

Industry Rent Seeking and the Filing of “Unfair Trade” Complaints

Robert M. Feinberg
U.S. International Trade Commission

and

Barry T. Hirsch
University of North Carolina at Greensboro

Abstract

This paper adopts a rent-seeking framework to explain the incidence of antidumping and countervailing duty complaints brought to the U.S. International Trade Commission and the Department of Commerce. Tobit analysis on all 3-digit SIC industries is employed to examine the relationship between the frequency of “unfair trade” complaints and such factors as industry concentration, unionization, capital intensity, and levels and/or changes in employment, price-cost margins, and import penetration. Large capital-intensive industries, particularly those facing employment losses and rising import shares, are found to be most likely to file complaints. Protection of quasi-rents accruing to capital and labor, rather than protection of monopoly returns, appears to be the primary impetus behind the filing of unfair trade complaints.

*An earlier version of this paper was presented at the 1987 Allied Social Science Association Meetings. The authors thank Eric Bond, James Hartigan, Dennis Mueller, and two referees for helpful comments. Views expressed in this paper are those of the authors and do not represent the views of the U.S. International Trade Commission or any individual commissioner.

I. Introduction

There has been a general liberalization of world trade during the post-war period, as demonstrated by decreasing tariff rates and an increasing volume and importance of trade among most of the world's countries. At the same time, however, there has been an increased use of industry-specific protection and special-interest rent seeking. Among the forms such protection has taken are quotas, escape clause remedies, voluntary export restraints (*VERs*), and antidumping and countervailing duty remedies arising from "less-than-fair value" (LFV) petitions. Pursuit of protection through quotas, escape clause cases, or *VERs* involves high economic and political costs and has a low probability of success. By contrast, LFV filings are relatively low cost and have a high probability of gaining remedy. As a result, antidumping and countervailing duty remedies have been used extensively in the U.S., whereas other forms of industry-specific protection have been adopted on a more limited scale.

In this paper we attempt to explain the incidence of antidumping and countervailing duty complaints brought to the U.S. International Trade Commission (ITC) and the U.S. Department of Commerce. We develop a rent-seeking model in which firms and industries (and, less directly, labor unions) seek to create and protect monopoly rents, as well as protect quasi-rents accruing to long-lived capital assets. The frequency of LFV cases is likely to be largest where these rents and the potential benefits from protection are large, relative to the costs of seeking protection. Tobit analysis on 3-digit SIC manufacturing industries is employed to examine the relationship between the frequency of LFV cases and such factors as industry concentration, unionization, capital intensity, and levels and/or changes in employment, price-cost margins, and import penetration.

II. Less-than-Fair Value Cases and the Rent-Seeking Process

In focusing on the determinants of less-than-fair-value (LFV) petitions involving dumping or countervailing duties on imports, we seek to explain variation across industries in the use of what Finger et al. (1982) refer to as the "technical track".¹ LFV cases provide to firms and industry groups seeking

¹ Over the period analyzed in this paper, nearly 50 percent of all independent cases filed (the definition of an "independent" case is given later in the paper) resulted in at least a partially affirmative outcome for the domestic industry. Furthermore, Finger (1981) presents evidence suggesting that merely filing an LFV case has a significant

protection an administrative channel that is relatively low-cost, reasonably predictable in outcome, and largely free from political influences once a petition is filed. These cases are filed with the ITC and Commerce under rules modified by the Trade Act of 1979. A successful petition for these duties requires a finding by Commerce of dumping (which in its purest form requires only sales in the U.S. at lower prices than charged in the exporter's home market) or of countervailable subsidies provided by the exporter's country, combined with a finding by the ITC of injury to the domestic industry due, at least in part, to the LFV sales.²

Extant literature provides some basis for understanding which industries are likely to seek trade protection. Baldwin (1985), based on arguments from Olson's work (1965) on interest groups, contends that an industry is more likely to incur the costs of seeking import protection the smaller is the number of firms in the industry and the less evenly distributed are industry sales across the firms (since the expected benefits per major firm would then be larger). Olson more recently (1983) has emphasized the time lag required for common interests among industry participants to emerge; economic shocks threatening current income or employment levels may speed the process. Baldwin extrapolates from this a positive relationship between import penetration (and increases in import penetration) and an industry's attempt at import protection, and a negative relationship between output or employment growth and this form of rent-seeking activity.

While there have been numerous studies on the determinants of other types of import protection, we know of only two published papers which have analyzed the determinants of LFV case-bringing activity.³ Finger (1981) attempts to explain the industry incidence of LFV complaints (at the 3-digit SITC level) during the years 1975 through 1979 (the "life" of the Trade Act of 1974), measuring incidence by the percentage of 1976 industry imports covered by the cases instituted. He finds import penetration (but not

limiting effect on import growth in the industry. For an excellent discussion of the political economy of trade policy, see Baldwin (1985). Finger (1981) and Finger et al. (1982) analyze determinants of policy outcomes.

