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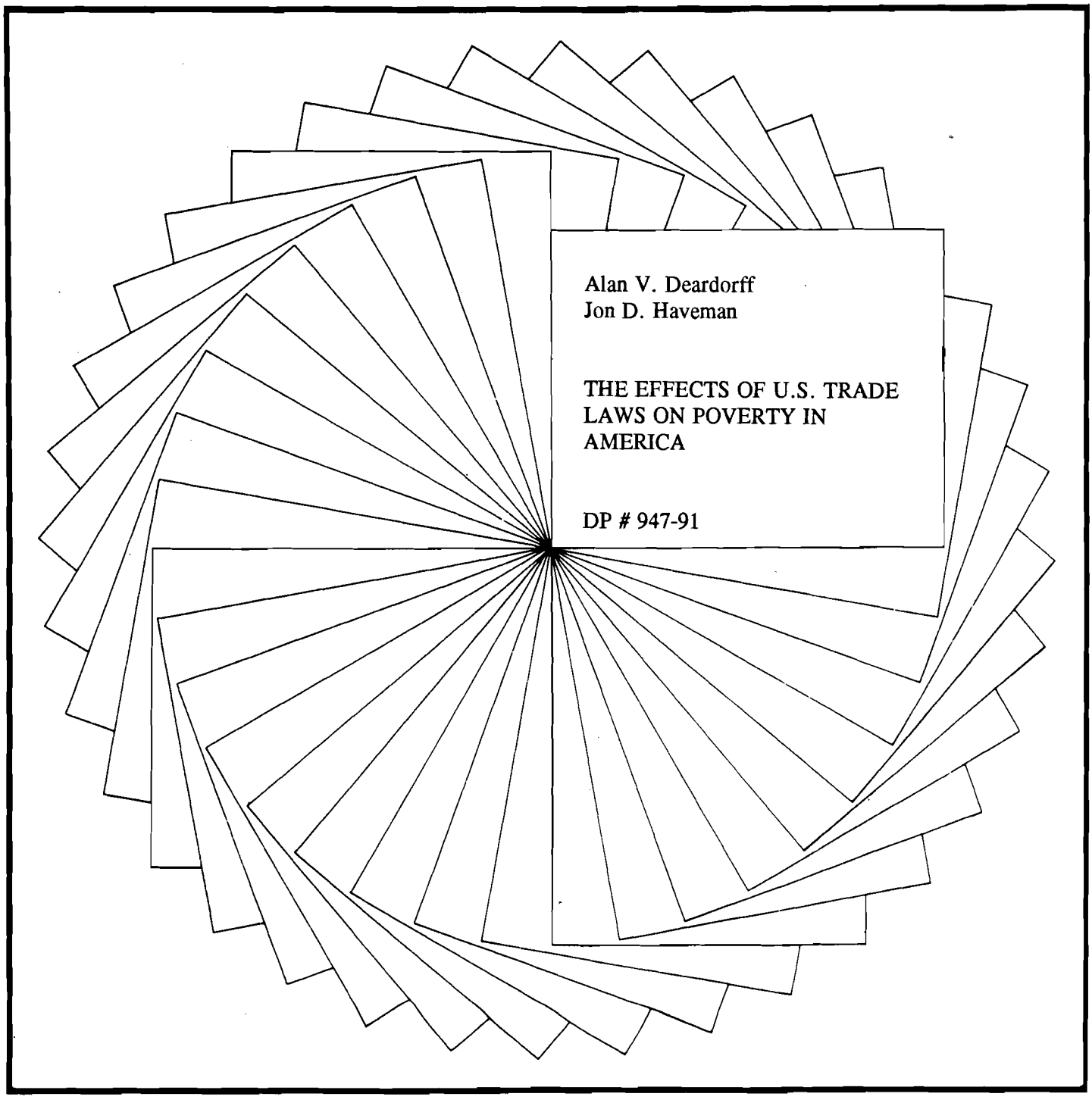

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The Effects of U.S. Trade Laws on Poverty in America

Alan V. Deardorff
Jon D. Haveman
University of Michigan

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Abstract

This study examines the relationship between the application of United States trade laws, on the one hand, and the distribution of income and levels of poverty in America, on the other. The use of U.S. trade laws in recent years has taken the form of "administered protection," whereby industries are able to seek protection from imports on the grounds that they are being injured by imports or that they are subject to unfair competition from abroad. This study draws upon a Trade Action Inventory that has been compiled on the actions that have been filed under these laws, including information on the industries that sought protection and whether they received it. By comparing the experiences of these industries under the trade laws with the poverty rates, wage levels, and rates of unemployment that are associated with these industries or the regions in which they operate, this study seeks to determine whether this protection may have served to alleviate or to exacerbate poverty. The paper concludes that U.S. trade laws serve to worsen poverty in the United States.

The Effects of U.S. Trade Laws on Poverty in America

I. INTRODUCTION

International trade and trade policy have always had important effects on domestic markets. These effects have been the subject of intense study by international economists. Less attention has been given, however, to the effects of trade policies on the domestic distribution of income and poverty, though the importance of trade for domestic markets implies that there must be some connection between the two. In this study we examine one particular aspect of this connection in the United States, relating the administration of U.S. trade laws to the impact they may have had on the distribution of income and levels of poverty in the United States.

II. DESCRIPTION OF U.S. TRADE LAWS

With the reductions in tariffs that have been negotiated internationally over the last 50 years, tariffs in the United States and other industrialized countries have become of secondary importance as tools of international trade policy. Instead, emphasis has shifted to the use of various nontariff barriers, such as quotas and voluntary export restraints, and to what is sometimes referred to as "administered protection." This latter term refers to the use of a variety of provisions in both United States law and international law for the purpose of restricting imports in particular industries that are perceived to be suffering from either excessive or unfair competition from foreign producers. While it would be of interest to examine the importance for poverty of both nontariff barriers and administered protection, because of data limitations the scope of the present study is limited to administered protection.

There are several major tools of administered protection in the United States. The most straightforward is based on the Safeguards Clause of the General Agreement on Tariffs and Trade (Article XIX of the GATT) and is implemented as the Escape Clause, Section 201, of U.S. trade law.

It permits temporary restrictions on imports when it can be demonstrated that imports have increased and have caused (or threaten to cause) material injury to the competing domestic industry. Because of this rationale of preventing injury, one might expect that Section 201 would be a useful tool in preventing unemployment from rising and wages from falling in particular sectors, and therefore in alleviating poverty in such import-impacted sectors. In fact, the Escape Clause has not been used much in recent years. However, one purpose of the analysis below will be to find out whether Section 201 has tended to be applied most frequently in poverty-impacted sectors, on those few occasions when it has been used.

The other major tools of administered protection have to do with various concepts of "unfair" and "less-than-fair-value" trade. In the latter category is dumping, which is defined as the pricing of imports at below either the foreign exporter's cost or the price in the exporter's home market. Domestic firms who believe that their foreign competitors are dumping can file for protection under Section 731 of U.S. trade law and, if successful, receive protection in the form of an antidumping duty. Another separate concept of unfair trade has to do with various government measures that subsidize production for export. Firms competing with such subsidized imports can file under Section 701 for a countervailing duty. Finally, U.S. law also includes Section 301, which provides remedies for U.S. firms that experience difficulties of market access in foreign countries, and Section 337, which deals more narrowly with violations of U.S. intellectual property rights.

