

UNIVERSITY OF CALIFORNIA, SAN DIEGO

Choosing Conflict: Explaining the Form of Redistributive Policies

**A dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Philosophy**

in

Political Science

by

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2005

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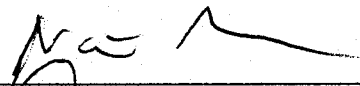
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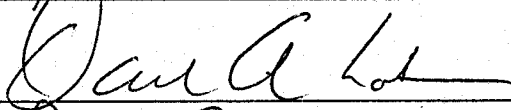
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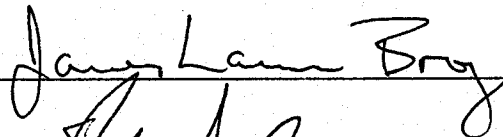
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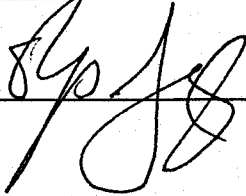
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ACKNOWLEDGMENTS

I am grateful for all of the support, advice, and encouragement I have received during the course of this project and my graduate career. I am especially grateful to Steph Haggard and Lawrence Broz both of whom provided me with excellent guidance and advice while writing this dissertation. Their insights profoundly shaped this research and undoubtedly made it better than it could have possibly been without their involvement. I am also grateful to David Lake who taught me what it meant to be a political scientist and more importantly how to think like one.

At UCSD, I have also benefited from insightful feedback and ongoing encouragement from Neal Beck, Kristian Gleditsch, Peter Gourevitch, Gordon Hanson, Michael Hiscox, Phil Roeder, and Jessica Wallack.

At the University of Rochester, I was very fortunate to have two excellent mentors, Jim Johnson and Randy Stone. Without their encouragement, I would not be a political scientist today.

I owe a very special thanks to Shane Martin. Shane provided never-ending support and boundless encouragement throughout my entire graduate career and without him I almost certainly would not have made it through to the end.

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ABSTRACT OF THE DISSERTATION

Choosing Conflict: Explaining the Form of Redistributive Policies

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Doctor of Philosophy in Political Science

University of California, San Diego, 2005

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Although virtually every government redistributes wealth for electoral purposes, the level and form of such transfers vary dramatically across countries. In some countries, redistribution is primarily broad in nature with benefits going to large segments of the population without mediation by industry or region. In other countries, redistribution is targeted to narrow segments of the population. This dissertation offers an explanation for the observed and previously unexplained differences in transfer form across countries based on the level of domestic labor specificity.

Domestic preferences over transfer form vary systematically with the costs of moving between uses in a given economy. Workers for whom it is prohibitively costly to move to a new use prefer narrowly targeted transfers designed specifically to benefit their current industry. In contrast, mobile workers who can move easily between uses prefer broadly targeted transfers from which they can benefit regardless of where they are employed in the economy. As a result, politicians in countries with relatively immobile

labor forces will tend to provide more narrowly targeted transfers than broad. Cross-national variance in transfer form can therefore be explained by variance in domestic demands for narrow transfers stemming from the costs of adjustment.

I test this theory using quantitative measures of labor mobility for over 50 countries from 1970 to 1999. Three different measures of transfer form are used including subsidies, tariffs and international disputes over narrow transfers. The results of the statistical estimations provide strong support for the theory.

Chapter 1: Introduction

Although virtually every government redistributes wealth for electoral purposes, the level and form of such transfers vary dramatically across countries. In some countries, redistribution is targeted primarily to broad segments of the population. For example, transfers in Germany and New Zealand generally provide benefits to large segments of the population without mediation by sector or industry. In contrast, other countries provide transfers primarily to narrow segments of the population. Countries like Spain, France and the United Kingdom use industry-specific subsidies, tax breaks and trade protections to target benefits to select voters. This dissertation offers an explanation for the cross-national differences in transfer form based on variance in domestic preferences. Domestic preferences over narrow transfers vary systematically with the costs of moving assets like labor and capital between uses in the domestic economy.

A wide range of policies can be used by governments to redistribute wealth for electoral purposes. Examples of such policies include tax breaks, low-interest loans, trade protection, and regulation. These policies can be used to target benefits broadly or more narrowly. A country's portfolio of redistributive policies generally includes some policies that provide broad benefits to large segments of the population and others that provide narrowly targeted benefits. Broad transfers are defined here as benefits that are made available to citizens without reference to industry. Broad transfers allocate benefits more or less automatically on the basis of broad, objective

and well-publicized criteria.¹ Such programs affect large groups of individuals who share general attributes. An example of a broad transfer is pensions that are made available to all persons of a certain age, regardless of their previous occupation or industry of employment.² In contrast, narrow transfers are provided to only small segments of the population. Qualifying criteria for narrow transfers often refer explicitly to employment in a particular industry, firm or occupation. Narrow transfers coincide with the rents described in the rent-seeking literature.³

Although a country's portfolio of redistributive policies generally contains both broad and narrow transfers, the portfolio is often heavily weighted towards one type of transfer. For example, the United Kingdom's portfolio of redistributive policies during the late 1960s and early 1970s was heavily weighted towards narrow transfers. The government's economic philosophy during this period, outlined in the Industry Act of 1972 and the Industry Strategy of 1975, was that the factors inhibiting growth varied from industry to industry.⁴ As a result, it was thought that transfers were best provided to individual industries rather than through broad programs. During this period, British governments chose to provide generous narrow transfers and implemented policies whose explicit objectives were to provide narrowly targeted benefits to individual industries and firms.

¹ Verdier 1995.

² It is possible that broad transfers may go to narrowly defined groups in practice. For example, unemployment benefits although available to any unemployed person in practice may go workers in a certain sector because of increased volatility in that sector. This however does not change the fact that the benefit is in theory available without mediation by sector, industry or occupation.

³ Haggard and McCubbins 2001.

⁴ Sharp and Shepherd 1987.

In contrast, Germany's portfolio of redistributive policies was weighted heavily towards broad transfers during this period. Redistributive policies provided broad transfers to all industries in the manufacturing sector rather than select industries.⁵ Narrow, industry-specific transfers were infrequent. In fact, Germany routinely refused to provide transfers to individual firms or industries.⁶ In 1979, the government stated that, "The Federal Government will resist such requests [for industry-specific aid] in the interest of consumers and of competitors and in particular in order to ensure the lasting efficiency of the whole economy and a high level of employment."⁷

Instead of providing narrow transfers, Germany focused on building a comprehensive framework of broad redistributive and protective measures, called the *Soziale Marktwirtschaft*. From the early 1960s to the early 1980s, old-age pensions rose by about 10 percent to roughly 65 percent of incomes and unemployment compensation increased to 68 percent of earnings.⁸ Additional broad benefits introduced in Germany during this period included a guaranteed minimum income and subsidized health care, heating and housing.

Cross-national variance in governments' preferred form of transfers can be observed in their responses to increased international competition. During the 1970s, European producers of machine tools, including Germany, the UK, and France, faced increased competition from industrializing countries such as Spain, India, Poland, East Germany, Taiwan and Korea and particularly from Japan's high-tech, computer

⁵ Shepherd and Duchene 1983.

⁶ Schatz and Wolter 1987.

⁷ Jahreswirtschaftsbericht 1980 der Bundesregierung, p. 14.

⁸ Sharp and Shepherd 1987.

controlled machine tools.⁹ Reaction to this increase in international competition varied across countries.¹⁰ The German government did not provide transfers targeted to the machine tool industry. Instead, the German government provided broad transfers available to all manufacturing industries to promote new technology initiatives and employment. Like Germany, US firms' market share of machine tools fell throughout the 1970s in response to increased competition from Japan. As in the case of Germany, the US government did not respond with industry-specific transfers. In fact, there was no direct assistance to the machine tool industry in the US during this period. In contrast, France provided transfers targeted explicitly to the machine tool industry. These transfers included cash injections to individual firms to absorb a series of smaller companies, industry-specific subsidies for R&D, and preferential loans for overseas sales. The UK also provided transfers directly to the machine tool industry including subsidies and government loans. In fact, Britain's transfers to the machine tool industry were expensive and prolonged.

The example of the machine tool industry highlights the government's choice of transfer form in a single instance. The general pattern of transfers provided by the government can be observed using quantitative data on government spending on transfers. Transfers can be classified according to the primary objectives for which it is given or the sector to which it is directed.¹¹ Using this classification, it is possible to distinguish broad transfers from narrow, industry-specific transfers. The ratio of

⁹ Products of the metal-working machine tool industry include central components for engineering workshops, assembly lines and transportation equipment industries. Examples include drilling and grinding machines, lathes and punching and shearing machines.

¹⁰ Evidence from the machine tool industry comes from Jones (1983).

¹¹ CEC Survey of Economic Aid (various years) classifies transfers according to the primary objectives for which it is given or the sector to which it is directed.

narrow to broad transfers can be used to identify the dominant transfer form in a country's redistributive portfolio. Countries with a high ratio of narrow to broad transfers can be characterized as having a redistributive portfolio heavily weighted towards narrow transfers.