² For the relatively small number of countervailing duty cases involving countries not signing the International Subsidies Code, an injury test before the ITC is not mandated and the only petition filed is with Commerce. We exclude both "escape clause" cases, which are generally more politicized, more difficult to win, and which have been filed much less frequently, and Section 337 (Unfair Trade) cases, which have generally dealt with intellectual property infringements and do not represent as much of an across-the-board solution as the cases treated here.

³ For studies on other types of import protection, see Baldwin (1985), Hartigan et al. (1986), Marvel and Ray (1983), Ray (1981; 1987), and Takacs (1981).

the import growth rate) and the size of an industry's capital stock to increase the likelihood of a complaint being filed, while industry employment has a negative effect on the incidence measure.⁴

Herander and Schwartz (1984) examine the effect of LFV cases on the pricing behavior of firms exporting to the U.S. in the period 1976 through 1980. As one of a system of equations, they attempt to explain LFV case-filing incidence (apparently measured by import coverage in a manner similar to that of Finger (1981)) across 4-digit SIC industries. Of the industry variables in their paper, import penetration, unionization, labor intensity, and the stock of capital in the industry all had a significant positive influence on the incidence of LFV complaints, while change in profits had no significant effect. One result suggesting the need for the current study is that of a dramatic increase in case filings in 1980, after the effective date of the Trade Agreements Act of 1979. This regime shift may have significantly altered the incentives for filing a case.

Except for the small part of the period covered in the Herander and Schwartz study, however, there has been no previous work on determinants of LFV case filings in the post-1979 regime. Furthermore, neither of the earlier studies discussed above examined a complete set of these determinants; for example, one considered unionization as an explanatory variable, the other seller concentration, but neither study included both. The emphasis of this paper is quite different from the earlier studies, as well. Rather than explaining the import *coverage* of LFV cases, we seek to understand the determination of an important form of rent-seeking activity – the filing of LFV petitions.

An important consideration in explaining the pattern of LFV case filings across industries would seem to be the likelihood of dumping or foreign subsidies actually occurring. Dumping cases are the most common type of LFV case. To the extent foreign firms are practicing international price discrimination in charging a lower price in the U.S. than in their home market, we would expect a greater price gap, or dumping margin, as the U.S. market is more competitive. This would suggest an inverse relationship between domestic seller concentration and LFV cases. To the extent dumping is cost-based predation, increasing capital intensity in an industry (if true also for the foreign industry) would imply an increased

⁴ Finger (1981) and Finger et al. (1982) also present evidence on determinants of the outcomes of LFV cases, which is not our interest in this paper.

ability to price below short-run average cost, and hence increased LFV case filings. In practice, however, determinants of dumping are unlikely to explain much of the interindustry variation in LFV filings. The mechanics of dumping margin and countervailing duty calculations by Commerce suggest that the chances of any U.S. industry under increasing import pressure receiving an affirmative decision from Commerce are likely to be high, regardless of whether or not dumping or unfair subsidies are in fact occurring (Dickey, 1979; Boltuck, 1987). Consistent with this view is the fact that only 7.6 percent of the cases examined in our analysis below were terminated by a negative LFV finding from Commerce.

Firms, trade groups, and labor unions will seek trade protection as a means of creating and protecting rents (for a model of equilibrium rent seeking, see Becker, 1983). LFV filings will be brought as long as the expected present value of benefits from a case filing are at least as large as case-filing costs. As discussed below, the number of LFV cases filed is therefore influenced by factors affecting the costs of filing, the expected present value of an import protection grant, the probability of success, and the potential number of cases.

The primary costs of filing an LFV case are legal and economic consultant fees. These costs will vary to some extent across industries (since cases in some industries will be more complex), but will contain a significant fixed element. The fixed costs associated with filing suggests that industries with relatively large firms are more likely to realize economies of scale in legal and consultant fees and, hence, more likely to file. Likewise, strong unionization in an industry may reduce the costs of getting a coalition of firms to support a petition.

Although the costs of filing a case are nontrivial, the primary determinants of industry filings are likely to be those factors affecting the expected benefits from import protection. The value of an enterprise, V , can be considered to be the sum of the market value of the firm, MV , and rents, R , accruing to labor, typically measured by the excess of the actual wage bill over earnings available to workers in alternative employment (Abowd, 1987). That is, $R = (w - w^*)L$, where w is the present value of the wage stream on the current job, w^* is the present value of the best available alternative wage stream, and L is present and future

employment. Firms, trade groups, and organized labor will pursue actions that are expected to enlarge, or prevent losses in, MV or R , and hence V .