As a group, these unfair trade laws are not ostensibly intended to alleviate adverse conditions in domestic markets. They could therefore in principle be applied to assist domestic industries that are already well off rather than in trouble. Indeed, to the extent that it is costly to apply for protection under these laws, one might expect that they would benefit primarily the healthiest of U.S. industries and their workers. If so, then the overall effect of administered protection might be to

increase the income disparities among industries and regions rather than to reduce them. This too will be a focus of the analysis that follows.

Table 1 reports the numbers of cases that were filed under each of these trade laws during the late 1970s and 1980s. It also reports on the disposition of these cases--that is, whether they were successful in generating protection for the filing industries. The table makes it clear that the use of administered protection has been substantial in recent years. The table is also suggestive of a trend that has been taking place: a shift from the use of the Escape Clause to the use of those laws concerning unfair and less-than-fair-value trade. Since the former is explicitly intended to alleviate hardship in domestic industries while the latter are not, this shift suggests that administered protection in recent years may have become less likely to alleviate poverty.

III. A FRAMEWORK FOR DISCUSSION OF POVERTY

For the purpose of this paper, poverty for a household will be defined as having an income below some minimal subsistence level. Rather than determine that level for ourselves, we will use the official poverty line defined by the U.S. government. We will then measure the poverty gap for a household as the extent to which its income falls short of the poverty line, and the poverty gap in a country, industry, or region as the sum of these household poverty gaps over all such households.

With this simple definition of poverty, we can use an even more simple model of the income distribution to discuss how the amount of poverty is affected by various economic forces. Let there be only one person per household and let y measure the per-capita income of that household. Within a particular segment, i, of the economy--a region, industry, or region-industry pair--let the households be indexed by h, with a total number of households H_i. Numbering the households in increasing order of their per-capita incomes, $y_{ih} = \psi_i(h)$ for $h = 1,\ldots,H_i$ will represent the per-capita income of the h'th household in the i'th segment of the economy, and it will be a nondecreasing function of h.

TABLE 1
Trade Actions Filed and Successful, 1972-1990

Trade Action (Section)	Year																			Total
	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	
ESCAPE CLAUSE (201)																				
Cases filed				14	5	12	7	4	2	1	3	1	6	4	1	0	1	0	1	62
Successful				1	2	1	3	1	1	0	2	0	1	1	0	0	0	0	0	13
% successful				7	40	8	43	25	50	0	67	0	17	25	0	0	0	0	0	21
UNFAIR TRADE (301)																				
Cases filed				6	5	3	2	4	0	6	7	7	2	5	5	5	7	0	0	64
Successful				0	1	1	1	0	0	2	2	0	0	2	1	1	0	0	0	11
% successful				0	20	33	50	0	0	33	29	0	0	40	20	20	0	0	0	17
UNFAIR TRADE (337)																				
Cases filed	3	4	9	6	6	11	23	15	20	19	20	44	35	24	24	18	9	20	5	315
Successful	1	2	0	1	1	4	7	5	5	5	3	16	7	5	2	6	2	3	0	75
% successful	33	50	0	17	17	36	30	33	25	26	15	36	20	21	8	33	22	15	0	24
COUNTERVAILING DUTIES (701)																				
Cases filed									68	20	111	9	29	28	20	4	8	4	1	302
Successful									2	0	19	6	7	6	10	1	1	2	0	54
% successful									3	0	17	67	24	21	50	25	13	50	0	18
ANTIDUMPING (731)																				
Cases filed									37	15	65	46	74	63	69	16	42	23	10	460
Successful									10	5	13	19	9	27	36	9	22	3	0	153
% successful									27	33	20	41	12	43	52	56	52	13	0	33
TOTAL																				
Cases filed	3	4	9	26	16	26	32	23	127	61	206	107	146	124	119	43	67	47	17	1203
Successful	1	2	0	2	4	6	11	6	18	12	39	41	24	41	49	17	25	8	0	306
% successful	33	50	0	8	25	23	34	26	14	20	19	38	16	33	41	40	37	17	0	25

Source: From a trade action database maintained by Alan V. Deardorff and John H. Jackson.

For ease of exposition we will assume that it is approximated by a continuous function that is strictly increasing for positive y_{ih}.

Such a function is illustrated in Figure 1. In addition to being increasing in h, it is also drawn as having a range of low values of h for which $\psi_i(h) = 0$, representing individuals who are unemployed.[1] After that, it is drawn as curving smoothly upward to a maximum income y_i^{max} at H_i. The curvature of ψ_i is immaterial to the analysis.

The total income of segment i is the sum of the incomes of all households, and with the assumed continuity of ψ_i it can be found by integrating under the curve:

$$Y_i = \int_0^{H_i} \psi_i(h)dh. \tag{1}$$

Let y^p be the officially defined poverty line. Then the number of households in segment i that are in poverty, h_i^p, is given implicitly by

$$y^p = \psi_i(h_i^p). \tag{2}$$

The poverty rate of segment i--the fraction of the population in poverty--can therefore be expressed, using the assumed strict monotonicity of $\psi_i > 0$, as

$$R_i = \frac{h_i^p}{H_i} = \frac{\psi_i^{-1}(y^p)}{H_i}. \tag{3}$$

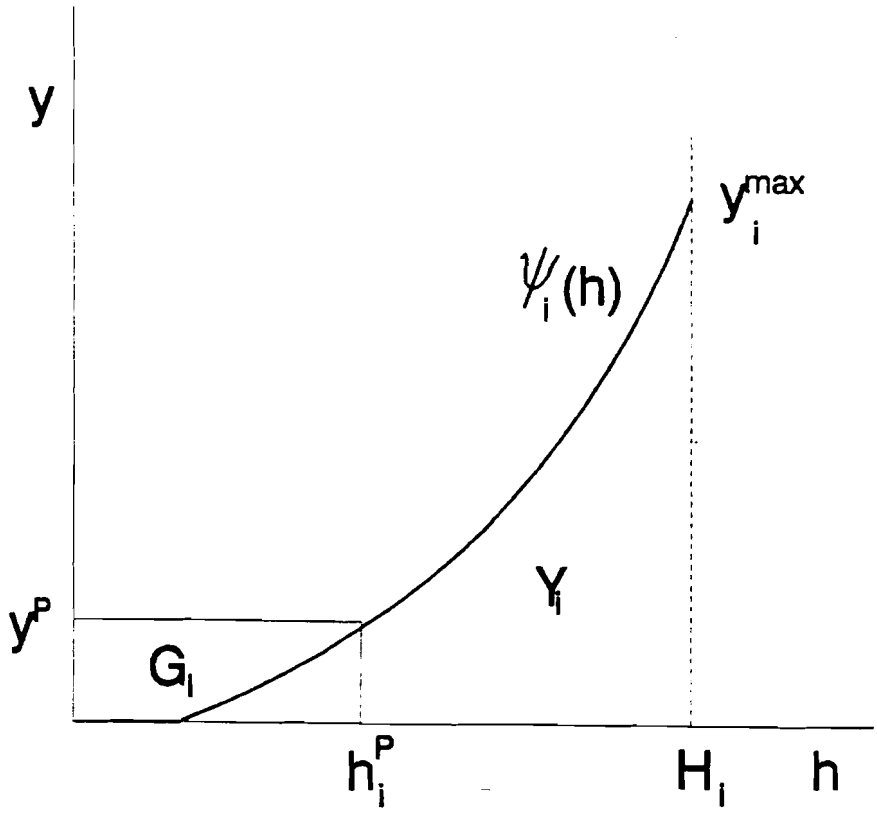

Figure 1

The poverty gap of segment i can be found by integrating between the poverty line, y^p, and the curve ψ_i over all households in poverty. That is,

$$G_i = \int_0^{h_i^p} [y^p - \psi_i(h)]dh. \tag{4}$$

The poverty gap for the entire economy can then be found, if there are i=1,...,n segments of the economy, as

$$G = \sum_{i=1}^{n} G_i. \tag{5}$$

These measures of poverty gaps will be the focus of most of our theoretical analysis.