Using the ratio of narrow to broad transfers, we observe significant variance in transfer form even among developed European countries. Table 1.1 reports the percent of transfers targeted to specific industries. More precisely, the percent of transfers to the manufacturing sector targeted to specific industries during the 1990s is reported by country.¹² Sweden has the highest percentage of narrow transfers with 76 percent of manufacturing aid going to individual industries. In contrast, Finland spends only 18 percent of its manufacturing aid on individual industries. The rest goes to broad transfers available to all manufacturing industries to promote things like employment and worker training. During the 1990s, Germany targeted approximately half of its transfers to broad, sector-wide programs and the other half to narrow, industry-specific programs. This represents a change from the 1970s portfolio of redistributive policies.

How can this cross-national variance be explained? One possible explanation is the supply incentives generated by different electoral institutions. Politicians in majoritarian electoral systems might be more likely to provide narrow transfers given the importance of swing voters in these systems.¹³ However, the United Kingdom and Belgium both targeted approximately 50 percent of their manufacturing transfers to individual industries during the 1990s, despite the fact that the UK is a majoritarian

¹² Regional aid is excluded here.

¹³ Persson and Tabellini 2004.

system and Belgium is proportional. Furthermore, the ratio of narrow to broad transfers has changed over time in the United Kingdom despite constant electoral institutions.

Sweden and Denmark, two countries with similar electoral systems, have very different portfolios of redistributive policies. Sweden's portfolio is heavily weighted to narrow transfers with over 76 percent of its manufacturing aid going to individual industries while Denmark spends only 36 percent on narrow transfers. Although both Sweden and Denmark are characterized as *social-democratic welfare states* by Esping-Anderson (1990), the form of transfers provided in these two countries vary dramatically. This suggests that even among countries with similar levels of redistribution variation in transfer form exists.

Government size does not appear to account for cross-national variation in transfer form either. Spain and Greece have the smallest governments in this sample, measured as government spending as a percent of GDP. However, Spain dedicates 65 percent of its manufacturing transfers to individual industries while Greece spends only 58 percent on industry-specific transfers. Similarly, Italy and the Netherlands have different redistributive portfolios despite their relatively large governments. While Italy spends 60 percent of its manufacturing transfers on individual industries, the Netherlands spends only 43 percent despite having a similar *level* of government spending. How then can this cross-national variance in transfer *form* be explained?

I argue that domestic demands shape transfer form. Domestic preferences over transfer form vary systematically with the costs of moving assets between uses within a given economy. Workers, for whom it is prohibitively costly to move out of a

declining industry, prefer narrowly targeted transfers designed specifically to benefit their industry. In contrast, mobile workers who can move easily between uses in the domestic economy prefer broadly targeted transfers from which they can benefit regardless of where they are employed in the economy. As a result, politicians in countries with relatively immobile labor forces tend to provide more narrowly targeted transfers than broad. Cross-national variance in transfer form can therefore be explained by variance in domestic demands for narrow transfers stemming from the costs of adjustment.

Returning to the example of the machine tool industry, I argue that the German machine tool industry did not receive narrowly targeted transfers because German machine tool workers could move to a new use within the domestic economy with relative ease and receive similar returns for their skills in other industries. During the 1970s, Germany had an enormously strong engineering sector.¹⁴ Because of this, workers could move out of the machine tool industry to another engineering industry and continue to use their skills, knowledge, and training. As a result, workers could move without risking a large decrease in wages. Moving out of the machine tool industry was a viable possibility for German workers and because it was relatively costless to do so, few demands were made for government transfers specifically targeted to this industry. In contrast, labor employed in the French machine tool industry faced significant adjustment costs. During this period, France had a very small engineering sector. Workers employed in the machine tool industry were unlikely to find a new job using their engineering skills in a different industry. As a

¹⁴ Jones 1983.

result, moving out of the machine tool industry was likely to reduce workers' wages. The high-tech skills valued in the machine tool industry were less valuable to employers in other parts of the French economy during this period. These workers faced a potential loss of income from increased competition and as a result demanded (and received) narrowly targeted transfers to bolster the French machine tool industry.

This pattern holds more generally in the case of Germany and France. Adjustment costs were lower on average in Germany relative to France. In response, the German redistributive portfolio was weighted towards broad transfers particularly in comparison to France's.

During the 1970s, the average rate of labor movement between manufacturing industries in Germany was 1.14 percent. In contrast, France's rate during this same period was more than 40% lower. One potential cause of the relatively high adjustment costs in France was the system of vocational training. France's system relied primarily on training provided by individual companies.¹⁵ As a result, French workers tended to have firm-specific skills. Given these skills, even moving between firms within the same industry is costly. Inter-industry moves would be even more difficult. In contrast, the German vocational training system focused on apprenticeships that trained workers for an occupation.¹⁶ These types of skills are not specific to a particular firm but instead are valuable to a range of employers within and across industries. The average German worker is likely more mobile than the average French worker.

¹⁵ Estevez-Abe, Iversen and Soskice 2001.

¹⁶ Estevez-Abe, Iversen and Soskice 2001.

I expect these differences in average adjustment costs to be reflected in the governments' portfolio of redistributive policies. Countries with a higher ratio of specific to mobile workers will tend to have a higher ratio of narrow to broad transfers, all else equal. This appears to hold in the case of Germany and France during the 1970s. During this period, French governments provided industry-specific subsidies, particularly to those industries where technology was more advanced.¹⁷ In contrast, Germany's governments relied primarily on broad transfers as discussed previously.

1.1 Importance of transfer form

The type of transfers provided by a government has important political and economic consequences. Narrow transfers are provided selectively and benefit some voters at the expense of others. As a result, narrow transfers are likely to create greater inequalities within a country. Additionally, narrow transfers create relatively large deadweight losses and distort economic incentives.¹⁸ Because of their economic consequences, the concern that narrowly targeted transfers will be oversupplied haunts many policy discussions.¹⁹

The economic implications of narrow transfers explain why the politics of narrow transfers differ from broad transfers. Take for example the difference in the politics surrounding the current debate over pension reform in the United States and those surrounding subsidies to Boeing. Politics vary with transfer type because the

¹⁷ Shepherd and Duchene 1983.

¹⁸ Stigler 1971; Becker 1985.

¹⁹ See, for example, Ferejohn 1974 and Weingast, Shepsle and Johnson 1981.

redistributive implications of narrow transfers are quite different from those of broader transfers. Narrow transfers entail a small, well-defined group of winners and a much larger, diffuse set of losers. As a result, those who stand to lose from narrow transfers find it difficult to overcome the costs of organizing to oppose such measures.²⁰ In contrast, broad benefits have many more winners than losers. In this case, it is easier for the opponents to organize than the proponents.

Equally important and yet perhaps less obvious are the international consequences of governments' choice of domestic transfer form. Like many domestic policy decisions, the choice of transfer form has important international implications due to the increased integration of national economies. International trade transmits the price effects of domestic transfers from one country to another. As a result, international agreement like the EU and GATT/WTO seek to limit the extent of domestic transfers. The basic principle of these restrictions is that a transfer that distorts the allocation of resources within an economy also has external effects and therefore should be subject to international constraints. Where a transfer is broadly targeted and widely available, distortion in the allocation of resources is negligible.²¹ Therefore, narrow transfers, rather than broad, are subject to international restrictions. For example, the WTO Agreement on Subsidies and Countervailing Measures (ASCM) established during the Uruguay Round sets out clear rules restricting the use of narrow subsidies.

²⁰ Olson 1965; Weingast, Shepsle and Johnson 1981; Becker 1983, 1985.

²¹ WTO nd.

Given these international restrictions, a government's decision to provide narrowly targeted benefits risks provoking an international response. In fact, virtually every dispute litigated in the GATT/WTO framework over the past 20 years relates to narrowly targeted benefits. This makes the choice to provide narrowly targeted benefits puzzling. Why do governments choose to provide narrowly targeted transfers and risk international conflict? This choice is especially puzzling given the myriad policy tools available to governments to target benefits to segments of its citizenry. Governments can choose from a wide range of policy options, many of which are not regulated by international agreements. However, countries continue to rely on narrowly targeted transfers to meet domestic demands, despite the potential international consequences.

That the domestic benefits of providing narrow transfers carry more weight with governments than possible international conflict would not surprise scholars of international politics skeptical of international institutions. A strong tradition in international relations sheds doubt on the ability of international institutions to influence public policy. It emphasizes the tendency of states to assert their autonomy from foreign control.²² If, as this perspective suggests, international agreements do not constrain domestic governments' choice of benefit type, why then do some countries choose not to provide narrow transfers? Are some countries more sensitive to the risks of international litigation? Although variance certainly exists in countries' responsiveness to international institutions, I argue that the observed cross-national

²² Waltz 1979.

variance in transfer form depends primarily on cross-national differences in domestic demands.

