-0.24	3.24	2.46	2.71
Portugal	4.22	8.96	13.56	-0.25	-0.41	-1.07	38.79	36.23	35.38
Singapore	5.80	0.81	6.66	-0.30	0.76	-0.82	54.93	53.64	51.31
Spain	1.13	1.24	2.38	-0.16	-0.35	-0.33	8.10	7.03	7.06
Taiwan	3.30	19.79	23.75	-1.13	-0.31	-1.17	43.04	37.66	36.53
Turkey	1.55	12.95	14.70	-0.04	-1.19	-0.66	12.61	10.97	11.57
Yugoslavia	1.77	3.55	5.38	-0.07	-0.25	-0.40	17.78	16.50	16.34

Table 20

Net Percentage Changes in Employment in  
Iron & Steel (ISIC 371)  
Due to Each of Nine Scenarios  
for Elimination of Tariffs and/or NTBs

	1	2	3	4	5	6	7	8	9
	DC Tariffs	LDC Tariffs	DC & LDC Tariffs	DC NTBs exclud. Agric. & Text.	DC NTBs Agric. Only Tar. Eq.	DC NTBs Ag. Only Domestic Subs.	DC NTBs Text. Only	DC Tar + NTBs All Sect. Ag T-Eq	DC Tar + NTBs All Sect. Ag D-Sub
Australia	0.42	0.72	1.14	-1.44	-0.82	-1.11	0.01	-1.89	-2.19
Austria	1.94	0.53	2.48	0.11	-0.04	3.23	0.45	2.61	5.84
Belgium Luxembourg	7.60	0.41	8.04	40.88	-1.33	-0.80	0.07	51.25	52.31
Canada	0.74	0.47	1.21	0.10	-1.20	-0.93	-0.06	-0.07	0.19
Denmark	-0.31	-0.00	-0.31	-3.12	-1.03	1.66	-0.01	-5.13	-2.58
Finland	-4.40	0.70	-3.73	-1.67	-0.01	3.48	0.51	-1.89	1.47
France	0.67	0.19	0.86	-0.04	-0.31	1.48	0.15	0.56	2.36
Germany	2.66	-0.58	2.07	4.40	0.28	-0.06	0.02	6.33	5.93
Ireland	-3.40	0.32	-3.09	-5.15	-1.10	2.13	0.06	-9.24	-6.33
Italy	0.17	-0.07	0.11	-1.08	0.47	2.40	0.12	-0.41	1.53
Japan	0.37	-0.72	-0.35	-1.59	2.47	4.79	0.03	1.04	3.46
Netherlands	-2.27	0.70	-1.59	-3.01	-3.18	1.56	0.02	-7.75	-3.28
New Zealand	-3.74	0.68	-3.08	-1.46	0.14	-1.16	0.10	-4.76	-5.96
Norway	1.61	1.26	2.90	0.95	-1.32	5.02	-0.03	2.79	9.35
Sweden	-1.40	0.03	-1.37	1.35	-0.59	-1.00	0.11	0.87	0.39
Switzerland	-0.86	0.06	-0.80	0.16	0.59	5.94	0.15	-0.08	5.26
United Kingdom	1.54	-0.28	1.25	-0.02	0.49	0.54	0.01	1.13	1.17
United States	-0.15	0.08	-0.07	-1.20	-0.40	-0.36	0.03	-1.77	-1.74
Argentina	-1.18	-3.89	-5.02	-0.66	-1.61	-1.18	-1.69	-4.52	-4.09
Brazil	-0.77	-0.74	-1.50	-0.41	-1.08	-0.74	-0.24	-2.12	-1.79
Chile	-0.52	2.51	1.97	-0.54	-0.99	-0.74	-0.21	-1.91	-1.67
Colombia	-1.94	-2.82	-4.71	-0.43	-4.06	-1.65	-1.27	-6.08	-3.72
Greece	-1.30	31.47	29.76	-0.32	-1.59	-1.26	-2.34	-4.80	-4.50
Hong Kong	-2.74	0.55	-2.20	-0.03	0.03	-0.10	-26.21	-26.51	-26.63
India	-1.15	10.51	9.23	-0.45	-1.43	-1.03	-1.73	-4.10	-3.72
Israel	-1.19	2.21	1.00	-0.32	-1.57	-1.01	-1.84	-4.10	-3.56
South Korea	-2.09	5.58	3.37	-0.27	-1.20	-0.96	-4.82	-7.08	-6.87
Mexico	-0.82	-0.83	-1.65	-0.27	-1.16	-0.73	-0.82	-2.60	-2.18
Portugal	-1.21	2.58	1.34	-0.22	-0.63	-0.87	-3.47	-4.88	-5.12
Singapore	-2.32	1.16	-1.19	-0.16	-0.62	-1.06	-3.00	-5.37	-5.81
Spain	-0.88	1.14	0.25	-0.26	-0.79	-0.67	-0.54	-2.15	-2.04
Taiwan	-1.98	1.88	-0.14	-0.84	-0.66	-1.10	-4.57	-7.27	-7.68
Turkey	-0.66	-1.19	-1.83	-0.08	-1.41	-0.84	-1.82	-3.41	-2.87
Yugoslavia	-0.92	-0.05	-0.96	-0.14	-0.42	-0.55	-1.44	-2.55	-2.68