Indicators of Poverty

The severity of poverty in an economy is more commonly measured by the poverty rate than by the poverty gap. However, we view the poverty gap as conceptually the more accurate measure of the problem posed by poverty, since it takes into account the extent of poverty for individuals as well as its mere presence. Therefore we do not in general view the poverty rate, and the effects upon it of particular policies, as a sufficient indicator of policy success. The poverty gap, which measures poverty as the minimum amount of income that would be needed to lift the poor out of poverty, is conceptually superior. Failing that, a variety of other indicators of poverty are needed, in addition to the poverty rate, to approximate the information contained in the poverty gap.

As an illustration of the various ways that the poverty gap for a segment of the economy could in principle be altered by policy, Figure 2 shows several perturbations of the function ψ_i in

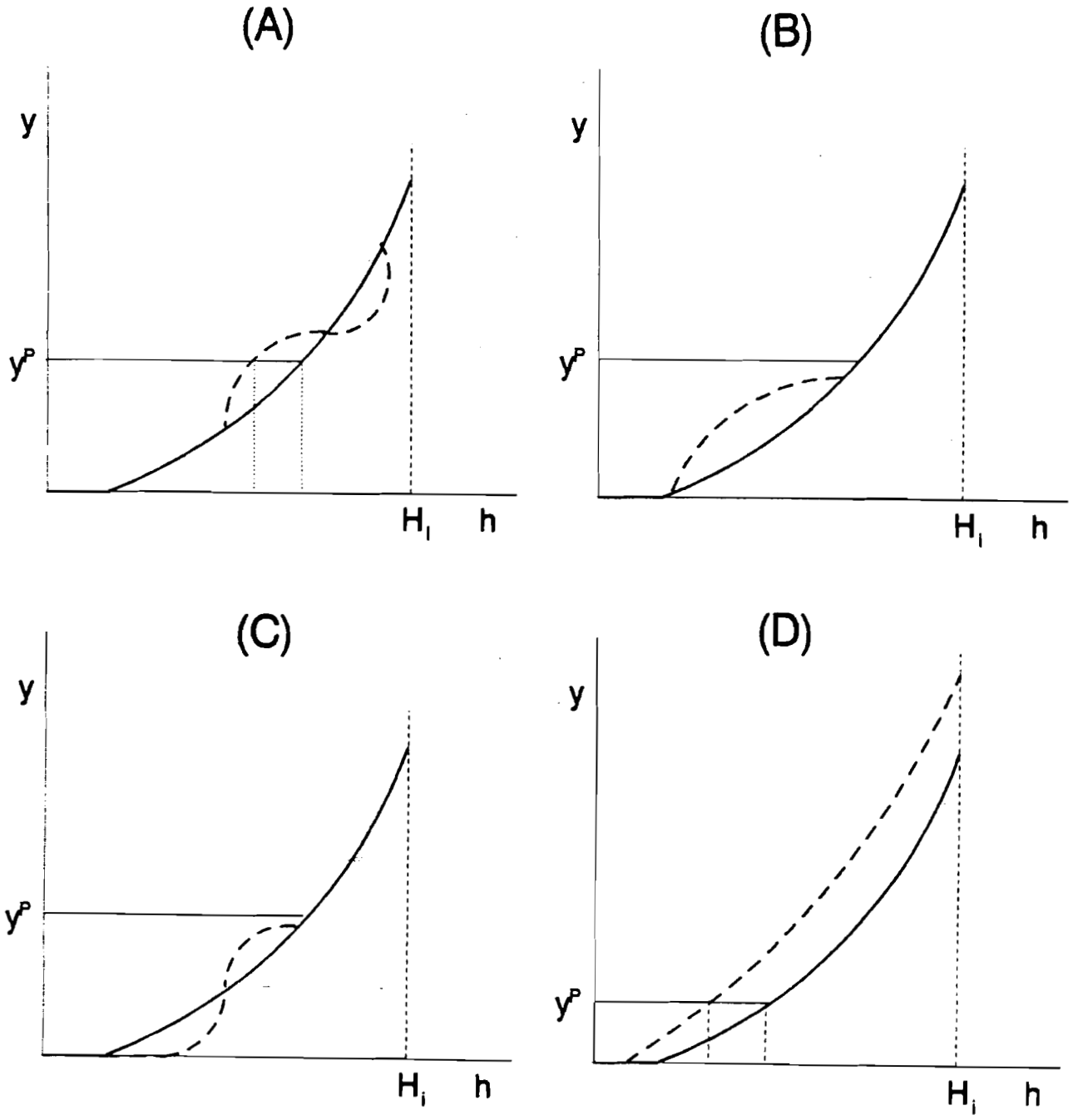

Figure 2

different panels. These perturbations are, in turn, suggestive of different indicators of poverty, other than the poverty rate, that might be useful when data on the poverty gap itself are not available. Panel A shows a redistribution of income from those who are above the poverty line to those just below it, sufficient to lift the latter out of poverty. This redistribution does indeed lower the poverty rate, as shown.

However, poverty can also be alleviated without reducing the poverty rate, as shown in panel B. Here an increase in income for the segment as a whole is concentrated only among the working poor, but it is insufficient to lift them out of poverty. The severity of poverty is clearly reduced here, however, even though the poverty rate is unchanged. We may think of this example as one in which there has been an increase in wages for low-income workers.

As is well known, however, such an increase in wages may not lessen poverty, and this is illustrated in panel C. Here again there is an increase in the wages of some of the working poor, but at the expense of others who now enter the ranks of the unemployed. This might be the result of an increase in the minimum wage, for example, that raises the wages for some workers but causes others to be laid off. Here again the poverty rate is unaffected but the rise in the wage of the poor does not now indicate a reduction in poverty. Instead one must also factor in the increase in unemployment, which in this case has left the poverty gap more or less unchanged.

These three cases all might be thought to arise from deliberate, if perhaps misguided, efforts to alleviate poverty. Other policies, such as the trade policies we will be exploring here, are also likely to affect poverty, but their effects may be spread more broadly over the entire segment of the economy. Panel D shows such a case, in which there is an expansion of income across most of the segment. The poverty rate is reduced here, at the same time that there is both an increase in wages of the working poor and a fall in the rate of unemployment.

There are therefore these three different alternative indicators of how poverty has been reduced, and none of them alone indicates the full extent of the improvement as the drop in the poverty gap could do. Interestingly, in the last case most of the gain in income has not even been among the poor. As drawn, the income of the segment as a whole rises by much more than the drop in the poverty gap.

Effects of Income Redistribution across Segments

We will argue below that the trade actions that are the subject of this study do indeed have effects on segments of the economy that are analogous to the situation shown in Figure 2D. That is, trade actions tend to raise incomes at all levels within a particular industry or region of a country, and they therefore reduce poverty there by just about any measure one might care to use. However, trade actions also have adverse consequences in other segments of the country, and these effects must also be taken into account if one is to gauge the effects on poverty in the country as a whole. We therefore look at a simple case in which income is redistributed between two segments of an economy.