1.2 Existing explanations

Few explanations for the observed cross-national variance in transfer form exist.²³ Recent scholarship has focused instead on explaining variance in the *level* of transfers provide by governments. For example, numerous studies have examined the effect of income inequality on aggregate levels of welfare spending.²⁴ By looking only at the average level of government transfers, important cross-national variance in transfer form is overlooked. Two countries with identical levels of aggregate transfers may provide the transfers in very different ways. One country may provide their total transfers through a single large broad policy. The other may provide a multitude of very small, narrow policies that taken together sum to the same amount. Certainly the politics behind these two policy outcomes look very different. Any characterizations made regarding the politics of redistribution based only on the observed aggregate level of transfers are likely to be incomplete. I address this limitation of existing research by examining the politics of transfer form. I present a political economy explanation for the observed cross-national variance in transfer form.

Although the vast majority of research on redistribution focuses exclusively on level rather than form, potential explanations for variance in transfer form do exist in the literature on public goods. These explanations, which seek to explain the under-

²³ With the notable exception of Zahariadis (2001) who points to the importance of physical and human asset specificity for the form of cash subsidies.

²⁴ See, for example, Moene and Wallerstein 2003; Romer 1975; Roberts 1977; Meltzer and Richard 1981.

provision of public goods, point to the importance of domestic institutions.²⁵ The supply incentives generated by various political institutions are identified as potential explanations for transfer form.²⁶ Specifically, legislative and executive electoral institutions are credited with providing the incentives for politicians to favor one transfer form over another. For example, Persson and Tabellini (1999, 2000, 2001, 2004) argue that majoritarian electoral systems are likely to produce narrow transfers due to the importance of swing voters in these systems. Majoritarian systems concentrate electoral competition in pivotal districts which creates incentives for politicians to target narrow benefits to voters in these districts. In contrast, proportional systems diffuse electoral competition, giving the parties strong incentives to seek electoral support from broad coalitions in the population. This effect is reinforced by the winner-take-all property of plurality rule, which reduces the minimal coalition of voters need to win the election.²⁷

Unfortunately, no clear agreement exists in the literature on which institutions make narrow transfers more likely. Rogowski (1987) argues that smaller district size tends to make politicians more vulnerable to narrow interests. The logical extension of this observation is that redistributive policy in countries with small electoral districts will tend to be narrowly targeted. However, Rogowski ignores the fact that countries with larger electoral districts also tend to be proportional systems with multimember,

²⁵ See, for example, Persson and Tabellini 1999, 2000, 2001, 2004; Lizzeri and Persico 2001; Milesi-Ferretti, Perotti and Rostagno 2002.

²⁶ Another supply-side explanation exists that is not strictly institutional in nature. Rubin (1975) argues that some forms of redistribution provide short-run benefits while incurring costs long into the future and others provide longer-term benefits. He argues that parties chose to provide the form of compensatory programs that maximize their electoral support given their estimate of the duration of their tenure in office.

²⁷ Persson and Tabellini 2004.

not single-member, districts. As Cox (1990) points out, party candidates in multimember races typically target niche groups of voters in order to win one of many seats. Furthermore, as district magnitude increases parties representing more specific or particular interests can win a seat. Appeals to voters become increasingly narrow as each party seeks the niche of voters it needs to win a seat.²⁸ As a result, the theoretical prediction as to which electoral system most favors narrow interests is ambiguous.

Further complicating the distinction between majoritarian and proportional electoral systems is the fact that both systems can sustain weak parties.²⁹ In weak-party systems, candidates focus on gaining electoral support within their constituency rather than their party. As a result, candidates in weak-party systems are likely to be more responsive to narrow demands than candidates in strong-party systems where they have incentives to cater to the party rather than constituents in order to be placed in a viable spot on the ballot. Given this, the distinction between majoritarian and proportional systems yields ambiguous theoretical predictions with regards to transfer form.³⁰

This theoretical ambiguity can be resolved by introducing domestic demands. Very often institutional arguments implicitly assume that all domestic actors prefer narrow, particularistic policies over broad transfers.³¹ However, domestic preferences over transfer form vary. There are, in fact, instances when domestic actors prefer

²⁸ Cox 1990, 1997; Myerson 1993.

²⁹ In practice, weak party proportional systems are not common.

³⁰ Haggard and McCubbins (2001) caution that broad institutional distinctions like presidential versus parliamentary or majoritarian versus proportional are likely to yield ambiguous predictions.

³¹ Cox and McCubbins (2001) concede that demands for narrow transfers are likely to vary across countries as some societies may be inherently more prone to narrow transfers than others (p.51). However, they make no attempt to identify those societies or control for the cross-national differences in demand.

broad transfers to narrow ones, namely when adjustment costs are low. Workers facing low adjustment costs prefer broad transfers from which they can benefit regardless of where they are employed in the economy. Mobile workers are more likely to move to a new industry in the near future than specific workers making broad transfers more beneficial. In this dissertation, I develop a theory of domestic preferences over transfer form and identify when and under what circumstances domestic actors are likely to prefer broad transfers over narrow ones.

Using this theory, we can identify the politicians facing the greatest number of demands for narrow transfers. The responsiveness of politicians to these narrow demands may vary across electoral systems. An increase in labor specificity may result in more narrow transfers in a majoritarian electoral system than a proportional system because of the inherent bias of majoritarian systems towards narrow transfers suggested by Persson and Tabellini (2004). However, the baseline probability of seeing narrow transfers is determined by the level of demand for them. Politicians in majoritarian systems facing *exclusively* broad demands may be no more likely to provide narrow transfers than politicians facing broad demands in proportional systems. My demand-side argument, taken together with the supply-incentives generated by electoral institutions, provides a novel, powerful theory to predict the observed cross-national variance in transfer form.

1.3 Argument

As noted above, I argue that the form of transfers a government chooses to provide is determined largely by domestic demands. Domestic demands over transfer

form vary systematically with costs of adjustment facing workers. Adjustment costs are the costs of transferring resources from one use to another within a given economy. For workers, the costs of adjustment include the search costs involved in finding a new job and the risk of permanently lower income. When moving to a new use, workers also face the potential costs of re-training, the obsolescence of their skills and the loss of rents specific to that use. Mobile labor faces relatively low adjustment costs and can move between uses in a given economy with relative ease. Mobile workers prefer different types of transfers than workers facing high adjustment costs.

Specific labor prefers transfers narrowly targeted to the industry in which they are currently employed. Specific labor is concerned primarily with the returns in their current industry because they are unlikely to move to a different industry in the short to medium term given the high adjustment costs. As a result, specific labor will tend to lobby for narrowly targeted redistributive policies that benefit their industry directly. Narrow policies are less beneficial to mobile workers that are more likely to move to a different industry, even in the short-term. Mobile labor prefers broadly targeted programs from which they can benefit regardless of where they are employed in the economy. As a result, governments in countries with relatively immobile assets tend to implement narrow redistributive policies rather than broad. In other words, countries with higher ratios of specific to mobile workers will tend to have higher ratios of narrow to broad transfers. I trace out further the logic of this argument in the following chapter. Before I do so, I first summarize the ways in which I will empirically test my argument.

1.4 Methodology and empirical tests

Examining transfer form is difficult given the multitude of ways in which a government can provide benefits to voters. For example, tax policy, trade protection, and regulation can all be used by the government to provide transfers to voters. It is not possible to examine every conceivable policy option designed to provide benefits to some segment of the population. The focus in this dissertation will be on producer subsidies and trade protection.

Industry-specific cash subsidies provide direct, excludable benefits to assets employed in that industry. In Chapter 4, I use measures of government spending on industry-specific subsidies to test my hypothesis that countries with relatively immobile labor will tend to have more narrowly targeted transfers. In Chapter 5, I use inter-industry variance in tariff rates to predict the form of transfers provided using trade policy. Tariff rates are a particularly useful measure of transfer form because they are perhaps the easiest transfer to measure and can be targeted broadly or narrowly.³² In Chapter 6, I use data on international disputes over illegal narrow transfers to test the relationship between labor mobility and transfer form.

Although I test my hypotheses using data on subsidies and trade protection, my theory is general and could in fact be used to predict the form of many redistributive policies. Transfer form depends on domestic demands stemming from the costs of adjustment. This relationship should hold across different redistributive policies. If, for example, trade policy is used to provide broad benefits then broad spending programs should dominate industry subsidies.

³² McGillivray 2004, Guisinger 2002.

Similarly, my theory holds for all asset owners, regardless of the identity of their asset. Specific asset owners - whether owners of capital, labor or land - prefer narrowly targeted transfers. It would therefore be possible to test my theory using measures of either labor, capital or land specificity. I have chosen to use measures of labor specificity in Chapters 4, 5 and 6 to test the hypotheses derived from the micro-foundational theory outlined in Chapter 2. Although this choice limits what this study can say about the mobility of owners of land, natural resources and capital, it has several benefits. First, it sets up a difficult test of my theory because politicians, especially in countries with right-leaning governments, may favor capital owners.³³ Second, labor is still relatively immobile internationally making it possible to study the preferences of labor without concerns over divisions between internationally mobile and immobile labor.³⁴ I discuss further the benefits and limitations of using labor specificity to test my theory in Chapter 3.

