

Equity Concern and the Political Economy of Protection in New Zealand

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Abstract: A number of empirical models have found protection to be greatest for industries employing poorly skilled, low paid workers. This has caused some economists, notably Robert Baldwin, to suggest that 'equity concern' by politicians is an alternative to the interest group hypothesis. This paper reports the result of a test on New Zealand data that shows that this equity concern is absent for industries with few employees or firms. Equity concern variables were only important for industries with many employees and firms. This suggests that equity concern is selective and may be reconcilable with self-interest motivations.

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1. Introduction

A number of empirical models have found protection to be greatest for industries employing poorly skilled, low paid workers. The hypothesis that government assists industries to protect low income workers was suggested by Fieleke (1976), Helleiner (1977) and Baldwin (1984a, 1985, 1989). Models setting out to test other hypotheses about industry assistance also support this hypothesis. Some of these models have found statistically significant results for average wages (Anderson, 1980; Tharakan, 1980), or skill levels (Cable and Rebelo, 1980; Ray, 1981a&b). An important implication is that self-interest appears inadequate as an explanation of why politicians favour these economically vulnerable workers, who are presumed to be poorly equipped for political action (Baldwin, 1985). Lavergne (1983) suggests that this is evidence that society does not expect, nor get, selfish behaviour in public affairs.

One problem with this 'equity concern' hypothesis is that it is not linked to an explicit model of trade and protection. The Stolper-Samuelson theorem is not the usual theoretical base for empirical studies in the political economy of protection, because these studies look at inter-industry variations.

One reason for this is Magee's (1980) finding that labour and capital from the same industry often adopt the same position on questions of protection. Still, it is not clear that poorly skilled workers will be major gainers from protection in a specific-factors model of international trade. The sector-specific human capital - the threatened loss of which motivates workers to align themselves with capitalists (see Baldwin, 1984b) - is likely to be held by skilled workers. Therefore the gains to unskilled labour will be low. The industries where this equity concern protection is strongest - textiles, clothing and footwear - not only pay low wages, they also have few entry barriers. If protection is successful at restricting foreign competition, new domestic producers will start up, eroding any gains to incumbent, unskilled workers.¹

Despite these theoretical problems the hypothesis has considerable empirical support. This paper attempts to reconcile that robust econometric evidence with a self-interest theory of political behaviour using data on manufacturing industry protection in New Zealand. Two reasons make this an interesting country to study. Comprehensive import protection remained in place during the post-war period of trade liberalisation, and has only recently begun to be removed, just when other countries are embarking upon 'the new protectionism' of managed trade.¹ The second reason is that New Zealand (and Australia) were somewhat distinct amongst small, developed economies, in using manufacturing protection (and centralised wage regulation) as a key component of the 'social wage' (Castles, 1988). Therefore, New Zealand provides a good example of a political economy of protection where these 'equity concern' effects should be apparent.

The econometric results suggest that wages and skill levels were more important determinants of protection for industries employing many workers or having many firms. This implies that the equity concern effect is not about helping economically weak members of society *per se*; they have to be individually vulnerable *but* collectively important in the sense of forming a large and recognisable group.³ This numbers sensitivity of protection for low wage industries may be due to vote catching by politicians (Caves, 1976) or maximisation of a 'conservative social welfare function' (Corden, 1974). The second alternative I suggest, which may be more specific to New Zealand, is that employing lots of low-wage labour was a favourable attribute for self-interested capitalists lobbying for protection. This attribute increased their probability of gaining protection. Thus politicians may have behaved ideologically or altruistically (see Kalt and Zupan, 1984 for reasons why this assumption may be appropriate)⁴ but equity concern was a byproduct of traditional lobbying by manufacturers.

The next section discusses the hypothesis test that generates these speculations. The following section concludes.

2. The Model

The hypothesis was tested by comparing the coefficients on equity concern variables estimated over the full sample of industries, with estimates from sub-samples. The econometric model was derived from a more general model used by Gibson and Lattimore (1991) to embed four competing hypotheses: (1) Caves' (1976) *adding machine*, (2) the *interest group*, (3) the *equity concern*, and (4) the *national policy* of Caves (1976) and Lundberg (1981). The variables used to measure susceptibility to equity concern were labour intensity, average wage, and worker education levels. The first measured the extent to which protecting an industry would have an impact on labour. The second and third measured the economic vulnerability of the labour force in a particular industry. Although only interested in these three equity concern variables, a restricted model with only three regressors is likely to suffer from omitted variable bias. Therefore the most statistically significant of the other variables in the general model were also used. These were export intensity, transport costs, industry growth rate, and firm numbers per industry. Details of the relevant variables are presented in the Appendix.