To keep the analysis tractable, we will consider a policy that has the effect of raising all incomes within a particular segment of the economy, segment A, by a common fraction, λ_A. This is not a net increase for the economy as a whole, however, but rather a redistribution from another part of the economy, segment B, where incomes fall uniformly by another fraction, $-\lambda_B$. As we will see, this particular formulation has a property that is very special, and perhaps too special for our later analysis, in that these proportional changes in household incomes do not leave any scope for changes in unemployment. The tractability of the case has, nonetheless, compelled us to consider it.

The two fractions, λ_A and λ_B, are related such that the total income gained in segment A is lost in segment B. Since all household incomes change within a segment by the same fraction, this

fraction also describes the change in the segment's income as a whole, and the budget constraint for the policy can be written as

$$\Delta Y_A = \lambda_A Y_A = -\lambda_B Y_B = -\Delta Y_B \tag{6}$$

or

$$\lambda_B = -\frac{Y_A}{Y_B}\lambda_A. \tag{7}$$

The situation is illustrated in Figure 3, where initial income distribution curves, ψ_i, are drawn for segments A and B. The policy then shifts the curve upward in segment A and downward in segment B, with the areas between the pairs of curves equal and opposite in the two segments. The case is drawn deliberately to suggest that a policy that reduces poverty in one segment will not necessarily reduce it in the country as a whole. While the changes in total income in the two segments are, by assumption, equal and opposite, the reduction in the poverty gap in segment A is drawn as considerably smaller than the increase in the poverty gap in segment B. Thus in evaluating any policy that can reduce poverty in one part of the economy only by reducing income elsewhere, it is crucial that effects on poverty in all parts of the economy be taken into account. We will argue in the next section that trade policies do have this property.

In order to determine the effects of the policy on the combined poverty gaps of the two segments, we first characterize the poverty gaps as they depend upon the policy variable λ_A. We will then differentiate with respect to λ_A in the neighborhood of $\lambda_A = 0$.

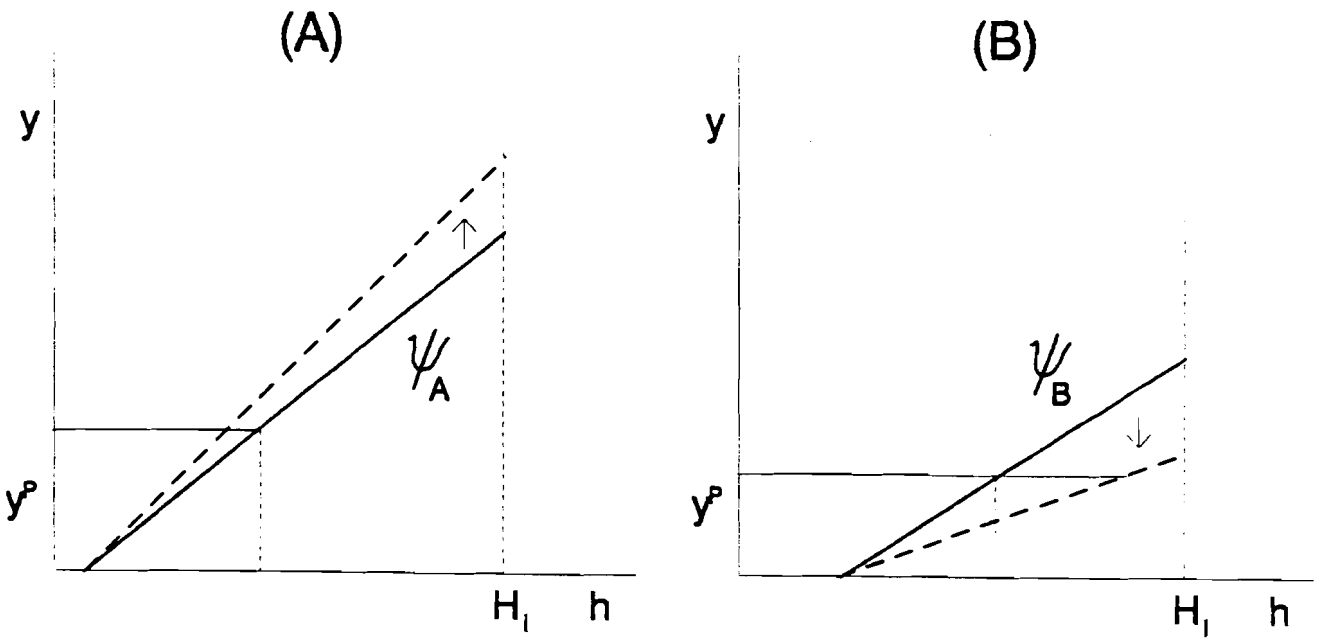

Figure 3

The poverty gap for segment i, after the income distribution has been perturbed by λ_A, is

$$G_i = \int_0^{h_i^p} [y^p - (1+\lambda_i)\psi_i(h)]dh. \tag{8}$$

Differentiating with respect to λ_i one must take into account the effect of λ_i on the amount of the population in poverty, h_i^p. This is a decreasing function of λ_i, as can easily be worked out. However, because h_i^p appears only as the upper limit of integration, and because the integrand evaluated at h_i^p is by definition zero, the derivative of G_i with respect to h_i^p is also zero. The derivative of G_i with respect to λ_i is therefore simply

$$\frac{dG_i}{d\lambda_i} = -\int_0^{h_i^p} \psi_i(h)dh, \tag{9}$$

where the integral is just the income of the poor. Letting

$$S_i = \frac{\int_0^{h_i^p} \psi_i(h)dh}{Y_i} \tag{10}$$

be the fraction of a segment's income earned by the poor, then it is easily seen that

$$\begin{aligned}\frac{dG}{d\lambda_A} &= \frac{d(G_A + G_B)}{d\lambda_A} \\ &= \frac{dG_A}{d\lambda_A} + \frac{dG_B}{d\lambda_B}\,\frac{d\lambda_B}{d\lambda_A} \\ &= -S_A Y_A - S_B Y_B\left(-\frac{Y_A}{Y_B}\right) \\ &= Y_A(S_B - S_A).\end{aligned} \tag{11}$$

A policy such as this--one that proportionally raises all incomes in one segment of the economy at the expense of proportionally lowering all incomes in another--will therefore reduce the combined poverty gap of the two segments if and only if the poor in the first segment initially earn a higher share of that segment's total income than do the poor in the second segment. The reason for this perhaps surprising result is of course that, by assumption, the policy helps households only in proportion to their initial incomes. Therefore the effect on poverty is proportional to the share of income initially earned by the poor.

This result can be refined even further if we make a strong additional assumption. Suppose that the income distribution curves in the two regions are identical except for multiplication by scalers both horizontally and vertically. That is, suppose that there exists a single function, $\Psi(\rho)$, such that

$$\psi_i(h) = \theta_i \Psi\left(\frac{h}{H_i}\right). \tag{12}$$

Then, letting

$$Y_0 = \int_0^1 \Psi(\rho)d\rho, \tag{13}$$

we have each segment's total income as

$$\begin{aligned} Y_i &= \int_0^{H_i} \psi_i(h)dh \\ &= \int_0^{H_i} \theta_i \Psi(h/H_i)dh \\ &= \int_0^1 \theta_i \Psi(\rho)H_i d\rho \\ &= \theta_i H_i Y_0 \end{aligned} \tag{14}$$

and

$$\begin{aligned} S_i &= (1/Y_i)\int_0^{h_i^P} \psi_i(h)dh \\ &= (1/Y_i)\int_0^{R_i} \theta_i \Psi(\rho)H_i d\rho \\ &= \frac{\int_0^{R_i} \Psi(\rho)d\rho}{Y_0}. \end{aligned} \tag{15}$$

From (15) it is clear that, under this strong assumption about income distributions, shares of income earned by the poor will differ across segments only to the extent that poverty rates, R_i, differ. In particular, using (11), a policy that proportionally redistributes income from segment B to segment A will reduce the overall poverty gap if and only if the poverty rate in B is lower than in A. Thus, under strong assumptions, we find, after all, that the benefits of a policy in reducing aggregate poverty depend only on the distribution of the benefits of the policy relative to poverty rates.