³³ Li and Smith 2002.

³⁴ Rodrik 2000.

Table 1.1: Descriptive statistics by country, 1990 - 1999

Country	Narrow transfers (% total manufacturing transfers)	Total expenditure (% GDP)
Austria	67.8	41.5
Belgium	49.3	48.2
Germany	52.2	33.5
Denmark	36.0	41.1
Spain	64.7	36.4
Finland	18.8	39.3
France	58.0	45.8
United Kingdom	49.8	40.9
Greece	58.4	35.0
Ireland	36.2	37.9
Italy	60.7	49.1
Luxembourg	42.5	40.8
The Netherlands	43.8	50.5
Portugal	61.6	41.7
Sweden	76.8	45.6

Chapter 2: Domestic Preferences over Transfer Form

In this chapter, I set out my theoretical framework and derive predictions as to when and under what circumstances politicians will choose to provide narrow transfers, like industry-specific subsidies, rather than broader forms of redistribution. I argue that politicians choose the form of transfers in response to domestic demands. Demands for narrow transfers come from owners of assets that cannot move easily to a new use because of high adjustment costs. These actors are uniquely concerned with the fortunes of their current industry given their relative inability to move to a new industry. Therefore, I predict that countries characterized by relatively high adjustment costs will tend to have more narrowly targeted redistribution than countries with low adjustment costs.

2.1 Theoretical argument

The theoretical model developed here has three actors: the government, owners of relatively specific assets and owners of relatively mobile assets. The government responds to the preferences of asset owners over transfer form. Asset owners' preferences over transfer form depend on the costs they face when moving their assets between uses in the domestic economy. If, for example, a move between uses entails high costs, such as a permanent loss of income, asset owners prefer narrow transfers targeted to their current industry in order to insure their current income level.

The main argument of this dissertation is that asset specificity determines domestic preferences over transfer form. By asset specificity, I refer here to the ease with which factors, such as labor and capital, move between sectors of the domestic

economy. In other words, specificity refers to the costliness with which labor and capital move from their current use to an alternate one within a country's economy.

Preferences of both labor and capital owners are shaped by the costs of adjustment. Specific asset owners - whether owners of capital, labor or land - prefer narrowly targeted transfers. In this chapter, I outline the theory with reference to owners of labor for ease of interpretation and consistency with my empirical tests. Using labor mobility to test the theory developed in this chapter has several advantages including the fact that labor is still relatively immobile internationally.¹ This allows me to study the preferences of labor and estimate their effects on domestic policy without concerns over potential divisions between internationally mobile and immobile labor. However, I expect the logic of the argument developed here to hold for owners of capital as well.

2.2 Adjustment costs facing labor

Labor's preferences over transfer form vary systematically with the adjustment costs they face. Adjustment costs borne by labor include search costs, retraining expenses, forgone earnings, lower wages and the obsolescence of skills.² Mobile workers face relatively low adjustment costs and can move out of declining industries with relative ease. In contrast, specific workers face relatively high adjustment costs, including large income losses from shifting employment, and therefore remain stuck in their current use in the short to medium term. Although workers are characterized here

¹ Rodrik 2000.

² de Cordoba, Laird and Serena 2005.

as being either mobile or specific, labor mobility is in fact a continuous variable.³ The costs of adjustment can range from low values to very high values.

Allowing that labor can have varying degrees of mobility, the prediction is that narrow transfers are more likely when the level of labor mobility is relatively low. Specific labor prefers transfers that are targeted to the industry in which they are currently employed over broad programs that provide transfers to a range of industries. This is because narrow transfers maximize the expected utility of workers facing high adjustment costs. In contrast, mobile labor tends to prefer broadly targeted redistribution. I trace through the economic logic of each set of preferences below.

It is important to note here that the government's decision to provide narrow or broad transfers is not mutually exclusive. Although the government's budget will impose constraints on the total amount of transfers that can be provided, governments can and do provide both narrow and broad transfers. Given this, a zero-sum game does not exist between owners of specific assets and owners of mobile assets. Owners of specific assets and owners of mobile assets can simultaneously win narrow and broad transfers respectively. Given this, I focus on explaining the *relative* weight of narrow transfers in a government's portfolio of redistributive policies. Governments tend to provide more narrow transfers *relative* to broad transfers when the average adjustment costs are high.

³ Hiscox 2002.

2.3 Domestic preferences

Workers facing relatively high adjustment costs prefer narrow transfers. Examples of narrow transfers include industry-specific subsidies, tariffs and tax-breaks. This type of protection is preferred over broad transfers, like unemployment insurance, because narrow transfers maximize the income of immobile workers and the returns on their lobbying investments. As a result, workers facing high adjustment costs who are interested in maximizing their utility demand narrowly targeted transfers.

Narrow transfers maximize the income of specific labor. The current and future incomes of immobile workers are tied directly to the profits of the industry in which they work. If the fortunes of that industry decline, workers unable to leave because of prohibitively high adjustment costs face lower incomes. Immobile workers are therefore particularly concerned with protecting the returns in the industry in which they are currently employed. Immobile workers prefer policies that provide targeted protection to their industry from exogenous economic shocks and increased foreign competition.

Narrow transfers maximize the rents collected by asset owners in a given industry. While both broad and narrow programs could, in theory, serve to insulate returns from market pressures, narrowly targeted transfers maximize the rents collected by specific asset owners. The rents generated by narrow transfers are shared among fewer people than those stemming from broad transfers. Furthermore, these rents are not arbitrated away because of the high barriers to entry that exist in industries characterized by specific assets. Workers employed in other industries would need to invest resources to obtain the skills required to enter the work force in the privileged industry. If the rents are high enough, workers may be willing to make such an

investment. However, acquiring skill takes time. In the short term, the skills required for employment in industries characterized by specific labor will generally prevent workers from rushing into the industry to take advantage of industry-specific rents. Narrowly targeted benefits are shared among relatively few people and persist over time.

Resources devoted to lobbying for narrow transfers provide greater returns to immobile workers than resources devoted to lobbying for broad transfers. Because lobbying is costly, immobile workers attempt to use their lobbying resources in the most efficient and effective manner. In other words, they seek to maximize the expected dollar return on their lobbying expenditures. To maximize the return on their lobbying investment, immobile workers lobby for narrow redistributive policies. Narrow policies have large economic benefits for immobile workers. By demanding narrowly targeted transfers, any lobbying success is not shared with other industries or new entrants (because of the high entry barriers). Instead, the returns are concentrated entirely in the privileged industry.

Narrow programs are less beneficial to mobile factors that can move between industries with relative ease. Mobile factors prefer broad programs that allocate benefits without reference to industry. Broad programs benefit workers regardless of where they are employed in the economy either now or in the future. Mobile factors continue to enjoy the benefits of broad transfers even after moving to a new industry. In contrast, a move to a new industry would mean the loss of narrowly targeted industry-specific rents. Given the likelihood that they will move to a new use in the short to medium term, mobile workers prefer broad redistributive policies to narrow ones.

Here I have presented a stylized micro-foundational story of individual asset owners' preferences over transfer form. Domestic preferences are a critical part of a government's decision to provide one type of transfer more often than another. Governments respond to domestic preferences over transfer form in an attempt to maximize the likelihood that they will remain in office. However, some preferences may be more likely to get translated into policy outcomes than others. Supply-incentives generated by certain electoral institutions may favor preferences for narrow transfers.⁴ Similarly, the costs of organizing to demand transfers from the government may increase the likelihood that certain preferences are translated into policy outcomes. I discuss how electoral institutions relate to my theory and empirical predictions later in this chapter. Now, I turn to the importance of collective action costs for transfer form.

2.4 Costs of collective action

The costs of organization are not evenly distributed among all asset owners. Furthermore, the costs of organizing to demand narrow transfers differ from the costs of organizing in favor of broad transfers. Despite variance in costs, evidence suggests that both mobile and immobile workers have been able to overcome the costs of collective action.⁵ However, mobile workers and/or those voters in favor of broad transfers likely find it relatively more difficult to organize. Given this, it is possible that their preferences are reflected in policy outcomes less often. I address this and other questions raised by variance in the costs of organizing in this section.

⁴ For example, Persson and Tabellini (2004) argue that majoritarian systems are biased towards narrow transfers because of the importance of swing voters in these systems.

⁵ Hiscox 2002; Rogowski 1989.

Immobile assets tend to face relatively low collective action costs because their returns are determined exclusively by the performance of the industry in which they are employed.⁶ Because their incomes are determined by the performance of their current industry, immobile assets organize by industry to lobby for their preferred policy outcome. The number of immobile asset owners within a single industry will, of course, vary across industries but it is, in general, quite small relative to the number of immobile workers employed throughout the economy. The collective action costs facing immobile workers are relatively low because their interests vary by industry.⁷ Immobile workers concentrated in a single industry find it relatively easy to organize and monitor the contributions of individuals to the group. Immobile workers therefore face fewer collective action costs than mobile workers.