Table 21

Net Percentage Changes in Employment in  
Transportation Equip. (ISIC 384)  
Due to Each of Nine Scenarios  
for Elimination of Tariffs and/or NTBs

	1	2	3	4	5	6	7	8	9
	DC Tariffs	LDC Tariffs	DC & LDC Tariffs	DC NTBs exclud. Agric. & Text.	DC NTBs Agric. Only Tar. Eq.	DC NTBs Ag. Only Domestic Subs.	DC NTBs Text. Only	DC Tar + NTBs All Sect. Ag T-Eq	DC Tar + NTBs All Sect. Ag D-Sub
Australia	-5.84	0.21	-5.64	-0.63	-0.08	-0.04	0.01	0.44	0.47
Austria	-5.69	0.45	-5.26	-2.09	0.08	1.52	0.13	-0.74	0.68
Belgium Luxembourg	16.59	0.37	17.02	-1.87	-0.21	0.41	0.07	-2.68	-2.06
Canada	4.42	0.78	5.23	-2.74	-0.38	-0.21	0.01	-2.66	-2.49
Denmark	8.46	0.79	9.32	-0.39	-0.60	1.50	0.03	1.70	3.91
Finland	1.61	0.60	2.23	-1.25	0.11	1.87	0.22	-0.04	1.74
France	0.39	0.31	0.71	0.11	-0.03	1.04	0.07	0.52	1.61
Germany	2.06	0.21	2.28	-1.46	0.17	0.31	0.04	-1.03	-0.87
Ireland	-1.85	0.17	-1.68	-1.01	-0.40	0.97	0.02	-1.83	-0.57
Italy	2.19	0.38	2.58	-0.79	0.23	2.31	0.09	-0.11	1.89
Japan	1.20	0.15	1.34	10.70	0.49	2.88	0.03	10.98	13.68
Netherlands	0.78	0.35	1.13	-1.17	-0.94	0.81	0.03	-1.72	0.03
New Zealand	-12.60	0.32	-12.31	-1.55	0.09	-0.14	0.03	0.09	-0.19
Norway	3.98	0.67	4.67	-2.53	-0.09	1.78	0.04	-1.77	0.10
Sweden	2.71	0.44	3.17	-2.37	0.00	0.03	0.07	-2.43	-2.39
Switzerland	-2.11	0.29	-1.82	-1.61	0.05	2.91	0.06	-2.10	0.72
United Kingdom	0.23	0.24	0.47	-1.18	0.17	0.52	0.03	-0.90	-0.54
United States	0.48	0.18	0.66	-0.71	-0.19	-0.14	0.02	-0.94	-0.89
Argentina	0.15	-0.16	-0.01	-0.11	0.13	0.04	-0.57	-0.60	-0.68
Brazil	0.07	0.08	0.14	-0.39	-0.24	-0.15	-0.06	-0.88	-0.79
Chile	0.41	-2.56	-2.16	-0.73	-0.23	-0.16	-0.05	-1.26	-1.18
Colombia	-0.04	-0.67	-0.70	-0.68	-1.07	-0.39	-0.36	-2.42	-1.74
Greece	0.43	0.41	0.84	-0.90	-0.34	-0.23	-0.60	-2.22	-2.11
Hong Kong	0.02	0.20	0.23	-0.70	0.09	0.06	-7.44	-8.38	-8.40
India	0.09	0.62	0.71	-0.31	-0.14	-0.10	-0.20	-0.79	-0.74
Israel	0.26	-2.19	-1.93	-1.05	-0.46	-0.23	-0.68	-2.83	-2.60
South Korea	0.26	2.08	2.35	-0.97	-0.25	-0.15	-1.27	-3.00	-2.89
Mexico	0.22	-0.35	-0.13	-0.63	-0.33	-0.16	-0.25	-1.53	-1.36
Portugal	0.24	-0.13	0.11	-0.63	-0.09	-0.10	-0.93	-1.96	-1.97
Singapore	0.59	0.74	1.33	-1.21	0.14	-0.07	-0.77	-2.55	-2.75
Spain	0.21	-0.46	-0.25	-0.55	-0.14	-0.10	-0.14	-1.14	-1.09
Taiwan	0.26	1.84	2.11	-1.01	-0.10	-0.17	-1.12	-2.83	-2.89
Turkey	0.24	-0.84	-0.60	-0.47	-0.26	-0.13	-0.43	-1.35	-1.21
Yugoslavia	0.26	0.38	0.65	-0.59	-0.05	-0.07	-0.40	-1.38	-1.39