Table 1 presents results of the model estimated over the full sample. The equity concern variables all have the expected negative sign and as a group are statistically significant at the 5% confidence level. Low paying, labour intensive industries employing poorly skilled workers had higher rates of

protection. Amongst the control variables (whose behaviour is of less interest) three had the sign predicted by the interest group hypothesis. Export industries fare poorly because protecting them has fiscal costs rather than benefits, and invites foreign retaliation (Anderson, 1980). Export intensity also controls for industry comparative advantage, removing a potential ambiguity from the equity concern variables. Industries with bulky products have 'natural protection' so are less strident demanders of tariffs and quotas (Caves, 1976). Factor owners in low-growth industries demand protection to increase their rewards (Baldwin, 1985).

The unusual result is for firm numbers. The most protected industries in New Zealand were those with many firms. This has previously only been found in nineteenth century U.S. manufacturing (Pincus, 1975) and suggests that inter-industry variation in the extent of free-rider problems was less of a determinant of protection in New Zealand than elsewhere. There are three plausible reasons why free-rider problems may have been less important in New Zealand. First, price controls were prevalent and forced firms to group together (and indeed to share cost information) in petitioning for price increases. Second, industry lobby groups were dealing with more manageable numbers than often occur overseas; the mean number of firms per industry was only 60. Finally, the use of administered protection (import quotas and tariff concessions) may have set up private incentives for individual firms to lobby. Visiting Wellington would be a highly worthwhile activity if a firm could increase its import licence allocation for some input, or argue for refusing a licence or tariff concession for an import that was a close substitute for its own product. This probably increased the investment that individuals made in rent-seeking, so the more firms, the more potential lobbyists, who in advancing private causes, also increased the assistance to the industry as a whole.

In the absence of these free-rider problems, industries with more firms had more contact points with politicians, especially in a small personal society like New Zealand. More was therefore better in the protection-seeking contests. An alternative argument - applicable to all studies of concentration and protection - is provided by Dougan (1984): small concentrated groups of producers face more elastic demand than do larger groups, which include producers of close substitutes. The ability to organise for collective action is of no help for the small group because, facing an elastic demand curve, price increases produce revenue decreases. If this is true, the model is misspecified by not including demand elasticities for each industry. Such data is simply unavailable. This weakness of the results should be noted, although firm numbers do enter the model only as a control.

The relationship between equity concern variables and industry assistance was further examined by ranking all industries in the sample from (i) smallest workforce to largest, and (ii) fewest firms to

most. The sample was then split in two and the model was reestimated over each sub-sample (Table 1). A similar pattern is apparent for both ranking variables, although results are clearer for firm numbers. The model as a whole did not explain the pattern of protection for small workforce or few firm industries as well as it explained the pattern for other industries. Most of this reduction in explanatory power was due to the equity concern variables. Table 2 presents results of the hypothesis test that either the equity concern, or the control variables were jointly zero. This hypothesis was rejected for the control variables in all sub-samples, but it was not rejected for the equity concern variables in the few firm and small workforce sub-samples. It appears that equity concern effects were less apparent for these industries (the one exception is skill levels in small workforce industries).

When the model was estimated over sub-samples, coefficient estimates often diverged from their full-sample value. This suggests a different causal structure for protection in small versus large industries. To test whether these differences in coefficient values were statistically significant a semi-restricted model was estimated where groups of coefficients (either the equity concern, or the controls) were set equal to their full sample estimates, leaving the other coefficients free to vary. The residual sum of squares from this model was compared with the residual sum of squares from a fully unrestricted model (all coefficients could vary). This test, which is described in detail by Johnston (1984: 219), showed that the greatest change was for the equity concern variables. Test results in Table 2 show that the sub-sample coefficient estimates were significantly different at the 7% confidence level (firm numbers) or the 1% confidence level (employment).⁵ Sub-sample equality of coefficients on the control variables could not be rejected at conventional significance levels. Furthermore, the equity concern variables often changed signs in sub-samples, suggesting that the full-sample estimates relied on inappropriate pooling assumptions.