Mobile workers face high collective action costs. The returns to mobile production factors rise and fall together, regardless of the industry in which they are employed. Mobile workers in one industry have the same interests as mobile workers in a different industry. Given the diffusion of mobile asset owners throughout the economy that share the same preferences, mobile asset owners face high collective action costs.

The costs of organizing in favor of broad transfers are generally higher than the costs of organizing to demand narrow transfers. Broad transfers are shared among many people in the economy. As a result, the individual benefits of organizing are relatively low. Workers have an incentive to free ride on the lobbying efforts of others and given

⁶ Freiden 1991.

⁷ Olson 1965; Agrawal and Goyal 2001.

the large group size, it is difficult to monitor individual contributions to lobbying efforts in favor of broad transfers. In contrast, the rents from narrow transfers are shared among relatively few people, especially in comparison to broad transfers. Narrow transfers provide benefits to select segments of the economy generating incentives for asset owners to pay the costs of collective action to organize politically.

Despite facing different adjustment costs, both immobile and mobile asset owners have been observed to overcome the costs of collective action to lobby for their preferred policy outcome.⁸ Rogowski (1989) provides evidence to suggest that political coalitions form in the shape of factor-owning classes when factor mobility is high. Similarly, Hiscox (2002) finds that broad-based, national labor unions lobby actively when labor is relatively mobile between industries. When levels of labor mobility are low, industry-based interest groups are more often observed. For example, industry groups exercised a powerful role in shaping policy outcomes in the United States during periods of relatively low levels of labor mobility.⁹

The political organization of asset owners predicted by the costs of adjustment reinforces their preferences over transfer form. Specific factors, organized by industry, lobby for industry-specific benefits. Mobile factors employed throughout the economy form broad-based organizations that lobby for broadly targeted benefits. Both the organization of asset owners and the form of transfers they prefer are determined by the costs of adjustment.

⁸ Rogowski 1989; Freiden 1991; Hiscox 2002.

⁹ Hiscox 2002.

Despite evidence to suggest that mobile asset owners are capable of overcoming the costs of collective action, it is still possible that they may find it relatively more difficult to organize than immobile labor. If mobile assets find it difficult to organize, as suggested by Olson's (1965) logic, their preferences may not be reflected in policy outcomes. More precisely, if the costs of collective action are lower for immobile assets than mobile assets, the preferences of immobile assets may have greater influence on transfer form. I assume, however, that individuals' preferences for broad transfers shape policy outcomes even if actors that prefer broad transfers (e.g. mobile asset owners) are unable to overcome the costs of collective action. Previous research suggests that this assumption is plausible. For example, Bailey (2001) finds evidence that diffuse interests have substantial influence on congressional trade voting in the United States. He argues that politicians are sensitive to unorganized constituencies via the election process. Through elections, politicians are made accountable to individuals' preferences even if these preferences are not voiced through organized interest groups.¹⁰ Preferences for broad transfers are likely to influence policy outcomes even if actors that prefer broad transfers are unable to overcome the costs of collective action.

2.5 Assumptions

The argument that the costs of adjustment determine transfer form relies on several additional assumptions that I outline below. As stated above, I assume that individual preferences influence policy even if these preferences are not voiced through organized interest groups. When interest groups do form, they are assumed to use

¹⁰ Arnold 1990; Denzau and Munger 1986; Broz 2005.

political influence to enhance the well being of their median member.¹¹ Voters are asset owners that are identified by their *primary* income source: labor or capital. Assets are characterized by their degree of mobility. An asset is mobile if, in the pursuit of higher returns, it can freely move from one type of employment to another at little or no cost. Asset owners belong to interest groups defined by the mobility of their assets, as demonstrated in previous research.¹² Finally, voters and lobby groups are assumed to have well-defined, strictly single-peaked preferences over the form of redistributive policies.

2.6 Possible objections

The key empirical prediction derived from my theoretical model is that countries with relatively high adjustment costs will tend to have more narrow transfers than broad when compared to countries with low adjustment costs. Two possible objections can be raised to the line of analysis I have advanced here. First, readers might question the assertion that the costs of adjustment vary across countries. Certainly, within a given country's economy some workers will be better equipped to move between industries given their skills, training, and education. But why would some countries exhibit lower *average* adjustment costs across workers? I address this question below and offer several explanations for the observed cross-national variance in labor mobility.

A second possible objection might be that the costs of adjustment are determined in part by the generosity of redistributive policies. In theory, it is labor

¹¹ Stigler 1971; Becker 1983.

¹² See, for example, Hiscox 2002.

mobility as determined by all the factors that influence it, including policy, that influence asset owners' preferences over transfer form. Empirically however, the potential relationship between redistributive policies and the level of labor mobility poses a problem for correctly estimating the effect of labor mobility on transfer form. I employ several methods to deal with this potential endogeneity including estimating the *technology-induced* adjustment costs. This and other methods used to account for the potential endogeneity of labor mobility are outlined later in this chapter and in more detail in chapter 3. I turn now to the cross-national variance in adjustment costs.

2.7 Variance in adjustment costs across countries

Despite their personal characteristics, workers within an economy face a set of common adjustment costs determined by country-specific parameters. Although individual characteristics like age, gender, and education level may increase the costs of adjustment facing a given worker, all workers in a given economy face a baseline level of adjustment costs. These country-specific adjustment costs are determined by factors like the geographical concentration of industries, the level of industrialization, and the regulatory barriers to occupational and geographic relocation imposed by federal and local governments.¹³

Take for instance a country's level of industrialization. The level of industrialization in a given economy determines, in part, the common costs to labor of moving between uses in the economy. Early stages of industrialization often bring major innovations in transportation that lower the cost of labor movement and diminish

¹³ Parsons 1972; Ragan 1984; Mincer 1993; Krueger and Summers 1987; and Edin and Zetterberg 1992.

the importance of geography to the economy.¹⁴ This is evident even in small countries such as Belgium where the extension of the rail network in the late 1800s dramatically increased labor movement between regions and sectors.¹⁵

Technological innovations in methods of production also have important implications for country-specific adjustment costs. The introduction of labor-saving technology and production line technology increases the ease with which workers can shift between manufacturing industries.¹⁶ These technological innovations also increase the demand for unskilled workers thereby lowering the costs of moving into the industrial sector from other sectors of the economy, like agriculture. Later stages of industrialization, often characterized by moves from assembly-line to continuous-process technology and dramatic technological advances in robotics, required more skilled workers thereby increasing the costs of adjustment.

Institutional complementarities reinforce the variance in country-specific adjustment costs. Nations with a particular level of industrialization are likely to develop certain institutions to complement their level of industrial development. In countries with immobile labor, institutions are likely to develop that make use of the industry-specific skills available in the labor market.¹⁷ These institutional complementarities help explain the observed cross-national variance in shared adjustment costs and the persistence of adjustment costs over time.

The distinction I have made here between adjustment costs specific to an individual and those common to all workers in a given economy is, to some degree,

¹⁴ Hiscox 2001; Taylor 1949; Davis, Hughes and McDougall 1961; North 1964.

¹⁵ Huberman 2004.

¹⁶ Sokoloff 1986; Goldin 1990.

¹⁷ Hall and Soskice 2001.

artificial. For example, some countries may be characterized by relatively old populations yet age remains an individual characteristic. This distinction between individual adjustment costs and common adjustment costs, while somewhat arbitrary, is useful to understand how and why adjustment costs vary across nations. This distinction has been used in formal models of labor movement between industries for this reason.¹⁸

The total adjustment costs facing an individual worker determines their preference for either narrow or broad transfers. Some portion of the total adjustment costs facing any given worker is common to all workers in that economy, regardless of their individual characteristics. These common adjustment costs vary across countries and help to explain the observed cross-national variance in transfer form. Adjustment costs common to all workers in a given economy determine the relative weight of narrow transfers in a government's redistribution portfolio.

2.8 Endogeneity of labor mobility

Changes in the costs of adjustment over time correspond to changes in industrialization and technological constraints. This suggests that at least part of the country-specific adjustment costs facing workers in a given economy is exogenous to policy. However, certain policies are likely to influence the costs of moving between sectors in an economy. These policies include broad economy-wide regulations and transfers such as labor market regulations, unemployment benefits and training programs. For example, the percentage of wages paid by unemployment insurance is likely to influence the average level of labor mobility in a country. If the wage

¹⁸ See, for example, Fung and Staiger 1996; Hiscox and Burgoon 2000.

replacement rate is high, workers are more likely to invest in industry-specific skills.¹⁹ High rates of wage replacement insure workers' investment in industry-specific skills against potential future income loss. In countries with high rates of wage replacement, workers are more likely to invest in industry specific skills thereby raising the average costs of moving between industries.

In an attempt to deal with the potential endogeneity of labor mobility, I adopt several strategies. First, I examine variance in narrow transfers rather than broad. Narrow transfers are less likely to influence the country-specific common adjustment costs paid by all workers than broad transfers like unemployment insurance. Narrow transfers are not made available to all workers and therefore will have a smaller influence on the average costs of adjustment facing all workers in a given economy. Additionally, narrow transfers are more likely to be reversed than broad transfers, such as those provided by the welfare state.²⁰ As a result, narrow transfers are likely to have a smaller effect on common adjustment costs relative to broad transfers over time.