Trade protection is likely to benefit most those firms and industries whose value to owners and labor is the largest or most vulnerable to competition. We posit that case filings may be related to industry concentration, union coverage, capital intensity, and the levels and changes in employment, profitability, and import penetration. Market structure is proxied by the four-firm concentration ratio, CR . To the extent that CR makes possible above-normal profits, we might expect to see greater vulnerability to imports and, hence, greater frequency of LFV filings. Yet evidence that higher CR increases profitability is far from conclusive (among others, see Bothwell, Cooley, and Hall, 1984). Moreover, the level and change in profitability can be measured directly, rather than indirectly through CR . And even if higher CR leads to greater trade protection activity, defined broadly, LFV case filings could be lower since the costs of coordinated political lobbying among a few large firms may be lower. Thus, high CR may lead to increased trade protection through legislative action or more expensive and higher-risk routes at the ITC (such as Section 201 “escape clause” cases), and not through LFV filings.

We expect industry employment to have significant effects on industry case filings. The larger is industry employment, the larger is the potential for rents (or losses in rents) to labor.⁵ Industry employment (holding constant the number of companies) also can be considered as a firm size variable; case filing propensity should increase with size because of a higher expected benefit-cost ratio from trade protection activity. Industries with declining or slow-growing employment seem particularly likely to file LFV cases owing to the loss in labor rents and quasi-rents, and because such industries can most readily show evidence of injury. In contrast, growing industries may have difficulty proving injury, even if import competition is fierce. Holding employment constant, the incidence of case filings should be negatively related to the number of companies in an industry. Such a relationship is probable because the expected ratio of benefits to costs from *individual* company rent seeking decreases as the number of companies increases, while the costs of organizing industry-wide trade protection activities increase with the number of firms.

⁵ And to the extent that LFV case outcomes are sensitive to political influences, employment may serve as a proxy for political pressure.

LFV case filings are expected to be positively related to industry union coverage. Unions can of course bring direct pressure to bear for filing LFV cases. More important, however, is the fact that union coverage and bargaining power help create rents for workers (to nonunion as well as union workers), primarily in the form of higher compensation, that are particularly vulnerable to foreign competition.⁶ Union effects on LFV filings also may vary with the level of, and changes in, employment. We examine this possibility by interacting union coverage with the employment variables. Such a specification derives from interpretation of the union coverage variable as a proxy for the industry wage premium, $w - w^*$; multiplying coverage by employment and changes in employment should then proxy labor rents, R , and changes in R , respectively. Larger labor rents vulnerable to import competition, and actual losses in rents, should be associated with greater frequency of industry case filing.⁷ An alternative interpretation is simply that unions may be likely to demand and/or facilitate import protection activities in response to employment levels and changes in employment. Both the positive effects of employment levels and negative effects of employment change on LFV filings are likely to be enhanced by union coverage.

We also expect LFV filings to be inversely related to both levels of and changes in profitability. Industries with high or increasing price-cost margins are less likely to file since it is more difficult to show evidence of injury. Because much of the price-cost margin reflects returns to capital, it is important that we control for capital intensity. Capital intensive industries are more likely to be subject to dumping and to seek protection of the quasi-rents that make up the competitive returns to long-lived capital.

⁶ For evidence that *nonunion* wages increase with industry union coverage, see, among others, Freeman and Medoff (1981). Hirsch and Connolly (1987) present evidence suggesting that weak foreign competition (i.e., low import penetration) provides a source for union rents, while Macpherson and Stewart (1988) find larger union-nonunion wage differentials in industries with low import penetration. Freeman and Katz (1987) examine the responsiveness of union and nonunion wages and employment to changes in domestic demand, foreign demand, and import shares (sales constant). They find that wages in highly unionized industries exhibit *greater* responsiveness in the face of import competition than do industries with less extensive coverage (despite explicit wage contracts in the union sector) and correspondingly, employment exhibits less variation. Greater wage flexibility is made possible by the existence of previously created wage premiums; an erosion of those premiums moderates employment losses and reduces evidence supporting the case for trade-related injury.

⁷ We could have directly estimated union-nonunion wage differentials by 3-digit industry as a measure of rents. Because nonunion workers also receive higher wages in industries with high union coverage, however, industry-specific union-nonunion differentials understate the actual rents to workers in the industry resulting from unionization. Industry wages could be measured relative to opportunity cost wages outside the industry. But such a measure is likely to entangle rents with compensating differentials due to different worker quality and job amenities, since interindustry wage differentials can be sizable and are stable over time, even after accounting in detail for worker and industry characteristics (Dickens and Katz, 1987).

We expect industries with increases in import penetration to file a greater number of LFV cases. Yet it is not increased import competition per se that leads to case filings; rather, it is the *losses* associated with import competition and the expected benefits from protection. These losses are most likely to take the form of changes in employment and profits, which we explicitly account for in our statistical work.⁸ Changes in import penetration, however, should have some independent effect on filings since evidence on import trends is considered explicitly in the ITC's LFV case decision making process.