Of course, more realistic income distributions will not differ in this simple way. Therefore, we will look at policies as they are correlated with other indicators of poverty as well.

IV. THE EFFECTS OF TRADE ACTIONS

All of the trade laws described in Section II are designed to provide protection to industries. Cases filed under them, if successful, most often lead to the use of tariffs on the products for which the complaint was filed. In some cases these tariffs are called antidumping duties or countervailing duties, but these adjectives refer to their motivation, not their effects. Their effects are simply those of tariffs.[2]

In some cases, especially under the Escape Clause, affirmative determinations lead to quotas or voluntary export restraints instead of tariffs. However, as is well known from the theory of international trade, these policy actions are equivalent to tariffs, at least in competitive markets, except for the possibility that potential tariff revenue may be lost to foreigners in the form of quota rents. For our purposes, therefore, it is sufficient to consider only the effects of tariffs.

The primary effect of a tariff, and the reason for its use in these cases, is that it raises the domestic prices of imports and thus discourages demand for them. The extent of both the increase in price and the decrease in quantity of imports depends upon various elasticities of supply and demand,

both at home and abroad, and need not concern us here. The important thing is that prices do increase, for this in turn leads to effects in the domestic industry.

As import prices rise due to a tariff, domestic competitors are able to raise their prices as well, and expand their output. The increased prices lead directly to an increase in profits for the producers. At the same time, the increased output requires the use of increased inputs in production, and this is likely to cause wages and other input prices to be bid up as well. Thus all participants in an industry that receive tariff protection are likely to benefit, in varying degrees, from increased profits and/or wages. It is through this mechanism, to the extent that any of the beneficiaries are poor, that tariffs may be able to alleviate poverty.

These positive effects are also likely to be supplemented by additional ones outside of the immediate participants in the protected industry. As output rises, the protected firms will hire more labor, and depending on the condition of the local labor market these new workers may come from the ranks of the unemployed, or they may need to be lured away from other industries by offers of increased wages. Either way, the benefits of the protection will spill over to some extent to other workers in the same labor market.

Similarly, the protected industry will require additional inputs from other industries, and this secondary expansion of demand will have similar effects there as well. It is for this reason that a full analysis of an increase in tariffs requires a computable general equilibrium model that includes the input-output interactions among industries.[3]

Finally, as employees of protected firms enjoy increased incomes, they will spend more in their local communities, and the gains will therefore spread outward within the region to industries that provide services and public goods. Therefore the benefits of protection are not at all confined to the protected industry, and it will be useful to look at the regional incidence of trade actions as well as at their incidence by industry.[4]

There are, however, costs associated with protection as well as benefits. In fact, it is one of the fundamental propositions of the theory of international trade that tariffs tend to lower the welfare of the countries that levy them. Therefore whatever benefits accrue to the members of the protected industry and others with whom they interact, there must also be losses elsewhere in the economy that are even greater. It is for this reason that we have focused above on policies that transfer income, rather than on ones that create income. Trade theory would predict that protection will in some real sense lower national income. Therefore, by assuming that it merely transfers income, we give protection the benefit of the doubt in terms of its effects on poverty.

We should note that there are many exceptions to the rule that tariffs reduce national welfare. Trade theory is rife with these, including the terms-of-trade argument for a tariff, the infant industry argument, the national defense argument, and a host of other arguments that depend, for their effect, on the tariff offsetting some sort of domestic distortion. In addition, the recent literature on strategic trade policy has contributed additional rationales for trade policies of various sorts as means to alter the outcome of strategic interactions among imperfectly competitive firms and their governments. Many of these arguments, both old and new, are surveyed and discussed in Deardorff and Stern (1987).

All of this literature acknowledges the potential for tariffs to be welfare improving and could therefore improve their chances of alleviating poverty. However, even those economists who have contributed the most to the literature on how protection could be beneficial remain pessimistic about the possibility of it being beneficial in the real world.[5] Furthermore, the trade actions that are taken under the trade laws discussed in Section II are seldom motivated by any of these considerations. Instead, trade actions seek tariffs based simply upon the competition that domestic industries are experiencing from abroad, in the form of increased quantities and/or reduced prices of imports, and this is precisely the situation in which the standard result on the gains from trade is most applicable.

Therefore it seems reasonable here to assume that trade actions do at best cause a transfer of income among different parts of the economy.

In Section III we saw that the effects of a policy on poverty within a segment of the economy (a region or an industry) depend upon the incidence of the policy over different income groups. Some policies may benefit only upper-income categories, in which case they can have no direct effect in alleviating poverty (and their indirect effects, if they are transfers from other parts of the economy, are then likely to be negative). Other policies may benefit poor households enough to lift them above the poverty line, or other households that are even poorer and that therefore may enjoy an increased income but remain below the poverty line. Finally, the benefit could go mostly to the unemployed, who could experience a substantial increase in income as they go to work. Alternatively, even within the segment of the economy where the benefits are concentrated, the benefits to some may come at the expense of others, as in the case of the minimum wage mentioned earlier.

What is likely to be the case for the protective tariffs that are put in place due to trade actions? Assuming in the short run that all primary factors are immobile among industries, the specific factors model tells us that owners of all factors employed in a protected industry will gain in income, more or less by the ad valorem amount of the tariff itself.[6] In the longer run, as various factors become mobile, this advantage may be eroded by the inflow of factors from other industries. In addition, general equilibrium effects may permanently reduce the return to some factors, as indicated by the Stolper-Samuelson Theorem. However, for tariffs with as little coverage as those brought on by the typical trade action, such general equilibrium effects are likely to be negligible, and the main effect we should consider is the short-run effect of the specific factors model. It is reasonable, therefore, to assume that, within a protected industry, a tariff will lead to an approximately proportional expansion of incomes of all income groups, exactly as was analyzed in Section III.

There are bound to be exceptions to this, of course. In some industries where the bargaining power of labor is weak, perhaps because of the availability of a large pool of unemployed workers, the existing workers may gain little or nothing from protection. Instead the gains would accrue to owners and to higher-income managers, as well as to those previously unemployed who are lucky enough to find work in the protected industry. In this case the shift of the income distribution curve for the industry would be more complicated, though it would still involve gains for both the rich and the poor. Alternatively, in some industries labor may be so well organized that it can capture more than its share of the gains from protection. In that case the shift of the income distribution would have a bulge at the level of income of the typical union worker. This too would be more complicated to examine. Given such a variety of possibilities, and the absence of any data to help us decide among them, we will assume what seems to be the fairly neutral case of a proportional expansion of all incomes in the industry.

Analysis of a region, or of an industry within a region, may not fit this assumption quite so well. Protection can only provide direct benefits for tradable industries, and spillovers to adjacent nontradable industries, though they certainly exist, are likely to be much smaller than the benefits to members of the industry itself. If incomes of participants in tradable industries are generally higher than those in nontradable industries--as often seems to be the case--then protection will provide the bulk of its benefits nearer to the upper end of the wage distribution. On the other hand, the reason for providing protection under the various trade laws is often ostensibly that the tradable industry has been injured by trade. This in turn could suggest that incomes in the protected industry might be low. Once again we cannot necessarily distinguish these two possibilities. However, we will take a look at industrial wages in part to give us some indication of which of these possibilities obtains.