A second strategy I use to deal with potential endogeneity is lagging labor mobility so that past levels of mobility are used to predict current transfers. This minimizes the potential for reverse causality between transfers and mobility. Third, I estimate the technology-induced adjustment costs using the residuals of a model of labor mobility containing controls for a country's policy environment. Finally, I include controls for a country's broad policies (when these policies are not measured by the dependent variable, namely in chapter 6). For example, I include a variable that

¹⁹ Estevez-Abe, Iversen and Soskice 2001.

²⁰ Pierson 1994.

indicates a country's type of welfare state, as categorized by Esping-Anderson (1990). If labor mobility remains a robust predictor of transfer form even after controlling for a country's welfare state, we can be confident that labor mobility has an independent effect on transfer form, even if some part of labor mobility is determined by government spending on welfare programs. These estimation concerns and the methods used to address them are discussed in greater detail in the next chapter. The main point made here is that labor mobility varies across countries and is determined in part by exogenous factors such as geography and technology.

2.9 Supply incentives

Politicians choose to provide the form of redistribution that maximizes their chances of staying in office.²¹ Both domestic preferences and institutions likely determine this choice. As argued above, workers facing relatively high adjustment costs prefer narrow transfers. Politicians, in an attempt to maximize their reelection chances, will respond with narrow transfers to these voters. However, politicians' interest in providing narrow transfers may vary across electoral systems. For example, Persson and Tabellini (2004) argue that majoritarian systems provide incentives for politicians to target benefits narrowly because of the potential importance of swing districts in these systems. In contrast, proportional systems give parties strong incentives to seek electoral support from broad coalitions in the population through universalistic redistributive programs.²²

²¹ Verdier 1995; McGillivray 2004.

²² Persson and Tabellini 2004; Milesi-Ferretti, Perotti and Rostagno 2002; Lizzeri and Persico 2001.

The distinction between majoritarian and proportional systems may be blurred however by variation in party strength. In strong-party systems, parties control access to the ballot and voters choose between parties associated with packages of policies rather than between individuals.²³ Politicians in strong-party systems have large incentives to cater to the party rather than constituents in order to be placed in a viable spot on the ballot.²⁴ Parties generally represent a group of votes whose preferences are likely to be more varied than a politician's individual constituency. As a result, politicians in strong-party systems may be less responsive to narrow demands focusing instead on providing broad policies that garner favor with a large majority of the party's supporters. In candidate-centered systems, parties are weak. Candidates in these systems focus on gaining support within their constituency rather than their party. These systems are likely to favor narrow transfers over broad.

Both majoritarian and proportional electoral systems can sustain weak parties. In parliamentary majoritarian systems, party control over district candidate nominations engenders relatively strong parties and party-centered candidates.²⁵ However, many majoritarian systems tend not to have strong parties. For example, candidates are nominated by direct primaries in the United States. As a result, party discipline is low and candidates appeal directly to their constituents in an attempt to develop a personal vote. Weak-party proportional systems also exist.²⁶ Given this, the distinction between majoritarian and proportional systems yields ambiguous results with regards to transfer form.

²³ McGillivray 2003.

²⁴ Wallack et al. 2003.

²⁵ McGillivray 2003; Bowler, Farrell and McAllister 1996.

²⁶ They are not common. Brazil is an example of a weak-party proportional system.

Theoretically, the distinction between candidate and party centered systems is likely to be a better predictor of transfer form than the distinction between majoritarian and proportional electoral systems. Narrow transfers will tend to be more generous in candidate-centered systems, all else equal.²⁷ With their electoral fates riding primarily on their ability to deliver targeted benefits, politicians in candidate-centered systems will favor narrow transfers over broad. Transfers in a candidate-centered majoritarian system are likely to look more similar to those in a candidate-centered proportional system than those in a strong-party majoritarian system.

Taking electoral systems and party strength together, I hypothesize that party-centered proportional systems are most likely to have broad transfers, holding domestic demands constant.²⁸ Candidate-centered majoritarian systems are most likely to have narrow transfers, all else equal. Although the baseline probability of seeing narrow transfers is determined by the level of domestic demand for them, politicians in candidate-centered, majoritarian systems are likely to be more responsive to an increase in narrow demands than politicians in a party-centered, proportional system because of the inherent bias of candidate-centered systems and majoritarian systems towards narrow transfers.

²⁷ Cox and McCubbins 2001; Mayhew 1974; Fiorina and Nool 1979; Arnold 1990; Fenno 1978; Ferejohn 1974; Fiorina 1979; Wilson 1987; Weingast, Shepsle and Johnson 1981.

²⁸ It is important to note here that the self-selection of countries into electoral systems is clearly not random and most likely correlated with other unobserved variables that also influence a country's policy outcomes (Persson and Tabellini 2004).

2.10 Conclusion

In the theoretical model, asset specificity determines the form of transfers provided by the government to domestic asset owners. I have argued that narrow transfers will be most prevalent in countries characterized by immobile labor. Such transfers are even more likely in countries characterized by both immobile labor and electoral institutions that favor narrow interests.

The remainder of this study sets about testing the hypotheses derived from the theoretical model described above. In the next chapter, I explore measures of labor mobility and estimate of the costs of adjustment common to all workers in a given economy. In chapter 4, I use expenditures on industry subsidies to test the relationship between labor mobility and transfer form. In chapter 5, I use the standard deviation of tariff rates as an indicator of transfer form. In chapter 6, I use instances of international disputes over narrow transfers to test the relationship between labor mobility and transfer form.

Chapter 3: Measuring Asset Specificity

To test the argument outlined in chapter 2 regarding the effects of labor specificity on the form of transfers, it is necessary to generate reliable measures of the adjustment costs facing labor. Given the theoretical importance afforded to asset specificity in theories of international trade and investment, there are surprisingly few empirical measures of the concept. Instead, many studies rely on indirect measures. Below, I outline briefly the indirect measures used in previous studies.

Indirect measures of labor mobility have several serious drawbacks. For example, indirect measures rely on the theorized effects of labor mobility. If the theorized effects are absent or wrong, using indirect measures will lead to incorrect conclusions about the level of labor mobility. Given these drawbacks, a direct measure of labor mobility is preferable. For this project, I generate a direct quantitative measure of labor mobility by calculating the rate of labor movement between manufacturing industries in more than 50 countries. Below, I explain in detail how this measure is constructed.

To address concerns that labor mobility is endogenous to policy, I estimate the effects of unemployment benefits, job security protections, and collective bargaining agreements on the rate of inter-industry labor movements. Using this model, I calculate the costs of adjustment that stem from technology. Measures of technology-induced adjustment costs are stripped of the effects of policy thereby reducing concerns about endogeneity.

3.1 Indirect measures of asset specificity

Indirect measures of asset specificity are generally characterized as being something that is normally thought of as a consequence of specificity. If, for example, specific assets are thought to produce complex contracts, then the relative complexity of contracts might be taken as an indirect indicator of specific assets. This approach is exemplified by Magee (1980) who uses lobbying patterns to infer levels of asset specificity in the United States. While mobile assets are expected to lobby together in a broad factor group, immobile assets tend to lobby in industry-specific groups. Magee examines the composition of lobby groups testifying before Congress and concludes that the existence of industry-specific groups comprised of both labor and capital owners indicate high levels of asset specificity.

Other forms of organization could be used in the same way. For example, the composition of unions could be used as an indirect measure of labor specificity. Unions composed of workers employed throughout the economy in various industries likely indicate low adjustment costs and high labor mobility. In contrast, industry-specific unions comprised only of workers in a single industry would suggest relatively high adjustment costs. Professional societies, craft unions and trade associations might also be used as indirect indicators of asset specificity.¹

Indirect measures of asset specificity are not without drawbacks. They rely on theories of political organization that remain non-falsifiable without direct measures of asset specificity. Although many scholars argue that the relationship between asset specificity and political organization is direct, there are competing theories. For

¹ Alt et al. 1996 p. 708.

example, asset owners might organize in response to electoral institutions rather than the costs of adjustment in order to maximize the probability of lobbying success.² If asset owners organize in response to electoral institutions rather than adjustment costs, using political organization or lobbying patterns as a measure of asset specificity will lead to incorrect conclusions about the level of asset specificity.

Another indirect approach used to measure asset specificity examines differences in the rates of returns across industries. Variation in returns across industries is taken as evidence of adjustment costs. In theory, inter-industry return differentials should be arbitrated away if assets are highly mobile. Smaller differentials in wages and profits across industries are therefore taken as indicators of higher levels of mobility.

Different versions of this type of indirect measure have been used in a wide range of studies of labor and capital mobility. Hiscox (2002), for example, uses the coefficient of variation in wage rates to track changes in levels of labor specificity over time in 6 OECD countries. Similarly, Frankel (1991) studies the differences in returns earned by similar types of assets held in different national markets to estimate the extent of international capital mobility.