An additional consideration involves the degree of substitutability or complementarity between LFV filings and other forms of import protection. In order to account crudely for this possibility, we include a dummy variable measuring whether or not an industry had in effect during the period of study quantitative restraints (*QR*) such as voluntary export restraints (*VERs*), import quotas, orderly marketing agreements (*OMAs*), or tariff quotas. On the one hand, such quantitative restraints are a partial substitute for antidumping or countervailing duties, so an industry that has obtained a *QR* may be less likely to desire, pursue, or obtain protection through the LFV process. On the other hand, similar forces should lead firms and industries to seek import protection remedies, whether that protection takes the form of a *QR* or antidumping and countervailing duties. A *QR* variable, therefore, may be a proxy for otherwise unmeasured forces leading industries to seek all types of protection, suggesting a positive association between *QR* and LFV filings. The net effect of *QR* is uncertain.

Finally, we consider the proposition that industries more actively seek to *protect* existing rents (or quasi-rents) than to *create* new rents.⁹ Such a behavior pattern might be expected since fixed costs associated with capital, labor turnover, training, and the like make both expansion and contraction costly. Hence, firms may expend more to prevent a loss in business than they would to achieve an equivalent gain in business. Alternatively, asymmetrical behavior might be predicted from a non-maximizing model in which firms do not seek profit-enhancing rent creation activities as long as economic performance meets a satisfactory threshold level, but do seek to protect rents when they fall below that level.

⁸ We do not account directly for wage or earnings loss in our empirical work. In work not shown, we included variables measuring import penetration and the ratio of exports to domestic production. Neither variable was significant.

⁹ We thank Dennis Mueller for suggesting this point.

III. Data and Statistical Model

The dependent variable used for our statistical analysis, *CASES*, is the number of distinct or independent LFV cases filed by each of the 143 3-digit SIC manufacturing industries from 1980 through 1986, divided by the number of companies in the industry (measured in thousands). Out of a total of 738 actual cases involving manufactured products filed with the ITC and/or Commerce (283 countervailing duty cases filed with the ITC, 89 countervailing duty cases filed only with Commerce, and 366 antidumping cases) in the relevant time period, we determined 249 of these to represent independent actions. Table 1 provides the distribution of these cases by 2-digit SIC, without division by the number of companies. The measurement of LFV filing propensity per thousand companies provides a dependent variable that corresponds reasonably closely to the decision making units evaluating the benefits and costs of trade protection activities, although it is frequently trade groups or coalitions of companies that explicitly file for protection (we control for employment and the number of companies in an industry on the right-hand-side of our model).¹⁰

The determination of what constitutes an independent case was straightforward in certain instances, such as when the same product from the same country was cited in both an antidumping and countervailing duty case filed on the same date by the same domestic producer (or trade group). Similarly, cases filed on the same date by the same producers for the same product, but citing separate countries, clearly represent only one distinct rent-seeking action. Less obvious, but still regarded as a single case, were multiple cases filed on the same date by the same parties citing several closely related products. Finally, cases filed by the same parties involving the same products within a short period of time (less than 3 months) were also viewed as a single “case”.

Industry concentration, *CR*, represents the 4-firm concentration ratio in 1977, adjusted for regional markets and imports, and aggregated from the 4- to the 3-digit SIC level (Weiss and Pascoe, 1986, Table V-

¹⁰ In an earlier version of the paper, we defined *CASES* as the number of independent case filings, without dividing by the number of companies. Estimated effects of unionization were larger using this specification; other results were very similar to those presented here. SIC 331, Blast Furnaces and Basic Steel Products, accounts for 61 of the 249 cases. The industry with the next largest number of cases, SIC 281 (Industrial Inorganic Chemicals), has 11 filings. The magnitude of our estimated coefficients is affected by inclusion of SIC 331; however, qualitative results and *t*-ratios are relatively insensitive to our treatment of this observation (we experimented by setting cases at values between 12 and 61). For an analysis of U.S. trade policies in the steel industry, see Eichengreen and van der Ven (1985).

B). The variable *COMP* measure the natural logarithm of the number of companies recorded by the Bureau of the Census in the 1982 Census of Manufactures, aggregated to the 3-digit industry level. Annual 4-digit industry data on employment, shipments, capital, value added, and payroll were obtained from the Bureau of Economic Analysis Industry Profile tape and aggregated to the 3-digit level. The variable *K/S* represents the natural logarithm of an industry's 1980 dollar value of capital stock divided by shipments. We measure the level of employment, *EMP*, as the natural logarithm of number of workers in 1980, and the change in employment, *dEMP*, as the approximate annual percentage change in employment between 1978 and 1985, calculated by $(\log(EMP_{85})-\log(EMP_{78}))/7$. The price-cost margin, *PCM*, is measured by (Value Added-Payroll)/Shipments in 1980, and the average change in the margin, *dPCM*, is measured by $(PCM_{85}-PCM_{78})/7$. The average change in import penetration, *dIMPORT*, is measured by $(IMPORT_{85}-IMPORT_{78})/7$, where *IMPORT* is measured by Imports/(Shipments+Imports-Exports). The variable *UNION* represents the percentage of workers in an industry who were union members during 1979-1981.¹¹ The variable *QR*, which takes on a value of 1 for those industries operating under quantitative restraints during the period and 0 otherwise, is based on data presented in Bergsten et al. (1987, Appendix B).

