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Volume Title: Empirical Studies of Commercial Policy

Volume Author/Editor: Robert E. Baldwin, editor

Volume Publisher: University of Chicago Press, 1991

Volume ISBN: 0-226-03569-7

Volume URL: <http://www.nber.org/books/bald91-1>

Conference Date: March 16-17, 1990

Publication Date: January 1991

Chapter Title: Introduction to "Empirical Studies of Commercial Policy"

Chapter Author: Robert E. Baldwin

Chapter URL: <http://www.nber.org/chapters/c6705>

Chapter pages in book: (p. 1 - 8)

Introduction

Robert E. Baldwin

New Empirical Approaches

Important changes in the nature of research on trade policy issues are taking place. Traditionally, papers in this area have been mainly concerned with estimating the welfare losses of such trade-distorting policies as tariffs and export subsidies or the welfare gains of eliminating such measures. The usual procedure has been to model behavior in the sectors of interest and then, using estimates of such parameters as import demand and export supply elasticities made by other investigators (or perhaps estimated by the author), to simulate the price, trade volume, and welfare effects of various trade policies. Generally these studies have focused on particular industries and used partial equilibrium analysis in making their estimates. However, computable general equilibrium (CGE) models have also been constructed with which to analyze the effects on a country or group of countries of broad trade policy changes such as the elimination of all tariffs or the tariff cuts in the Kennedy and Tokyo Rounds of GATT-sponsored multilateral trade negotiations.

There is no doubt that this approach has improved our understanding of the possible effects of the various types of trade policies and continues to provide insights about the consequences of major policy changes that have significant general equilibrium implications. However, the results of simulation exercises are highly sensitive to the nature of the underlying model, the level of sectoral detail, and the magnitudes of the key parameters. There are also doubts about the appropriateness of utilizing parameters estimated for models quite different from the one being used for simulation purposes or that may not be relevant for the policy change being simulated.

As a consequence of these difficulties with simulation methodology, trade

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policy researchers are increasingly using rigorous econometric methods and relevant empirical data to test the hypotheses derived from their models. Moreover, stimulated by the new interest in analyzing trade policies under imperfectly competitive market conditions and within a political economy framework, investigators are exploring topics more diverse than just the welfare implications of various policies.

An objective of this conference volume is to facilitate this shift in research strategy. Two of the ten papers utilize simulation methodology, since this is still the most useful approach to understanding the implications of certain broad trade policy changes. But authors were encouraged to model policy behavior of interest to policymakers and to test derived hypotheses using actual data and econometric methodology. Besides being asked to include non-technical discussions of their models and econometric techniques, they were also urged to describe the political and institutional conditions relevant for better understanding their analyses.

Analyses Within a Political Economy Perspective

A common feature of the first four papers in the volume is their use of a broad political economy perspective in empirically analyzing the effects of trade policies. In the first paper Robert W. Staiger and Guido Tabellini investigate whether the degree of government discretion influences the nature of trade policy. They assume that the government uses tariff policy to redistribute income after a decline in the price of the good produced in the import-competing sector. In one of the two sets of circumstances they analyze theoretically, the government irrevocably commits to a particular tariff, and then workers in the injured industry, after observing this policy, decide whether to move to another industry. In the other, the government has the discretion of choosing a tariff after the workers in the injured sector have decided whether to move.

Their analysis of these two scenarios indicates not only that the tariff will be higher in the discretion case but also that the government will take account of the distortionary effects of its policies on both consumption and production decisions in the commitment case but only on consumption decisions in the discretionary situation, since in this latter case labor allocations and thus production decisions have already been made when the government sets the tariff level. An implication of this is that the optimal tariff under commitment will lie farther below its discretionary level the larger the output share of consumption and the wage share of output. In the discretion case these variables should not be significantly related to the tariff level.

The authors empirically test this hypothesis by contrasting U.S. tariff changes across industries under escape-clause (section 201) cases and in the implementation of the negotiated tariff-cutting formula, including exceptions to the rule, in the Tokyo Round. Since injury must proceed an affirmative

finding in the escape-clause cases, many of the allocative decisions by the private sector have already been made when the president determines the appropriate tariff response. Consequently, one would not expect the ratio of the wage bill to consumption (the combined form of the output share of consumption and wage share of output) to be a significant variable in the decision-making process. In contrast, most allocational decisions by the private sector probably were made after the government made its Tokyo Round tariff-cutting decisions.