Our procedure, then, will be as follows. Assuming as a base case that protective trade actions benefit all industrial and regional participants equally, we will use the theoretical result of Section III

to evaluate whether trade actions are likely to increase or decrease poverty at the national level. The theoretical result suggests that we look simply at the poverty rates in industries and regions that receive protection, as compared to poverty rates in segments that do not. In addition, because in fact we cannot count on the effects of protection being that uniform, we will also examine other indicators of poverty, including average wage rates and unemployment rates, to see how they too may differ across segments of the economy that do and do not receive protection.

Finally, one other effect of trade actions deserves mention. Industries and firms that file for protection do not automatically receive it. Depending upon the particular procedures that apply to the trade law under which they file, the International Trade Commission and the International Trade Administration (a unit of the Department of Commerce) will make various preliminary and final determinations as to the validity of the complaint (in the cases of dumping and subsidies) and the extent of injury. On the basis of these determinations, they decide whether protection should be provided or not. In some cases an affirmative final determination leads automatically to protection; in other cases protection is at the discretion of the president. Therefore, it might seem that it is only the cases that are successful that could have an effect on domestic industries, and therefore on poverty.

In fact, however, it appears that the mere filing of a trade action under U.S. trade laws can have a significant protective effect. The uncertainty as to the outcome of the case may by itself be enough to deter foreign exporters. Also in some cases importers are required to post bond after a case has passed a certain stage, in order to assure that they will be able to pay the required duty if one is later levied, and this bond is an additional cost of trade. And finally, there is growing evidence that many trade actions that do not proceed all the way to an affirmative determination nonetheless result in various collusive agreements and undertakings that also restrain trade.[7] Therefore, we judge that all trade actions have a certain amount of protective effect and are worthy of study here.

V. DATA AND PROCEDURES

The data used in this study are drawn from a number of sources. The Trade Action Inventory provides information concerning which industries apply for and receive administered protection. The Census of Population Public Use computer tapes and the March Current Population Survey (CPS) tapes are the sources for statistics regarding the characteristics of individuals by industry and region. Krueger and Summers (1988) provide estimates of interindustrial wage differentials. The industrial data are from the NBER Trade and Immigration Datafiles[8] and a Productivity Database developed by the University of Pennsylvania, the Bureau of the Census, and SRI International. The variables extracted from these datasets are outlined below.

Trade Action Inventory (TAI)

The Trade Action Inventory contains information regarding applications for administered trade protection from 1974 through 1990. Four of the variables used in this study are obtained from the TAI: which industry is filing for protection,[9] under which section of the trade law the action falls, the result of the petition, and the year in which the petition was filed.

Income Data

Variables were created to provide information on the status of groups of individuals at both the industrial and regional levels. The industrial data are computed from the 1980 Census of Population for 231 3-digit Census-category industries.[10] The regional data are derived from a time-series of March Current Population Survey datasets.

The variables obtained from the Census include the hourly wage for each industry, the poverty rate in each industry, the unemployment rate for each industry, the fraction of the labor force employed by each industry, and the regional distribution of employment for each industry. The sample used for calculating these statistics consists of all individuals reporting above age 15 and

below 65. Individuals reporting an hourly wage of less than $2 or greater than $80 are excluded in the calculation of hourly wages.

The Census questionnaire is designed in such a way that the industry reported for unemployed individuals is the industry in which they were last employed. The industrial unemployment rate is, therefore, calculated as the percentage of all individuals reporting a given industry who were also unemployed. The industrial poverty rate is similarly calculated as the percentage of all individuals currently employed in the industry who live in a household with an income below the appropriate poverty line.

The regional wage, poverty, and unemployment data are obtained from March CPS tapes for 1975 through 1989.[11] The regional wage and unemployment rates are calculated with the same sample restrictions used in calculating the industrial statistics. The regional poverty rate is, however, a measure of poverty for all individuals and is consequently much larger than the industrial poverty rates. The regional variables are used to provide a measure of the well-being of individuals not necessarily connected to a particular industry, but who are in a position to benefit indirectly from protection of a given industry.

Interindustrial wage differentials are also used in the analysis of the succeeding sections. For each industry, the wage differential is the percentage difference between the wage received by a worker in that industry and the wage received by the average worker with identical characteristics in the labor force.[12] Krueger and Summers (1988) provide an excellent discussion of the phenomenon and are our source for 3-digit interindustrial wage differentials. The wage differentials reported are from the 1984 May CPS.

Trade Action Datasets

Our approach to the analysis is from two directions. First, we compare the characteristics of industries that file for protection with those of industries that do not. Second, we compare the

industries that receive protection with those that are denied protection. In order to facilitate the analysis, we have constructed two datasets, one containing data specific to industries, and one containing data specific to each trade action.

The first dataset, the industrial dataset, contains one record for each of the 231 Census-category industries. Included in this dataset are variables pertaining to the type and outcome of applications for protection by members of the industry. Separate information is maintained for filings under each of the trade laws discussed above. Also included are the industrial wage, poverty, unemployment, and employment distribution data obtained from the 1980 Census, as well as the 1984 interindustrial wage differentials.

Regional data for each industry are obtained from the sequence of CPS tapes. The regional data from the CPS are combined with the employment data from the Census to determine regional poverty, wage, and unemployment rates for each industry.[13] From the employment data, we know in which region industries are concentrated. The variables used are then calculated as the difference between the value for that region and for the rest of the United States. For example, if the poverty rate for the region in which a particular industry is concentrated is 6 percent, and the poverty rate for all other regions together is 5 percent, then the relative regional poverty rate for that industry is 1 percent. This statistic is used to facilitate the incorporation of the theory in Section III into the analysis. In an effort to remove short-term differences between regions, the statistics are calculated as average relative differences for the years 1974 through 1989.

The second dataset, the action dataset, contains variables pertaining to each of the trade actions filed between 1972 and 1990. The variables include the type of action, the outcome of the action, and industrial and industrial/regional data for the industry filing the action. The industrial data are the same as those used in the industrial dataset. Our preference would have been to use data for the year in which the trade action was filed, but such data are unavailable at the 3-digit level.[14]

The regional data used are similar in concept to the data included in the industrial dataset. However, instead of using the average values discussed above, the relative statistics for the year in which the trade action was filed are used. For the comparisons across industries, it is important to eliminate any short-term regional differences. When comparing the success or failure of an application for protection, however, it is the regional differences that exist at the time of the application that are of interest.

VI. RESULTS

Based upon the theoretical discussion in Section III, we first compare average poverty rates in different segments of the U.S. economy based upon their experience with trade actions. Since trade actions are most directly associated with industries, rather than with regions, we begin with comparisons across industries.

The numbers we report are impact ratios. That is, they are ratios, in this case of poverty rates, for industries where trade actions have occurred or been successful, divided by industries where they have not. Therefore a poverty-rate impact ratio will be greater than one if trade actions have protected segments of the economy where poverty rates are higher than elsewhere. An impact ratio greater than one therefore indicates, as discussed in Section III, that trade actions may be having the favorable effect of reducing aggregate poverty throughout the country. In contrast, poverty-rate impact ratios less than one indicate that trade actions are protecting industries where poverty rates are already below average and are therefore likely making poverty worse.

Table 2 reports these impact ratios, both for all trade actions together and for the five separate types of trade actions discussed in Section II. The first column reports results for industries, where the comparison is of industries that did have at least one trade action filed, compared to industries where no trade action was filed. Perhaps surprisingly, the impact ratio is less than one in all cases.