Based on the discussion above, the following empirical relationship is expected:

$$(1) \quad CASES = C(CR, K/S, COMP, QR, UNION, EMP, dEMP, PCM, dPCM, dIMPORT),$$

where variables are as defined above and + and - signs represent the expected partial relationships. In addition to estimation of the above model, we examine a specification containing interaction terms *UNION · EMP* and *UNION · dEMP*, whose signs are expected to be positive and negative, respectively. Finally, we test the hypothesis that industries are more likely to seek trade protection as a means of protecting existing rents, rather than as a means of creating rents. Such a test is made by allowing and testing for differences in slope coefficients on the change variables – *dEMP*, *dPCM*, and *dIMPORT* – between industries with positive and negative changes for each variable over the 1978-1985 period.

¹¹ Union figures were calculated by Kokkelenberg and Sockell (1985) from the 1979-1981 Current Population Survey tapes. The CPS industrial classification codes differ from the SIC codes, but these can be matched fairly closely at the 3-digit level.

Because our dependent variable is a continuous variable bounded below by zero (43 percent of the industries have $CASES = 0$), we employ Tobit maximum likelihood estimation.¹² In the case of a censored dependent variable, OLS produces heteroskedastic errors and predicted values of the dependent variable can be negative. Tobit estimation assumes a continuous underlying relationship between the independent variables and the dependent variable, the latter which is unobserved in the event of corner solutions where $CASES = 0$. We also employ a analysis developed by McDonald and Moffitt (1980), which decomposes the effect of the right-hand-side variables on a dependent variable y into two components: changes in y among observations with positive cases, and changes in y due to movement from an unobserved index (i.e., $CASES = 0$) to an observed positive number of cases. McDonald and Moffitt (1980, 319) also show how to calculate $FRACTION(y^*)$, the fraction of the total effect due to changes in y among nonzero observations.

Both the total partial derivatives and $FRACTION(y^*)$ are of interest. If we are interested in how a change in an independent variable, X , affects the number of cases filed, than we would calculate $\partial E(CASES)/\partial X$. But we are also interested in the extent to which changes in the determinants of LFV filings have resulted in rent protection activity among industries that would otherwise have had no filings, and the extent to which changes in filings are the result of increased activity among industries beyond the threshold. $FRACTION(y^*)$ represents the fraction of the total response to the independent variables that involves changes in cases files by industries beyond the threshold, while $1-FRACTION(y^*)$ is the fraction of the response resulting from changes below the threshold.

IV. Empirical Results

Table 2 presents descriptive statistics and regression results for our basic model.¹³ Included are variable means and standard deviations, Tobit coefficient estimates and their standard errors, and partial

¹² A few broad-based filings were allocated across many industries. If the value of $CASES$ is set to zero for all industries with $CASES < 0.50$, then 52 percent of the industries have $CASES = 0$. Our statistical results were insensitive to this adjustment. Tobit estimation was conducted using TSP, Version 4.0I. Terry Seaks provided a generalized routine programming the McDonald-Moffitt Tobit decomposition.

¹³ At the suggestion of a referee, we also estimated our model using the Heckman-Lee two-step selectivity model (see Maddala, 1983). A probit equation was estimated in which the dependent variable took on values of zero or one depending on whether industry cases filed were zero or nonzero, the inverse Mills ratio (the ratio of the standard normal to the cumulative normal) was obtained for each observation, and a GLS equation was estimated for the 81 nonzero observations with the inverse Mills variable included to account for selectivity bias. Results from the final-

elasticities calculated at the sample means. Model (1) corresponds to the specification outlined in equation (1) above; model (2) is identical except it adds interactions of *UNION* with *EMP* and *dEMP*. Although we prefer model (2) on theoretical grounds, as previously discussed, the null hypothesis that *UNION* · *EMP* and *UNION* · *dEMP* have no joint effect on LFV cannot be rejected using the standard likelihood ratio test.¹⁴

LFV filings are found to be significantly higher in capital intensive industries. Such industries have the least flexibility in varying costs and production in response to demand changes and import competition. Long-lived capital provides the principal source of firm quasi-rents and these returns are particularly vulnerable to appropriation by labor (Baldwin, 1983; Grout, 1984). It is worth noting that the returns on long-lived capital are not principally monopoly profits; rather, they make up the normal return to investments in capital. The strong effect of *K/S* and the absence of a significant *CR* coefficient suggest that it is protection of these quasi rents, and not the pursuit of monopoly returns, that provides the incentive for a large number of LFV filings.¹⁵

We find a negative relationship between case filing intensity and the log of the number of companies in an industry, *COMP* (with industry employment held constant). This is consistent with the hypothesis that per company benefits from trade protection activities decrease, and organizing costs increase, with respect to the number of firms in an industry.¹⁶ The presence of quantitative restraints (*QR* = 1) is found to be associated with an expected probability of about 3 additional industry LFV filings per thousand companies, approximately double the sample mean. As discussed previously, a positive relationship between *CASES* and *QR* results if the presence of quantitative restraints is a good proxy for otherwise unmeasured determinants of LFV filings, and if substitutability between LFV actions and other

stage GLS were qualitatively identical to the Tobit results presented, the major difference being that the coefficients on the union variables were highly significant in the selectivity models (the selectivity variables were not significant).