Staiger and Tabellini do find some support in their empirical work for these hypotheses. A common set of political variables tend to be significant in explaining tariff responses in both situations, but in the escape-clause analysis the ratio of the wage bill to consumption is never significantly negative, whereas this variable does have the expected sign in some specifications of the analysis of the Tokyo Round cuts.

In the second paper in this group, Thomas J. Prusa investigates why such a large proportion of antidumping cases are withdrawn by the petitioners during the period in which the Commerce Department is determining whether dumping is occurring and the International Trade Commission (ITC) is determining whether the industry is materially injured as a result of the dumping. He notes that roughly 25 percent of U.S. cases filed are subsequently withdrawn and that most of these cases involve some type of agreement between domestic and foreign producers.

Prusa explores two hypotheses to explain the withdrawal of cases: self-selection and political pressure. Under the first hypothesis, he reasons that firms withdraw only if the profits from withdrawing are greater than the expected profits from the official ITC decision. In contrast, under the political-pressure hypothesis, cases are withdrawn because it is in the political interests of the United States to arrange a negotiated settlement in order to avoid retaliatory actions by foreign countries.

In testing these hypotheses, Prusa models the dumping determination process as a two-stage decision problem. In the first stage the government decides whether to arrange for a withdrawal of the case by negotiating some type of price agreement, taking account of the ITC's expected final decision. In the second stage the ITC makes a binary decision whether to find injury, conditional on the case not having been withdrawn. He reasons that under the self-selection process the parties will seek a settlement if economic conditions in the industry indicate a likely injury determination. However, if conditions indicate no injury, then the case will be withdrawn without a settlement. In contrast, under the political-pressure hypothesis, cases are withdrawn not because of the inevitability of the outcome but because it is in the interest of the government to arrange a settlement.

Using a nested-logit econometric model and economic-political data for the four-digit SIC industries in which the cases can be assigned, Prusa analyzes the determinants of the withdrawal decision and then the determinants of the

injury decision. His finding that the most significant variables in determining the withdrawal decision are the employment size of an industry and the number of countries against whom the antidumping case is filed rather than such economic factors as the change in employment or the change in capacity utilization suggests to Prusa that the withdrawal decision is chiefly influenced by political pressure. Furthermore, unlike some other studies, he does not find economic factors to be significant in the second-stage decision by the ITC. He believes his finding that the withdrawal decision is based on political pressure rather than a self-selection process indicates that industries can strategically manipulate the law to gain protection where none is warranted.

Stefanie Ann Lenway and Douglas A. Schuler open up a new area of political economy research in their paper on the steel industry. Instead of focusing on the industry as the unit exerting political pressure for protection and inquiring why certain industries are more successful than others in gaining protection, the authors examine the political pressures brought by the various firms within an industry. In particular, they ask whether the firms investing the most resources to influence trade policy in the steel industry are also the firms that gain the most from the imposition of trade restraints.

The authors combine three types of lobbying activities in constructing a political involvement variable for firms in the steel industry: their campaign contributions to members of the House Ways and Means Committee and Senate Finance Committee, the number of appearances by a firm's top management before congressional committees considering trade policy matters, and the number of escape-clause, antidumping, and countervailing duty actions initiated by the firms. The change in the stock price of individual steel firms after the announcement of protection is their measure of the benefits of protection to individual firms.

They find no consistent relationship between the level of a firm's political involvement in efforts to gain protection and the benefits the firm receives as reflected in the market's evaluation of its future earning potential. As Lenway and Schuler point out, this finding challenges the basic conclusion of collective action theory, namely, that there is a positive relationship between expected and actual returns to the provision of a collective good such as the lobbying activity in an industry.

The paper by Elias Dinopoulos and Mordechai E. Kreinin asks two questions about the voluntary export restraints (VERs) introduced on machine tools from Japan and Taiwan in 1987. What were the political and economic factors that enabled this industry to gain protection and what were the trade volume and price effects of the export restraints?

Not only is the machine tool industry composed of many small firms, unlike the steel or automotive industries, but it is also a relatively small industry (78,000 employees), unlike the textile/apparel industry, for example. Both characteristics suggest that such an industry will have a difficult time in gaining protection. The relative ease with which displaced workers obtain jobs in

other sectors and their high level of wages also indicate that granting protection on adjustment-assistance or equity grounds are also not convincing arguments. The authors conclude that the main factors persuading the president to grant protection were the rise in the import penetration ratio in this sector from about 25 percent in 1980 to over 50 percent in 1987 and the importance of the machine tools for national security purposes.