There are several reasons for exercising caution in using wage differentials as measures of labor specificity. Just as the 'law of one price' is known to hold under very restrictive assumptions, so too is wage arbitration. Wage differentials may persist if there are differences in working conditions across industries. Similarly, variance in skill levels among workers is likely to support different wage rates across industries.

² Alt and Gilligan 1994.

Measured differentials may also be affected by short-run shocks to demand in particular industries, differences in the risks associated with employment in each industry, and institutional restrictions on wage rates.

Wage rates in countries with centralized wage bargaining systems are unlikely to respond to labor movements. Centralized wage bargaining compresses the wage structure in an economy. For example, the low inter-industry wage differentials observed in Sweden during the post-war period no doubt reflect the solidarity wage policy that was at the heart of the Rehn-Meidner approach to centralized wage negotiations.³ In this case, low wage differentials do not reflect high levels of labor mobility but rather institutionalized wage negotiations.

Empirically, there is no evidence that high rates of labor movement between industries decrease wage differentials in the current or future period, even in countries without centralized wage bargaining. Wage structures are relatively persistent over time, despite labor movement between industries. Wage differentials likely persist because of institutional restrictions on wage rates, differences in working conditions and skill levels across industries, and the level of risk associated with employment in various industries. Given this, wage differentials likely overestimate the adjustment costs facing labor. In fact, the probability of measuring asset specificity with significant error is great when using wage differentials and other indirect measures. The heavy reliance of such problematic measures points to the difficulty of measuring levels of labor specificity directly.

³ Hiscox 2002; Lundberg 1985.

3.2 Direct measures

In this dissertation, I use a direct measure of labor mobility that calculates the rate of labor movement between industries.⁴ This methodology builds on the partial-adjustment idea that larger adjustment costs are reflected in slower employment adjustment to shocks.⁵ Observing the rate of labor adjustment in response to economic shocks and business cycle effects provides an estimate of the adjustment costs facing labor. Labor facing relatively high adjustment costs will respond slowly to economic shocks. Such labor is considered to be specific to its current use in the near future.

To estimate the rate of labor adjustment, I calculate the movement of labor across sectors by isolating the fraction of jobs that move from sector to sector independently of overall employment gains or losses. This measure calculates the rate of change in the employment distribution across 28 industries within the manufacturing sector for more than 50 countries using employment data from UNIDO (2000). It is computed as:

$$IR_{t-z} = \frac{\sum_{i=1}^N |E_i^t - E_i^{t-z}| - \left| \sum_{i=1}^N E_i^t - \sum_{i=1}^N E_i^{t-z} \right|}{0.5 \sum_{i=1}^N (E_i^{t-z} + E_i^t)} \quad (1)$$

where E_i is employment in the i th of the N industries at times t and $t-z$ years. In the numerator, the term on the left represents the number of employment changes between

⁴ This measure was developed by labor economists and has been widely used in studies of labor adjustment. See, for example, Lilien 1982; Charette et al. 1986; Baldwin and Gorecki 1990; Rama 1994; Davis, Haltiwanger, and Schuh 1996; Wacziarg and Wallack 2004.

⁵ Caballero et al. 2004; Nickell 1986; Hammermesh 1993.

t and $t-z$. The summation of absolute values counts each job gained or lost as a change in the structure of employment. The term on the right is the total number of jobs lost or gained and not offset by a gain or loss in other industries. These are the total numbers of uncompensated changes in employment. Subtracting one from the other gives the number of compensated changes in the structure of employment, or employment changes resulting from pure shifts of jobs across sectors. This value is divided by total employment in manufacturing (the average across t and $t-z$) to obtain a measure expressed as a rate rather than the number of job reallocations. Throughout this dissertation, five-year averages of this measure are used to minimize the influence of year-to-year business cycle effects.

Among the full sample of countries for which these data are available during the period from 1980 to 1990 (69), the average rate of labor movement between industries was 3.52. Substantial variance exists in the sample ($sd = 3.04$). Very few countries have extremely high rates of labor movement. These countries like, for example, Sri Lanka are generally excluded from the empirical tests presented in this dissertation because they are influential outliers as determined by Cook's D and partial regression plots. Fifty percent of the countries in this sample have average rates of movement less than 2.5 percent over the 10-year period from 1980 - 1990.

Virtually every developed country falls below the sample median. This is consistent with other studies of labor mobility that find evidence of higher adjustment costs facing workers in later stages of industrialization.⁶ Technological improvements that characterize later states of industrialization increase demand for skilled workers

⁶ Hiscox 2002; Goldin and Katz 1996; Mincer 1984.

and consequently increase the incentives for workers to invest in industry-specific skills. Given this, we expect to see lower levels of labor mobility in developed countries, all else equal. Among developed countries, France had the lowest average rate of labor movement, as reported in Table 3.1. From 1980 to 1990, the average rate of labor movement between French manufacturing industries was less than 0.5 percent. In contrast, labor was relatively mobile in Portugal and New Zealand where the average rate of labor movement in both countries was approximately 2 percent during this period.

Cross-national variation in rates of inter-industry labor movements reflects not only differences in labor specificity but also other differences as well, including variation in economic performance and labor market regulations. Cross-national comparisons of labor movement should therefore be made with care.

In an attempt to deal with potential restrictions on the cross-national comparability of labor movement, I estimate a model of labor movement that includes both the incentives to move and the ability to do so. Even perfectly mobile labor will move only when there are incentives to move. To control for cross-national variance in the incentives to move, I include measures of economic shocks, business cycle effects, and trade openness. Taken together these variables estimate the incentives to move. The actual rate of observed movement will be jointly determined by these incentives and the costs of moving. The costs of moving are likely to be determined by *both* technology and policy. Because I am interested in estimating the effect of labor mobility on policy, the fact that some part of labor mobility might be endogenous to

policy presents a potential problem. Below, I detail my attempts to address this concern.

3.3 Endogeneity

Some portion of adjustment costs is likely to be influenced by policy. For example, it seems likely that the generosity of unemployment benefits shape the costs workers face when switching jobs. One method I use to address the potential endogeneity of labor mobility is to estimate the adjustment costs due only to technological constraints. To do so, I first predict the expected rate of labor movement in a country, given the country's policy environment and the existing incentives to move. Using this predicted measure of labor movement, I calculate the difference between the observed and predicted movement. Deviations of observed labor movement from the predicted level provide a crude estimate of the costs of adjustment stemming from technology and production strategies.⁷

This methodology is similar to that used in gravity models of international trade.⁸ I generate predictions about a country's propensity for labor movement and compare these predictions with observed rates of movement. Countries in which the observed movement is less than predicted are assumed to have high adjustment costs. Larger residuals indicate lower adjustment costs. In the empirical tests reported in this dissertation, I take the inverse of the residuals so that higher values indicate higher technology-induced adjustment costs for ease of interpretation. Below, I describe the

⁷ Effects of other omitted variables are also included in the deviations.

⁸ See, for example, Leamer 1988.

model used to generate the residuals. First, I give an example of a technological constraint that likely affects the costs of adjustment.

3.4 Automation

Automated production in manufacturing is an example of a technology that likely affects the costs of adjustment. Automation is credited with decreasing the demand for low skill labor. Countries in which industries make wide use of automation are likely to have a manufacturing work force with higher skills, on average, than countries less reliant on automation.

Advanced technology is also credited with increasing the flexibility of production processes, particularly in labor-intensive industries, by helping firms respond quickly to changing markets. A single factory can produce a number of different models simultaneously and change the proportion of various models to meet the demands of a rapidly changing market using computer-integrated manufacturing. Firms using this technology are less likely to respond to economic shocks by shedding labor. Countries heavily invested in these types of technologies may experience lower rates of labor movement between industries.

3.5 Model

Using the rate of inter-industry labor movement between manufacturing industries averaged over a five-year period as my dependant variable, I estimate the costs of adjustment stemming from technology. Averaging the yearly rate of labor movements over a five-year period reduces the influence of year-to-year business

cycle-effects. These short-run changes may influence the observed rate of labor movement but are unlikely to alter significantly the average structural adjustment costs facing workers.

All control variables included in the model are averaged over the same five year period as labor movement. So, for example, the average level of industrialization in a given country during the period from 1980 to 1984 is used to predict the average rate of labor movement in 1980-84. In addition to controlling for a country's level of industrialization, I also include three other types of control variables: policy variables, population demographics, and variables that measure the incentives for labor to move. Information on data and sources is available in Appendix A.

I include two direct measures of policy and one indirect measure in order to estimate the effects of a country's policy environment on the level of labor mobility. The first direct measure estimates the job security regulations in a given country. Job security regulations are likely to affect workers' decisions to invest in specific skills. Greater job security reduces the risk of investing in industry-specific skills. Workers in countries with relatively high levels of job security are likely to be relatively immobile between industries. I therefore include a measure of the protection provided by the rules governing the termination of the employment contract, including those governing grounds for dismissal, dismissal procedures, and notice and severance payments.⁹ The index of job security regulations is coded such that higher values indicate more protection.