¹⁴ We obtain a value of 3.51 for two times the change in the log likelihood function, which is distributed X^2 with 2 d.f. The critical X^2 values are 5.99 and 9.21 at the 0.05 and 0.01 levels, respectively.

¹⁵ The positive coefficient on *CR* results primarily because the number of companies in an industry, which is negatively correlated with *CR*, is in the denominator on the left-hand side. In specifications with alternative measures of the dependent variable, coefficients on *CR* were consistently negative, but remained insignificant. The absence of a significant positive relationship between *CASES* and *CR* may result because *CR* is only weakly related to above-normal returns and import vulnerability, because such factors are accounted for by other included variables, or because highly-concentrated industries may pursue protection through tracks other than LFV cases.

¹⁶ Measurement error in the number of companies by industry, although believed to be moderate, biases downward the coefficient on *COMP* since the number of companies is in the denominator on the left-hand side and in the numerator (in log form) on the right-hand side.

trade protection routes is limited. In work not shown, omission of the *QR* variable has little effect on the remaining coefficients.

Of particular interest is the relationship between employment, unionization, and LFV cases. The number of LFV cases is positively and significantly related to industry size (measured by the log of industry employment), *EMP*, and negatively and significantly related to changes in employment, measured by *dEMP*.¹⁷ The positive relationship with *EMP* (holding constant the number of companies) represents the existence of greater potential injury in industries with large employment, and more favorable benefit-cost ratios for trade protection activity among larger firms. Changes in employment are a more direct measure of actual losses in labor rents, and are a close proxy for changes in shipments. The finding that LFV cases increase in response to declines in employment results both because of losses associated with import competition, and because employment losses provide direct evidence of injury, which improves the chances for a favorable decision by the ITC on an LFV filing.

The number of LFV cases is positively related in model (1) to the extent of industry unionization, but this relationship is not statistically significant. Table 2 also presents estimates for model (2), in which interaction variables *UNION · EMP* and *UNION · dEMP*, intended to proxy the level of and changes in labor rents, are included in the model. Although the significance levels associated with these variables are low, the positive coefficient on *UNION · EMP* and negative coefficient on *UNION · dEMP* are consistent with our interpretation of the LFV decision process. LFV filings are most likely where labor rents and losses in rents are largest and unionization increases the responsiveness of industry filings to both employment levels and changes in employment. The greater responsiveness of highly unionized industries to employment and changes in employment may represent the larger rents associated with labor in such industries and the greater difficulty of unionized firms in adjusting to changes in production levels. Comparison of results between the two models indicates that union effects on LFV filing decisions, if they exist, occur primarily in conjunction with employment changes – unionization increases filings primarily in industries with employment losses.

¹⁷ In work not shown, variables measuring the level and changes in *shipments* perform similarly to the employment variables.

Profitability turns out to be a less important determinant of LFV case filings than anticipated. Industries with low price-cost margins in 1980 are more likely to have brought cases between 1980 and 1986, although the coefficient on PCM_{80} is only marginally significant. Contrary to our expectations, industries with declining margins, if anything, are less likely to have brought cases. On the other hand, industries facing increasing import penetration are found to be more likely to bring LFV cases, even after accounting for changes in employment and profit margins. This relationship is likely to reflect the greater ability of such industries to demonstrate trade-related injury during the case evaluation process.¹⁸

In order to test the hypothesis of an asymmetrical response of case filings to changes in employment, profits, and imports, we estimated models allowing different slope coefficients with respect to these change variables, depending on whether their values were increasing or decreasing. In each of these cases, the coefficient on the interaction variable testing for a difference in slope was insignificant and very close to zero (the three interaction terms were entered both separately and jointly). Thus, we find no evidence of an asymmetric response. Industry LFV filings decrease just as much in response to, say, an increase in employment as they increase in response to an equal proportional employment decrease.

Finally, we calculate $FRACTION(y^*)$, which represents the fraction of the total response of *CASES* to the explanatory variables due to response by industries once they have reached the threshold (i.e., a positive number of filings).¹⁹ The fraction is equal to 0.31 and 0.32 for models 1 and 2, respectively. This indicates that much of the response takes place below the threshold; changes in the explanatory variables result in industries choosing to file or not to file, and not just in changes in the numbers of cases among already-filing industries. An implication of this result is that liberalization of the LFV complaint process, such as that which occurred in the Trade Act of 1979, not only increases rent seeking among companies and industries already engaged in trade protection activity, but also significantly increases the number engaging in such activity.

¹⁸ Surprisingly, we find the simple correlations of *CASES* with both *IMPORT* and the level of import penetration in 1980 to be close to zero.