Dinopoulos and Kreinin estimate the increase of U.S. prices of machine tools in 1988 as a result of the VERs to be 17 percent and the rent transfer to Japan and Taiwan to be \$100 million. Surprisingly, both of these effects seemed to disappear by 1988, possibly due, they suggest, to increased production by Japanese firms located in the United States. They also do not find any clear-cut evidence of quality upgrading as a result of the restrictions.

The Effects of Trade Policy under Imperfectly Competitive Market Conditions

The next three papers focus on the effects of trade policy under imperfectly competitive market conditions. K. C. Fung investigates whether the existence of industrial groups in Japan (Japanese *keiretsu*), which involve close manufacturer-supplier, banking-industry, and distribution linkages among member firms, influence U.S.-Japanese industry trade balances. As he points out, U.S. trade negotiators maintain that the existence of these Japanese conglomerates, by supporting each other's activities, reduce trading opportunities for foreign firms and thus weaken the import-increasing effects in Japan of reductions in Japanese tariffs and conventional nontariff barriers.

Fung analyzes the possible effects of the special relationships among Japanese by modeling an oligopolistic situation in which a U.S. and a Japanese firm, each producing its output with labor and a purchased intermediate input, compete in the Japanese market. However, unlike the American producer of the intermediate good, the Japanese intermediate producer is a member of the same industrial group as the Japanese producer of the final good and, therefore, includes the profits of this producer in its own profit function. As would be expected, one of the factors negatively affecting the net exports of the American firm is the degree of group affiliation between the Japanese firms.

This hypothesis is tested by analyzing econometrically the net exports of twenty-two U.S. industries to Japan in 1980. Besides measures of U.S. and Japanese unit labor costs and U.S. and Japanese tariffs and quotas, Fung's regressions of U.S. trade balances with Japan by industry include the degree of group affiliation in Japan as proxied by either the sales of group-affiliated companies as a percentage of total industry sales or the share of employment accounted for the group-affiliated corporations in an industry. He finds under a variety of equations generated by his theoretical model that the higher the degree of affiliation within an industry the lower are U.S. net exports in an industry.

Mark J. Roberts and James R. Tybout test for another important relationship that one would expect to hold in imperfectly competitive markets, namely, an increase in efficiency as trade liberalization in an industry occurs and small inefficient plants are eliminated and the remaining firms operate at lower cost levels. Following other authors, they first develop a simple model of imperfect competition in which unit costs of firms decline as output increases due to the existence of fixed costs and in which there is marginal cost heterogeneity among firms. As they show, in such a model an inward shift in demand due to trade liberalization is likely to bring about efficiency gains, but this is not a necessary outcome. Consequently, they conclude that it is an empirical question whether trade liberalization leads to increases in the average scale of production, in the share of the market controlled by large producers, and in productivity.

The authors utilize annual census data covering all manufacturing plants with at least ten workers in both Columbia and Chile over a period of five to ten years to study the effects on these variables of the degree of exposure of an industry to international trade. Perhaps the most surprising relationship revealed by their regression analysis is that increased import competition in these countries reduces the average size of both large and small plants in the short run and long run but especially in the latter. In addition, there is no clear evidence that the degree of trade exposure affects industry productivity.

In the last of the three papers examining how imperfectly competitive market structures affect international trade, Bee-Yan Aw investigates whether the existence of VERs by Taiwan and Korea on footwear shipments to the United States led to or enhanced noncompetitive pricing actions by domestic or foreign producers of nonrubber footwear. As she notes, a familiar argument in the literature on imperfect competition is that protection of a domestic industry may allow domestic producers to increase their markups at the expense of domestic consumers.

To test this hypothesis, Aw formulates an econometric model of the U.S. footwear industry in an imperfectly competitive setting that includes a variable representing the degree of competitiveness in pricing behavior. The data set with which the industry's demand and supply relations can be estimated simultaneously consists of observations of prices and quantities on several categories of domestic footwear from 1974 to 1985, a period that overlaps the VER period of 1977–81.

Aw's empirical analysis indicates that domestic footwear producers priced competitively during both the non-VER and VER periods. However, the reduction in foreign supply did raise the price of U.S. domestic footwear by about 5 percent. She also reports that another of her studies of this industry finds no evidence of noncompetitive pricing by Taiwanese exporters during the constrained or unconstrained periods. However, the restraints did create a 22 percent scarcity premium for Taiwanese exporters.