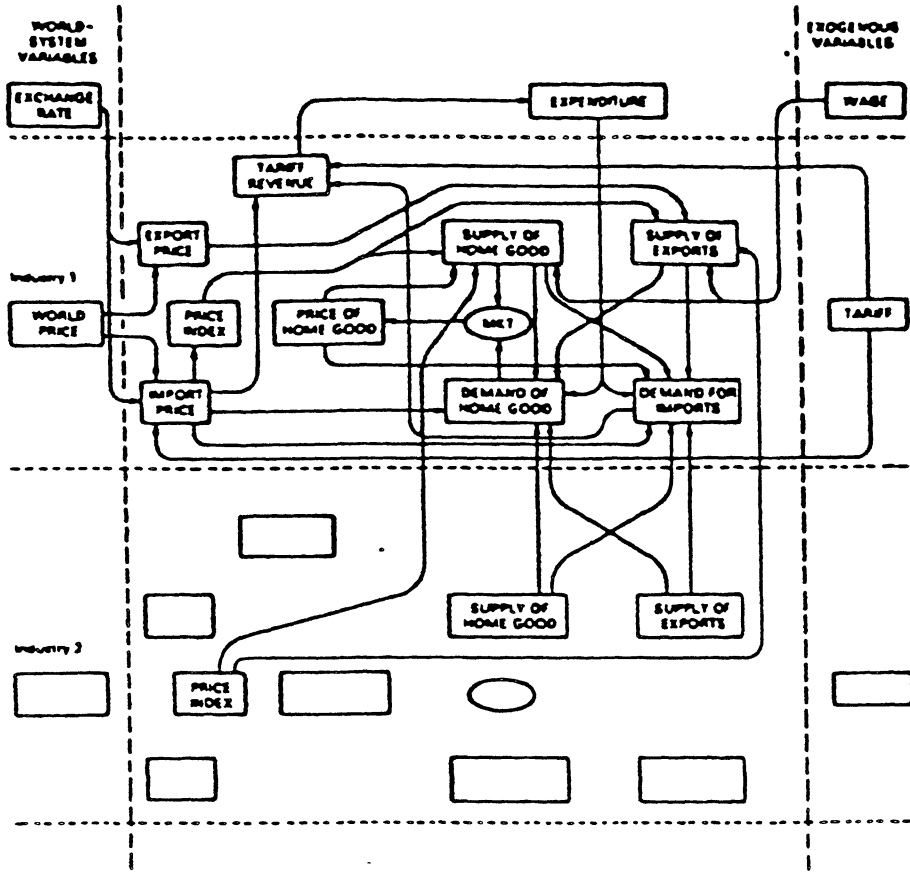


Figure 1  
Country system.