¹⁹ The McDonald-Moffitt decomposition is sensitive to the degree of aggregation – the more aggregated the data, the fewer the number of zero observations and the greater the fraction of total response above the threshold. Thus, $FRACTION(y^*)$ would be even lower if the level of aggregation were the 4-digit level.

V. Conclusions

In this paper we have argued that the willingness to protect or create rents through the filing of LFV cases should be related to the costs and benefits of such activity. Specifically, firms with large monopoly rents accruing to owners through market power or to labor from union power should be vulnerable to foreign competition and have the greatest incentive to protect those rents through the political process. Similarly, companies with large stocks of long-lived capital or quasi-fixed labor may have little ability to vary production and lower costs in the face of demand declines, while the quasi-rents accruing to capital and labor may be particularly vulnerable.

Our results are largely supportive of the rent-protection model. Firms in capital-intensive industries with large employment, particularly those with employment losses and rising import shares, are most likely to file LFV cases. We believe these are the companies with the largest quasi-rents and which benefit most from the protection offered by the political process. We find only weak evidence of a relationship of LFV filings with industry profitability and concentration. Although filings from highly unionized industries exhibit greater sensitivity to employment levels and changes, the overall union effect cannot be estimated with precision. Gains and losses accruing to labor are clearly important but, at the industry level, appear to be proxied closely by changes in employment, independent of the extent of union coverage. The finding that trade protection activity is weakly related to industry concentration and union coverage while closely related to capital intensity and employment changes, supports the proposition that it is the protection of quasi-rents accruing to capital and labor, rather than monopoly rents, that provides the major impetus behind much U.S. trade protection activity.

References

- Abowd, John M., "Collective Bargaining and the Division of the Value of the Enterprise," National Bureau of Economic Research Working Paper No. 2137, January 1987.
- Baldwin, Carliss Y., "Productivity and Labor Unions: An Application of the Theory of Self-Enforcing Contracts," *Journal of Business*, Vol. 56 (April 1983), pp. 155-85.
- Baldwin, Robert E., *The Political Economy of U.S. Import Policy* (Cambridge: MIT Press, 1985).
- Becker, Gary S., "A Theory of Competition Among Pressure Groups for Political Influence," *Quarterly Journal of Economics*, Vol. 98 (August 1983), pp. 371-400.
- Bergsten, C. Fred, Kimberly Ann Elliott, Jeffrey J. Schott, and Wendy E. Takacs, *Auction Quotas and United States Trade Policy* (Washington: Institute for International Economics, September 1987).
- Boltuck, Richard, "Creative Statistics: Biases in the Commerce Department's Calculation of Dumping Margins," paper delivered at the Western Economic Association meetings, Vancouver, Canada, July 1987.
- Dickens, William T. and Lawrence F. Katz, "Inter-Industry Wage Differences and Theories of Wage Determination," in Kevin Lang and Jonathan Leonard, eds., *Unemployment and the Structure of Labor Markets* (New York: Basil Blackwell, 1987), pp. 48-89.
- Dickey, William L., "The Pricing of Imports into the United States," *Journal of World Trade Law*, Vol. 13 (May/June 1979), pp. 238-56.
- Eichengreen, Barry, and Hans van der Ven, "U.S. Antidumping Policies: The Case of Steel," in Robert E. Baldwin and Anne O. Krueger, eds., *The Structure and Evolution of Recent U.S. Trade Policy* (Chicago: University of Chicago Press, 1984).
- Finger, J.M., "The Industry-Country Incidence of 'Less than Fair Value' Cases in the US Import Trade," *Quarterly Review of Economics and Business*, Vol. 21 (Summer 1981), pp. 260-79.
- _____, H. Keith Hall, and Douglas R. Nelson, "The Political Economy of Administered Protection," *American Economic Review*, Vol. 72 (June 1982), pp. 452-66.
- Freeman, Richard B., and Lawrence F. Katz, "Industrial Wage and Employment Determination in an Open Economy," Harvard University, September 1987.
- Freeman, Richard B., and James L. Medoff, "The Impact of the Percent Organized on Union and Nonunion Wages," *Review of Economics and Statistics*, Vol. 63 (November 1981), pp. 561-72.
- Grout, Paul A., "Investment and Wages in the Absence of Binding Contracts: A Nash Bargaining Approach," *Econometrica*, Vol. 52 (March 1984), pp. 449-60.
- Hartigan, James C., Philip R. Perry, and Sreenivas Kamma, "The Value of Administered Protection: A Capital Market Approach," *Review of Economics and Statistics*, Vol. 68 (November 1986), pp. 610-17.