It is instructive to consider the coefficient on average wage, which is the most robust equity concern variable in previous studies. Across the whole sample, the elasticity of assistance rates with respect to average wage is -0.51. However this relationship does not hold for industries with few firms (employees) where the elasticity is +0.15 (+0.88). Instead, the full-sample elasticity is the average of this positive elasticity, and a negative elasticity, as predicted, for industries with a large number of firms (employees), -1.53 (-1.14). It is important to note that this instability of equity concern effects occurs in a model with the ranking variable as a regressor. Adding industry employment to the control variables does not alter the instability in equity concern effects. The evidence of a different structure for many firm (employee) versus few firm (employee) industries is not due to some excluded variable bias. Instead, it suggests that previous equity concern models, which may have

had employment or firm numbers only as additive regressors, will not have discovered this interaction effect.

Turning now to the implications of this interaction effect, what does it indicate about equity concerns?

At the very least that they are numbers sensitive. There may be a supply side phenomenon in the sense that larger workforces have call on more resources for lobbying, especially if political influence has increasing returns to scale. However, the craft-based (and compulsory) unionism in New Zealand tended to cut across industry employment leading to greater coordination problems for large workforces contemplating tariff lobbying. Another possibility is that politicians were concerned about the adverse publicity from large industrial closures so they protected import-threatened industries only if they were large in employment terms.

A further possibility is that, rather than resulting from a bargain between labour groups and politicians, the interaction effect was generated by capitalists as the primary lobby group. In the presence of industry-specific capital, industrialists face large individual losses from import competition. They would therefore seek to maximise their probability of gaining protection. If politicians were predisposed toward favouring economically vulnerable groups, which is plausible in a welfare state society like New Zealand, then industrialists employing lots of poorly skilled, low wage labour would be more likely to gain protection. In this case it would be a favourable 'attribute' to employ these economically vulnerable workers.⁶ Industries with more firms had more contact points with politicians and used these contacts to lobby for protection by invoking the image of their vulnerable workers who would suffer unless import restrictions continued.

3. Conclusions

Equity concern effects were limited to a subset of industries in New Zealand. Average wage is only an important determinant of protection for industries with large workforces. In the New Zealand political economy, industries with more firms were favoured; these were also the industries where equity concern variables were most significant. A plausible explanation is that politicians are not interested in equity concern for workers in all industries. They are concerned when individual industries have significantly large workforces, and/or large number of firms. In the later case, capitalists in New Zealand may have used the 'attribute' of employing economically vulnerable workers, to gain favourable outcomes in protection-seeking. This explanation is also consistent with the specific factors model of trade and protection; capitalists definitely owned industry specific factors so they had an incentive to lobby. The ambiguous gains to unskilled workers, which creates some doubts about previous explanations of equity concern effects, is not as problematic for this

explanation.

Finally, the test for interaction effects is easily carried out and may perhaps be profitably applied to previous data sets that have been used to support the equity concern hypothesis. There are enough unusual aspects of the New Zealand political economy of protection to preclude strong claims until the effect is substantiated. However, if this numbers sensitivity of equity concern variables is replicated, it may go some way toward reconciling currently competing explanations for the pattern of protection.

Endnotes

1. Also tending to perpetuate the demand for protection given the low profitability and low wages of the industry. See Aggarwal, Keohane, and Yoffie (1987).

2. This longer continuous history of protectionism increases the danger of endogeneity affecting inferences *viz* an inverse association between industry protection and wages may reflect reverse causality (protection-induced inefficiencies leading to lower wages). For the important cases of clothing, woollen mills and footwear, this does not seem to be the case. The average wage in these three industries, prior to import licensing, was 63% of the all industry average.

3. This finding is intuitively obvious because the most economically vulnerable group in society may well be low-income consumers, who are made worse off by industry protection policies. Their problem is not one of group size, but of recognisability; they are a much more diffuse group than the set of poorly-skilled workers in low wage industries. As a result, protection policies would be expected to be biased against them (Olson, 1965).

4. Ideological behaviour is even more likely in New Zealand than in the United States due to the presence of two major class-based political parties, and the strong party discipline which considerably restricted the freedom of individual legislators.

5. One *caveat* with the use of this test is the maintained hypothesis that the error variances are equal across the two samples. If this is not the case, the nominal hypothesis test size understates the true probability of making a Type I error (giving a false appearance of a structural break). A test for the equality for both coefficients and variances (Pesaran, Smith and Yeo, 1985) rejected this joint null at the 10% confidence level.