TABLE 2

Relative Average Poverty Rates of Industries

-For Industries, Ratio with Versus without Trade Actions
-For Trade Actions, Ratio Successful Versus Failed

Trade Action (Section)	For Industries (Filings) (1)	For Trade Actions (Decisions) (2)
ESCAPE CLAUSE (201)	0.97	0.54
UNFAIR TRADE (301)	0.95	0.87
UNFAIR TRADE (337)	0.61	1.06
COUNTERVAILING DUTIES (701)	0.82	1.00
ANTIDUMPING (731)	0.68	0.76
TOTAL	0.69	0.86

Source: Calculations are by the authors from Census and CPS Public Use computer tapes.

Thus for all types of trade actions taken together, average poverty rates in industries with trade actions were only 69 percent of the average poverty rates in industries where no action was filed. This immediately suggests that trade actions have not tended to reduce poverty, since they have been filed in industries where poverty was relatively low. Indeed, this implies that they have probably been having the effect of making overall poverty worse.

The second column of Table 2 reports comparisons only among actions filed. That is, for each trade action filed in our sample, we report employment-weighted averages of poverty rates for industries where actions were filed and were successful, compared to similar averages where protection was denied. Here the impact ratio is larger--86 percent--but it is still considerably less than one. Looking only at the trade actions that were initiated, those that had a successful outcome were concentrated in industries with average poverty rates 14 percent lower than those in industries that were denied protection. This tells us the same story as the comparisons of industries in column 1: trade actions have been both filed and decided in a manner that has tended, according to the framework of Section III, to make poverty worse.

It might be suspected that these results would mask considerable differences in the impacts of the separate types of trade action. After all, it is only the Escape Clause that has the ostensible purpose of alleviating economic hardship. Therefore one might expect these poverty-rate impact ratios to be larger than one for the Escape Clause at least. But the breakdown of the figures in Table 2 by type of trade action does not confirm this. It is true that the ratio for filings is largest for the Escape Clause, but it is still slightly less than one. Therefore, industries that have filed for Escape Clause relief have had on average slightly lower poverty rates than those that have not. And once these actions have been filed, the second column of Table 2 indicates that the success of Escape Clause petitions has been biased very much against industries with a high incidence of poverty.

The only entry in Table 2 that is larger than one is an entry in column 2 for unfair trade. Apparently cases filed under Section 337, mostly involving violations of intellectual property rights, have been successful in industries where poverty rates were slightly higher than those in the industries where such cases have failed. Since Section 337 does not have an injury test, we are somewhat at a loss to explain this and are inclined to dismiss it as inconsequential.

As mentioned in Section III, the effects of trade actions are not confined to the industries that seek the protection. Successful cases create spillovers to other industries, especially within the region of the economy where the protected industry is mostly located. It is conceivable that, while the protected industries themselves may be associated with low poverty, the regions in which they operate are nonetheless poor. To check this we looked at poverty rates for the regions in which the industries are concentrated.

Table 3 contains summary statistics for the poverty rates of industry-region pairs.[15] The numbers presented here are not impact ratios as before, but simple differences between percentages. The negative entries in column 1 of the table reveal that industries filing for protection are concentrated in regions with relative poverty rates below those in regions where industries that do not apply are concentrated. A comparison of industries that apply for protection with industries that do not reveals a very small difference of -.23 percentage points in the relative poverty rates. Given the direction of this difference and the theory of Section III, the availability of administered protection appears to be biased in the direction of exacerbating poverty, reinforcing the results from the industrial poverty rates in Table 2.

Column 2 of Table 3 reports the difference in relative regional poverty rates for industries receiving protection relative to industries that are denied protection. These data suggest that the bias introduced by filing for protection in column 1 is offset somewhat by the decisions that are then made to grant protection. The industries receiving protection are, on average, concentrated in regions with

TABLE 3

Percentage Point Differences in Average Poverty Rates for Regions

-For Industries, with Minus without Trade Actions
-For Trade Actions, Successful Minus Failed

Trade Action (Section)	For Industries (Filings) (1)	For Trade Actions (Decisions) (2)
ESCAPE CLAUSE (201)	-0.35	-0.49
UNFAIR TRADE (301)	-0.34	0.39
UNFAIR TRADE (337)	-0.27	0.26
COUNTERVAILING DUTIES (701)	-0.41	0.16
ANTIDUMPING (731)	-0.20	0.12
TOTAL	-0.23	0.15

Source: Calculations are by the authors from Census and CPS Public Use computer tapes.

a higher relative poverty rate than that in regions where industries then are denied protection are concentrated. This result comes with the notable exception of the Escape Clause. Industries receiving protection under Section 201 of the trade law are concentrated, on average, in regions with relative, weighted-average poverty rates .49 percentage points below those in regions where industries that failed to obtain protection are concentrated. While the granting of protection appears to be poverty reducing in total, the granting of protection under the Escape Clause appears to be poverty increasing.

Under strong assumptions, we found in Section III that the poverty rate would be a sufficient indicator of the effects of a policy on the economy's level of poverty. However, these strong assumptions are surely not satisfied, and it is appropriate therefore to examine other indicators of poverty as well. Table 4 reports results for two of these: average industrial wages and industrial unemployment rates.[16] In addition to giving us additional perspectives on how trade actions and poverty are related, these indicators also give a little more insight into the nature of the poverty in the affected sectors.

The impact ratios for average wages, in columns 1 and 2, are defined exactly as were the impact ratios for poverty rates in Table 2. However, since high wages suggest the absence of poverty, rather than its presence, a desirable effect of trade actions in reducing poverty would correspond here to impact ratios below one. And as is clear in Table 4, almost all of the impact ratios for wages that are reported are above one. Thus we find again that trade actions seem to be biased against the alleviation of poverty.

More precisely what we find is, first (at the bottom of column 1), that average wages are about five percent higher in industries that have filed for trade actions than in industries that have not. This wage differential is smallest in the case of the Escape Clause, suggesting that it, as intended, does take into account the hardship in the filing industry to a greater extent than do the other laws.

TABLE 4

Relative Average Wages and Unemployment Rates of Industries

-For Industries, Ratio with Versus without Trade Actions
-For Trade Actions, Ratio Successful Versus Failed

Trade Action (Section)	Average Wages		Unemployment Rates	
	For Industries (Filings) (1)	For Trade Actions (Decisions) (2)	For Industries (Filings) (3)	For Trade Actions (Decisions) (4)
ESCAPE CLAUSE (201)	1.024	1.117	1.642	0.887
UNFAIR TRADE (301)	1.031	1.086	0.889	1.469
UNFAIR TRADE (337)	1.072	0.992	1.274	1.128
COUNTERVAILING DUTIES (701)	1.061	1.027	1.465	0.924
ANTIDUMPING (731)	1.068	0.979	1.266	0.881
TOTAL	1.049	0.997	1.314	0.903

Source: Calculations are by the authors from Census and CPS Public Use computer tapes.

The differential is not, on the other hand, nearly as large when we compare successful and unsuccessful cases in column 2. Here successful Escape Clause, unfair trade (301), and countervailing duty cases do seem to favor high-wage industries, but the other unfair trade (337) and antidumping laws do not.

In contrast, we get a different story when we look at unemployment in columns 3 and 4. The unemployment rate, of course, is a direct indicator of poverty, and an impact ratio that is greater than one here indicates, as it did for the poverty rates in Table 2, that the trade actions are concentrated in industries that are experiencing hardship. And indeed most of the ratios reported for unemployment in Table 4 are greater than one.