- Herander, Mark G. and J. Brad Schwartz, "An Empirical Test of the Impact of the Threat of U.S. Trade Policy: The Case of Antidumping Duties," *Southern Economic Journal*, Vol. 51 (July 1984), pp. 59-79.
- Hirsch, Barry T., and Robert A. Connolly, "Do Unions Capture Monopoly Profits?" *Industrial and Labor Relations Review*, Vol. 41 (October 1987), pp. 118-36.
- Kokkelenberg, Edward C, and Donna R. Sockell, "Union Membership in the United States, 1973-1981," *Industrial and Labor Relations Review*, Vol. 38 (July 1985), pp. 497-543.
- McDonald, John F., and Robert A. Moffitt, "The Uses of Tobit Analysis," *Review of Economics and Statistics*, Vol. 62 (May 1980), pp. 318-21.
- Macpherson, David A. and James B. Stewart, "The Effect of International Competition on Union and Nonunion Wages," Miami University, March 1988.
- Maddala, G. S., *Limited-Dependent and Qualitative Variables in Econometrics* (Cambridge, England: Cambridge University Press, 1983).
- Marvel, Howard P. and Edward J. Ray, "The Kennedy Round: Evidence on the Regulation of International Trade in the United States," *American Economic Review*, Vol. 73 (March 1983), pp. 190-97.
- Olson, Mancur, *The Logic of Collective Action: Public Goods and the Theory of Groups* (Cambridge, Mass.: Harvard University Press, 1965).
- _____, "The Political Economy of Comparative Growth Rates," in D.C. Mueller, ed., *The Political Economy of Growth* (New Haven: Yale University Press, 1983).
- Ray, Edward J., "The Determinants of Tariff and Nontariff Trade Restrictions in the U.S.," *Journal of Political Economy*, Vol. 89 (February 1981), pp. 105-21.
- _____, "The Impact of Special Interests on Preferential Tariff Concessions by the United States," *Review of Economics and Statistics*, Vol. 69 (May 1987), pp. 187-93.
- Takacs, Wendy E., "Pressures for Protectionism: An Empirical Analysis," *Economic Inquiry*, Vol. 19 (October 1981), pp. 687-93.
- Weiss, Leonard W., and George A. Pascoe, Jr., *Adjusted Concentration Ratios in Manufacturing, 1972 and 1977*, Statistical Report of the Bureau of Economics (Washington: Federal Trade Commission, June 1986).

Table 1
Distribution of cases by 2-digit SIC.

SIC	Industry group	Number of cases
20	Food & Kindred Products	31
21	Tobacco Manufactures	0
22	Textile Mill Products	13
23	Apparel & Other Finished Textile Products	2
24	Lumber & Wood Products	2
25	Furniture & Fixtures	1
26	Paper & Allied Products	3
27	Printing, Publishing, & Allied Industries	1
28	Chemicals & Allied Products	33
29	Products of Petroleum & Coal	2
30	Rubber Products	10
31	Leather & Leather Products	2
32	Stone, Clay, & Glass Products	11
33	Primary Metal Industries	73
34	Fabricated Metal Industries	27
35	Machinery, Except Electrical	9
36	Electrical Machinery	14
37	Transportation Equipment	9
38	Instruments & Related Products	1
39	Misc. Manufacturing Industries	5

Where final action is still pending, figures include affirmative preliminary decisions. Overall, 49 percent of the cases produced some affirmative results (some of these represented countervailing duty findings by Commerce against non-signatory countries, rather than decisions by the ITC).

Table 2
Tobit estimation results.^a

Variable	Mean	s.d.	Model 1			Model 2		
			Coefficient	Standard error	Partial deriv.	Coefficient	Standard error	Partial deriv.
Constant	1.000	–	-0.595	–	–	13.176	–	–
<i>CR</i>	36.420	18.641	0.049	0.057	0.020	0.054	0.056	0.023
<i>K/S</i>	-1.503	0.525	7.978	2.201	3.298	8.330	2.148	3.512
<i>COMP</i>	6.778	1.507	-2.075	1.138	-0.858	-2.018	1.115	-0.851
<i>QR</i>	0.126	0.333	7.124	2.847	2.945	6.705	2.799	2.827
<i>UNION</i>	33.361	16.414	0.057	0.067	0.024	-0.261	0.277	-0.110
<i>EMP</i>	4.360	1.191	5.225	1.400	2.160	3.220	2.514	1.357
<i>dEMP</i>	-0.024	0.036	-92.667	36.696	-38.304	18.348	68.602	7.735
<i>PCM</i>	0.278	0.084	-24.771	15.825	-10.239	-28.529	15.669	-12.027
<i>dPCM</i>	0.001	0.006	123.772	173.198	51.162	170.197	177.148	71.748
<i>dIMPORT</i>	0.662	1.037	2.417	1.281	0.999	2.681	1.296	1.130
<i>UNION · EMP</i>	145.355	84.297	–	–	–	0.047	0.056	0.020
<i>UNION · dEMP</i>	-0.878	1.545	–	–	–	-2.834	1.536	-1.195
Log likelihood function				-329.586				
<i>FRACTION</i> (y*)				0.318				
N				143				

^aMean of *CASES* (LFV filings per thousand companies) is 2.859. *K/S*, *COMP*, *EMP*, and *dEMP* are in logarithmic form. All variables defined in text.