A New Measure of Trade Restrictiveness and Estimates of Trade Policy Effects with CGE Models

James E. Anderson also analyzes the effects of quantitative restrictions in a particular industry, namely, the U.S. cheese industry. However, his main motivation is to contrast these effects as measured by a new index of trade restrictiveness, which he has developed together with Peter Neary,¹ and by the conventional method of calculating trade-weighted tariff-equivalents. The Anderson-Neary index of trade distortion, which they call “the coefficient of trade utilization,” is equal to 1 plus the percentage weighted average quota expansion required to reach free trade (or any reform position). This measure is also the ratio of the shadow value of the new quota bundle to the shadow value of the quota bundle needed to maintain the initial level of welfare. The coefficient of trade utilization, which resembles the Hicksian compensating variations in income, is clearly a more meaningful indicator of the degree of restrictiveness of quantitative restriction than the ad valorem equivalent of these restrictions.

In his empirical analysis, Anderson finds that changes in the degree of restrictiveness of cheese import quotas for 1965–79 as measured by the annual rate of change in average tariff equivalents differs considerably from the annual rate of change of the coefficient of trade utilization. Indeed, in only eight of the fifteen years was the direction of the annual changes in the two measures the same. Since the coefficient of trade utilization is no more difficult to calculate with quantitative restrictions than the ad valorem equivalents of these restrictions, Anderson urges other researchers to adopt this index in analyzing the restrictive effects of quantitative measures. With this measure he finds that the tightening of cheese import quotas over the period 1965–79 effectively cut cheese imports in half every seven years.

As noted in the beginning of this introduction, the effects of certain trade policies are best explored by using computable general equilibrium models to simulate the policies. The introduction of a general import surcharge, a step that has been recommended on numerous occasions as a means of reducing the U.S. trade deficit, is one such policy. Barry Eichengreen and Lawrence H. Goulder undertake this task in their paper. Since we are interested in the trade balance effects of an import surcharge over time, their dynamic model is especially suitable for analyzing the effects of this policy.

As they point out, a temporary tax on all imports raises the prices of current goods relative to future goods, thereby shifting absorption toward the future and improving the current trade balance. But, by reducing current absorption,

1. James E. Anderson and J. Peter Neary, “A New Approach to Evaluating Trade Reform” (Department of Economics, Boston College, 1989); idem, “The Coefficient of Trade Utilization: Back to the Baldwin Envelope,” in *The Political Economy of International Trade: Essays in Honor of Robert Baldwin*, ed. R. Jones and A. Krueger (Cambridge, England: Basil Blackwell, 1990).

temporary tariffs depress world interest rates and encourage households to shift spending back to the present. The net effect of these two forces could be to improve or worsen the trade balance. To demonstrate this in detail, they develop a simple two-period model which captures the incentives for both intersectoral and intertemporal substitution produced by temporary and permanent tariffs.

The authors then utilize their CGE model to represent the U.S. economy and the effects of an import surcharge more realistically. Among their findings are that both a temporary surcharge and a permanent import surcharge improve the trade balance in the short run but produce larger deficits (or smaller surpluses) in the longer term. Under certain assumptions about the source of the trade deficit, both policies delay the date by which the initial deficits are finally eliminated.

Another fruitful use of CGE models has been to analyze the welfare effects of general trade liberalization under conditions of increasing returns to scale. However, as Jaime de Melo and David Roland-Holst point out in their paper, analyses of this nature have been confined mainly to developed countries. Their contribution is to investigate the implications for a developing country, namely, Korea, of liberalization under conditions of increasing returns. Korea is an especially appropriate country to study within this framework, since its liberalization in the 1980s followed a period in the 1970s where the country's development efforts focused on heavy and chemical industries. These efforts produced a domestic industrial structure that was highly concentrated and highly protected.

Three of the seven sectors in their model—consumer goods, producers goods, and heavy industry—are calibrated with either a medium or high degree of scale economies. Behavior in these sectors is modeled alternatively as a contestable markets situation and as a conjectural variations case. Outcomes with and without entry are explored in the conjectural variations case. A variant of the model in which protection allows for supernormal profits because of entry barriers is also explored. The welfare effects of removing protection under these various conditions are compared with the situation of constant returns to scale in all industries.

The authors estimate liberalization under constant returns to yield a 1.1 percent increase in national income. Under the various increasing returns scenarios, the welfare gains amount to as much as 5 percent when there are no excess profits and up to 10 percent when excess profits can be earned.