6. This doesn't mean that they would alter their cost-minimising inputs to manipulate this 'attribute'. It simply recognises that employing unskilled labour would give them an advantage over their rent-seeking competition. See Esty and Caves (1983) for a theory of interest group activity which has capitalists attempting to inform politicians of their industry attributes, in the expectation that politicians will respond in suitably protective ways.

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Table 1. Results for control and equity concern variables in full and sub-samples^a

	-- Ranking Variable --				
	Full Sample N=94	Number of Firms		Workforce Size	
		Few N=47	Many N=47	Small N=47	Large N=47
Labour intensity	-0.749 (0.678)	-0.764 (0.881)	-1.343 (1.176)	-0.462 (0.884)	1.304 (1.179)
Average wage	-0.042 (0.028)	0.012 (0.040)	-0.134 (0.037)	0.074 (0.048)	-0.092 (0.033)
Workforce skill level	-1.326 (0.822)	-1.440 (1.354)	-1.400 (0.966)	-3.506 (1.469)	-0.792 (0.859)
.....					
Export intensity	-0.425 (0.095)	-0.420 (0.117)	-1.351 (0.362)	-0.402 (0.112)	-0.833 (0.233)
Transport costs	-1.525 (0.513)	-1.421 (0.801)	-1.822 (0.636)	-2.167 (0.696)	-2.151 (0.855)
Growth rate	-0.647 (0.226)	-0.552 (0.300)	-0.182 (0.406)	-0.309 (0.326)	-0.606 (0.315)
Firms per industry	1.673 (0.836)	11.912 (15.736)	1.174 (0.785)	11.021 (5.436)	0.881 (0.757)
Constant	1.286	0.508	2.950	0.511	0.563
R ²	0.35	0.31	0.57	0.39	0.60
Residual sum of squares	37.62	21.89	10.49	20.80	9.48

^aDependent variable is the effective rate of assistance in 1981/82. () = standard error.

Table 2. Hypothesis tests on the models.

	Full Sample	-- Ranking Variable --			
		Number of Firms		Workforce Size	
		Few	Many	Small	Large
Equity Concern Variables Jointly Zero (χ^2 3 df)	7.90	1.75	22.05	6.83	15.47
Control Variables Jointly Zero (χ^2 4 df)	37.82	16.57	27.40	23.02	26.06
<i>Equal Coefficients in Full and Sub-samples</i>					
Equity Concern Variables $F_{(3,78)}$		2.50		4.08	
Control Variables $F_{(4,78)}$		1.27		2.11	

Appendix One

Industry Sample, Transformations and Sources of the Data

The New Zealand Standard Industrial Classification was used at a 5-digit level. At this level the 1981/82 population of industries was 132. Eleven 'industries' (so classified) were deleted because they were combinations of two or more confidential industries. Fifteen industries were deleted because they were residual categories ('not elsewhere classified') so did not correspond to any particular product market. Eleven other industries were deleted because the measures of assistance were unreliable, as they were only based on a small sample of industry inputs and outputs. One industry was deleted as an outlier (following tests set out in Belsey, Kuh and Welsch, 1980); its effective rate of assistance was 25 times higher than the second most assisted industry.

The dependent variable was the effective rate of assistance (Syntec, 1988). This measured the net protective effect of tariffs on inputs and outputs, import quotas (measured using the minimum winning bids in a tendering scheme used to eliminate quota protection), and industry level subsidies.

Initial models had residuals which were non-normal (Jarque and Bera, 1987) and heteroscedastic (Breusch and Pagan, 1979). The reason appeared to be the distribution of the effective rate of assistance, which was non-normal. The dependent variable was log transformed to induce normality and homoscedasticity of residuals. A Box-Cox test for functional form indicated that this log transformation was appropriate. As some industries had negative effective rates of assistance, a small constant (0.25) was added to all observations to allow logarithms to be defined; this constant only affects the intercept term.

Labour intensity was defined as wage bill divided by value added. Data for these variables, firm numbers, growth rate (employment based) and average wage, came from the *1981-2 Census of Manufacturing*, Department of Statistics, Wellington, New Zealand.

Workforce skill level was measured by the proportion of the workforce with education beyond Form Five (year 11) of high school, which is when many terminate schooling. Data was supplied from unpublished tables of the *1981 Census of Population*, Department of Statistics, Christchurch, New Zealand.

Transport costs were defined as the difference between c.i.f. and f.o.b. values of imports, relative to f.o.b. prices. This data was provided in source material for Syntec (1988).