In the most extreme case, the top entry in column 3 says that the unemployment rate was 64 percent higher in industries that filed for relief under the Escape Clause than in those that did not.[17] For other types of trade action this differential is smaller, but it is substantial in every case except Section 301.

On the other hand, once a case is filed, it appears in column 4 that relief is more likely to be granted, in most cases, to industries where unemployment is low. Only the two unfair trade laws, Sections 301 and 337, seem to show a clear pattern of granting relief to industries with high unemployment. Both countervailing and antidumping duties tend to be levied in industries with low unemployment rates.

These results for wages and unemployment give us additional perspective on the results found earlier for poverty rates. There we found that trade actions are more often filed in industries with below-average poverty rates. Now we find that these same industries tend to have both high average wages and high unemployment rates. Were we to look only at the latter we might conclude that trade actions are helping to alleviate poverty. But in fact, it seems that these industries are not poor; they

are merely distorted, with above-average wages of the employed compensating for above-average unemployment.

As a final descriptive indicator, we look at a measure of interindustrial wage differentials. As described in Section V, this is a measure of the wage premium paid to the workers in a given industry. Table 5 reports the differences between average interindustrial wage differentials in industries that file for protection and those that do not, and between industries that are successful in obtaining protection and those that are not, respectively. The numbers reported are the differences in interindustrial wage differentials between the pairs of categories represented in each column.

Looking first at column 1, we see that industries that have filed for protection pay on average wages that are 13 percent higher. As was the case for average wages, industries filing for protection under the Escape Clause pay the smallest wage premia, on average only 8 percent higher than those paid by industries that do not apply. Turning next to column 2, we note that if there is a bias in favor of industries that apply for protection, it is only slightly, if at all, exacerbated by the application of administered protection. Overall, industries that succeed in obtaining protection pay wages only imperceptibly higher than those paid by industries failing to receive protection. Here again, as with the average wage, the bias is greatest with respect to the Escape Clause.

We include the results for interindustrial wage differentials in an attempt to shed some light on the results for the simple average wages. The interindustrial wage differential is calculated controlling for worker characteristics. It therefore allows us to suggest that protection of the industries filing for administered protection is protection of industries with "good jobs" at the expense of industries with "bad jobs."[18]

Before we leave this section, it would be reasonable to ask the reason for our result that trade actions seem to be biased against alleviating poverty. We do not have a great deal to say on this point, except to recognize that trade actions apply, by definition, only to industries that are tradable.

TABLE 5

Percentage Point Differences in Average Interindustrial Wage Differentials for Regions

-For Industries, with Minus without Trade Actions
-For Trade Actions, Successful Minus Failed

Trade Action (Section)	Average Interindustrial Wage Differential	
	For Industries (Filings) (1)	For Trade Actions (Decisions) (2)
ESCAPE CLAUSE (201)	0.08	0.07
UNFAIR TRADE (301)	0.09	0.01
UNFAIR TRADE (337)	0.12	-0.02
COUNTERVAILING DUTIES (701)	0.10	0.01
ANTIDUMPING (731)	0.12	0.01
TOTAL	0.13	0.0

Source: Calculations are by the authors from data found in Krueger and Summers (1988).

All of our results comparing industries where trade actions have and have not been filed reflect in part the simple fact that nontradable industries--which are usually service industries--tend to display higher levels of poverty and lower wages than do tradable industries. We have repeated some of our calculations excluding nontradable industries, and indeed the bias against alleviating poverty then seems less marked. But that merely confirms part of the source of the bias; it does not negate its importance. Trade actions are an instrument that is available only to tradable industries, and if poverty seems to lie mostly outside of these industries, then the mere existence of these laws tends to exacerbate poverty.

Also, it should be noted that our results comparing successful and failed trade actions make comparisons only within the group of tradable industries. Therefore the fact that we also found a bias against alleviating poverty in these comparisons suggests that the tradable-nontradable goods distinction does not provide the entire reason for the bias.

VII. CONCLUSION

Many in the United States and many of our trading partners view the use of U.S. trade laws as a particularly pernicious form of administered protection. Because it is permitted under the GATT, it is difficult to resist the pressures that come from domestic interests to provide such protection. For the same reason, our trading partners also find it difficult, even in multilateral negotiations, to restrain the use of these laws against them. Quite the contrary, the current multilateral negotiations that are still limping along as part of the Uruguay Round seem likely, if anything, to extend the use of such laws to areas of trade and to countries that have not previously been subject to them. Therefore, it is important that we understand as fully as possible what the implications of administered protection may be.

This paper has examined one small but important aspect of this form of protection--its effects on poverty within the United States. We have argued that even though the use of trade actions, like other forms of protection, may be expected to alleviate poverty within the industry where they are applied, these gains are at the expense of people elsewhere in the economy where poverty may be made worse. Our empirical analysis has suggested that trade actions have indeed been used on average in industries and regions of the economy where poverty rates have been below the national average. We therefore would argue that these trade actions have had the effect, nationally, of increasing poverty rather than reducing it.

Our analysis has only been able to point to the direction of the effect on poverty, and not its size. Trade actions have in fact been applied to only a small portion of U.S. trade, and it is therefore unlikely that they can be regarded as a major culprit in exacerbating poverty. Nonetheless, since administered protection is already suspect as a policy, for the same reasons as other forms of protection, this additional adverse effect is surely worth noting.

We would have continued to argue against the use of administered protection even if its effects on poverty had turned out to be favorable in this analysis, for the distorting effects of protection make it a particularly costly tool for correcting any domestic problem, including poverty. However, since the results of the analysis have turned out to suggest that these trade actions make poverty worse, not better, we would not hesitate to point this out to those in the policy community who have a hard time seeing their other adverse consequences.

Notes

[1]We are, in the current model, abstracting from the presence of unemployment insurance.

[2]For the laws dealing with exports rather than imports (Sections 301 and 337), a tariff in the affected industry is not an effective remedy. Other policies are therefore used to try to lever the foreign firm or government into compliance. If these measures are successful, the domestic exporters enjoy an expanded market and can charge a higher price, just as would be permitted by a tariff in an import sector.

[3]See Deardorff and Stern (1986) for the use of such a model.

[4]Deardorff and Stern (1979) discuss these effects in more detail.

[5]See Krugman (1987).

[6]See Neary (1978) for a discussion of the specific factors model.

[7]See Prusa (1989).

[8]See Abowd (1990) for a description of the construction of this dataset.

[9]The industries are classified by 4-digit Standard Industrial Classification (SIC) codes.

[10]A list of these industries can be obtained from the authors.

[11]It should be noted that the CPS and Census tapes for a given year contain wage and employment data for the preceding year.

[12]See Krueger and Summers (1988) for a complete list of the characteristics controlled for.

[13]It is at this point unclear how the particular regional boundaries chosen may have influenced our results.

[14]Experimentation with a time-series of 2-digit industrial data revealed that the economic relationship between industries is sufficiently stable to reasonably allow the use of 1980 data as a proxy for the other years. The consistency across time of the interindustrial wage differentials is also well documented.

[15]Refer to Section V for a discussion of these variables.

[16]We also examined these indicators by region-industry pair, but the results did not seem to add significantly to our understanding, and we omit them here.

[17]Note that this is a percentage, not percentage points. The actual unemployment rates in this case were 9.00 percent in industries that filed and 5.48 percent in industries that did not.

[18]For a discussion of the good jobs-bad jobs debate, see Burtless (1990).

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