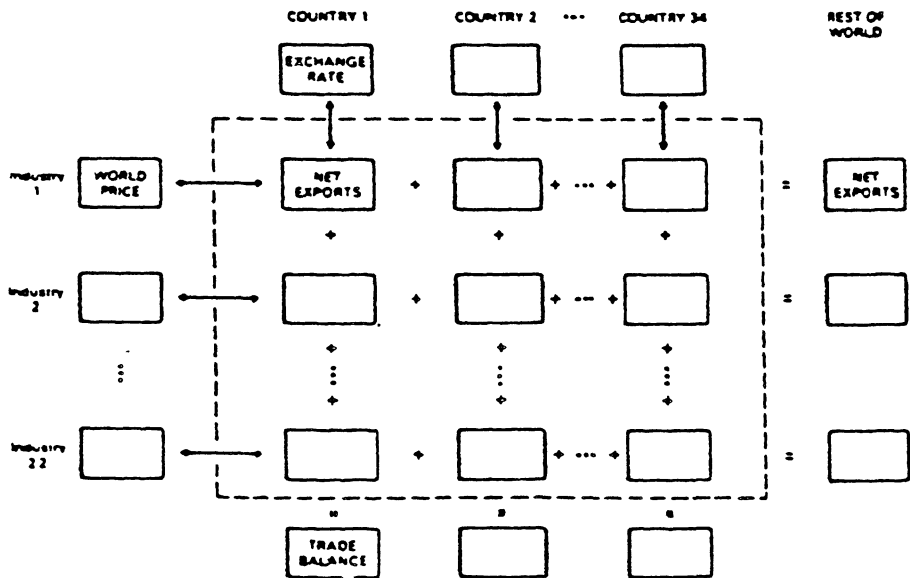


Figure 2  
World system



## References

- Deardorff, Alan V. and Robert M. Stern. *Methods of Measurement of Nontariff Barriers*. United Nations Conference on Trade and Development, UNCTAD/ST/MD/28, Geneva, 1985.
- Deardorff, Alan V. and Robert M. Stern. "Neighborhood Effects of Developing Country Protection," *Journal of Development Economics* 21 (1986). (a)
- Deardorff, Alan V. and Robert M. Stern. *The Michigan Model of World Production and Trade: Theory and Applications*. Cambridge: MIT Press, 1986. (b)
- Deardorff, Alan V. and Robert M. Stern. "A Computational Analysis of Alternative Scenarios for Multilateral Trade Liberalization," in process, 1987.
- Harris, Richard G. and David Cox. *Trade, Industrial Policy, and Canadian Manufacturing*. Toronto: Ontario Economic Council, 1984.
- Johansen, Leif. *A Multi-Sectoral Study of Economic Growth*. Amsterdam: North-Holland, 1960.
- Murray, Tracy and Ingo Walter. "Special and Differential Liberalization of Quantitative Restrictions on Imports from Developing Countries," in L. Perez (ed.), *Trade Policies Toward Developing Countries: The Multilateral Trade Negotiations*. Washington, D.C.: Agency for International Development, 1978.
- Nogués, Julio J., Andrzej Olechowski, and L. Alan Winters. "The Extent of Non-Tariff Barriers to Industrial Countries' Imports," World Bank Development Research Department, Report No. DRD115, January 1985.
- OECD. *National Policies and Agricultural Trade*. Paris, 1987.
- Shoven, John B. and John Whalley. "Applied General Equilibrium Models of Taxation and International Trade: An Introduction and Survey," *Journal of Economic Literature* 22 (1984).
- Stern, Robert M., Jonathan Francis, and Bruce F. Schumacher. *Price Elasticities in International Trade*. London: Macmillan Press, 1976.
- Whalley, John. *Trade Liberalization Among Major World Trading Areas*. Cambridge: MIT Press, 1984.
- Zarembka, Paul and Helen Chernicoff. "Further Results on the Empirical Relevance of the CES Production Function," *Review of Economics and Statistics* 53 (1971).