⁹ Botero et al. 2004.

Generous unemployment benefits also serve to reduce the risk of investing in industry-specific skills. This in turn reduces the average level of mobility in a given economy. To account for this, I include a control variable that measures the level of mandatory contributions, the wage replacement rate, and the waiting period for benefits and deductions.¹⁰ Again, this index is coded such that higher values represent more generous unemployment benefits. I therefore expect it to be negatively correlated with labor mobility.

In addition to these two direct measures of policy, I also include federalism as an indirect measure of the density of a country's policy environment. A dummy variable for federal systems is set to 1 if a country has locally elected state or province governments for a majority of the years in a given five-year period and 0 otherwise.¹¹ Federal systems are likely to have more restrictions on labor movement between geographical locations. Regional, state and local governments can implement their own regulations and standards that exist in addition to federal regulations, which increase the costs to workers of moving.

In addition to raising the costs of adjustment, geographically-specific policies may also provide workers with incentives to move. If workers are faced with an array of localities that have different policies, it is possible that any given worker will find the policies of some localities are more desirable than others given their individual preferences and characteristics. Workers would then have an incentive to move to the locality that best satisfies his or her own particular preferences.¹² It is not clear if the

¹⁰ Botero et al. 2004.

¹¹ Beck et al. 2001.

¹² This is the logic of the Tiebout model (1956).

incentives to move generated by geographically specific policies will outweigh the increase in adjustment costs they entail. Given this, it is difficult to predict the direction of the effect of federalism on labor mobility. Nonetheless, it is an important control variable.

To further control for variance in the incentives for workers to move, I include three additional variables: collective bargaining, openness to foreign trade and economic growth. I discuss each in turn. As noted previously, collective bargaining is likely to compress the wage schedule. When wages are similar across industries, workers have fewer incentives to move between them. Given that collective bargaining reduces the incentives for workers to move between industries, collective bargaining should be negatively correlated with observed rates of labor movement. To control for this, I include a measure of the protection of industrial relations laws.¹³ Higher values indicate more collective bargaining.

Openness to foreign trade likely influences the relative benefits to workers of moving to a new industry. A country's average level of openness measured as the sum of its total import and exports as a percentage of its GDP over a five-year period is included in the model. As countries open their markets to foreign goods, rates of return change. Industries that are internationally competitive may see an increase in returns. In contrast, industries facing increased import competition that are not internationally competitive likely see lower rates of return. These changes generate incentives for workers to move where they may not have existed previously. How workers respond to the incentives generated by openness to foreign trade provides

¹³ Botero et al. 2004.

evidence of the average level of adjustment costs in a given economy. Countries more open to foreign trade may experience larger labor movements as the domestic economy adjusts to import competition. Additionally, countries open to foreign trade are relatively more vulnerable to the volatility inherent in the international market. Scholars have cited this volatility as a potential reason for why governments provide social security nets.¹⁴ Volatility in the international markets may result in greater churning in domestic labor markets. I therefore expect trade openness to be positively correlated with labor movement.

The strength of the economy likely affects the observed rate of labor movement and workers incentives to move to a new use. In strong economies where the rate of economic growth is high, employers are more willing to hire new labor. Economic growth is in fact negatively correlated with unemployment at $r = -0.3$. As the economy grows, demand for labor increases and workers are consequently more willing (and able) to switch jobs. The annual percentage growth rate of GDP is averaged over five years and included as a control variable for variance in the incentives to move.

Also included in the model are controls for the demographic characteristics of a country's labor force that are likely to influence the observed rate of labor movement. Countries in which a larger percentage of the population is located in urban areas are likely to have lower average adjustment costs. This variable estimates how far a worker would have to travel to take a job in a new industry. In dense urban areas, workers are more likely to find a new job close to their current home and/or

¹⁴ See, for example, Rodrik 1995.

current place of employment. A more precise measure of this concept would be industry concentration but these data are limited.

The natural log of a country's population is also included. Countries with large populations are likely to have less homogeneous labor forces. The larger the population, the more likely it is that one worker will look very different than another. When workers are not close substitutes for one another, we expect to see lower average rates of labor movement between industries. I therefore expect the natural log of a country's population to be negatively correlated with labor movements.

The average level of education in a given country likely affects the observed rate of inter-industry labor movement. I therefore include a measure of the average number of years of education in the population over the age of 25.¹⁵ Although the direction of the effect of education on labor mobility is not entirely obvious, it seems important to control for the level of education when comparing levels of labor mobility across countries. Labor's ability to move between uses in an economy is likely to be very different in countries where virtually everyone has completed at least 12 years of education, as is the case in the United States, than in countries where very few people in the labor force are literate.

3.6 Results

Using these control variables, I estimate the average rate of labor movement over five years. In each model, I identify and exclude outlier country-years using

¹⁵ Barro and Lee 2001.

Cooks' D.¹⁶ Outlier countries include Sri Lanka and Benin. These countries are excluded from the results are reported in Table 3.2.

Only 26 percent of the variation in labor mobility can be accounted for by cross-national variance in policy and demographics, as demonstrated by Model 2. Income is a robust predictor of labor movement. Not surprisingly, rich countries appear to have relatively specific labor. A one-thousand dollar increase in real GDP per capita decreases the rate of inter-industry labor movement by 0.13 percent. This is consistent with the hypothesized importance of technological constraints for labor mobility. Richer countries tend to make greater use of technology requiring skilled workers. Additionally, more developed economies are more specialized.

Model 1 includes controls for the incentives to move including trade openness and economic growth. However, these two variables are excluded from Models 2 and 3. Models 2 and 3 are used to estimate a country's *potential* level of mobility given the policy environment and population demographics.

Model 3 contains a measure of economic development. Economic development is likely to be highly correlated with technology. Because I am interesting in estimating the technology-induced adjustment costs using the residuals, I exclude economic development from Models 1 and 2. However, economic development may also influence the *policy-induced* adjustment costs. Rich countries may tend to have certain policies that are not captured in the policy measures included here. The residual predicted using Model 3 may be stripped of some of the

¹⁶ Country-years are excluded if the measure of Cooks' D is greater than 0.04.

technology-induced adjustment costs, specifically those that vary with economic development.

The residuals from each of the three models are highly correlated. I take the inverse of the predicted residuals so that higher values indicate greater adjustment costs for ease of interpretation. Estimated *technology-induced* adjustment costs range from -3.36 to 1.9.

Countries identified as having low *technology-induced* adjustment costs include New Zealand, Egypt, Italy, the Philippines and Canada, as reported in Table 3.5. Countries with high *technology-induced* adjustment costs include India, Austria, Poland, and Australia, as reported in Table 3.6.

Although these results generally correspond with our expectations, there are potential drawbacks to measures based on deviations. Some determinants of potential labor mobility may have been omitted from the model, so the predicted level of labor mobility may be inaccurate. As long as the observed rate of labor movement contains a white noise disturbance term, deviations from predicted rates will also contain a white noise disturbance term (whose share of the variance in the total variance of the measure has increased due to the differencing) and its use will result in increased downward bias associated with measurement error.

In light of this potential bias, I also estimate models that include observed labor mobility and control variables for policy and business cycle effects. Such models rely on less restrictive assumptions.

3.7 Limitations and possible concerns

The micro-foundational story developed in chapter 2 is general and holds for all asset owners, regardless of the identity of their asset. Specific asset owners - whether owners of capital, labor or land - prefer narrowly targeted transfers. Indeed, I would argue that my theory provides a potential explanation for the recent finding that capital owners organized in broad interest groups demand greater spending on broad transfers like active labor market programs.¹⁷

Given the general nature of my theory, it would be possible to test my argument using measures of either labor, capital or land specificity. I have chosen to use measures of labor specificity here to test the hypotheses derived from the micro-foundational theory for several reasons. First, it sets up a difficult test of my theory because capital owners may be favored by politicians, especially in countries with right-leaning governments.¹⁸ Given this, the preferences of capital owners are more likely to be translated into policy outcomes. Examining the relationship between *labor* mobility and transfer form sets up a difficult test of my hypothesis.

An additional benefit of using labor rather than capital is the fact that labor is still relatively immobile internationally.¹⁹ This makes it possible to study the preferences of labor without concerns over potential divisions between internationally mobile and immobile labor. Recent studies suggest that the preferences of internationally *immobile* assets differ from those of internationally mobile assets.²⁰ As a result, any examination of asset owners' preferences must take into account the

¹⁷ Martin and Swank 2004.

¹⁸ See, for example, Li and Smith 2002.

¹⁹ Rodrik 2000.

²⁰ Hiscox 2003.

percentage of the population that is internationally mobile. By using labor mobility to test my theory, I avoid this complication allowing me to cleanly test the relationship between labor mobility and policy outcomes.

One possible complication of using labor exclusively to test my argument is the fact that policy outcomes often represent a bargained compromise between competing interests. If the costs of adjustment facing labor and capital are relatively similar, their preferences will converge and both factors will make similar demands. For example, labor and capital lobby together by industry when the costs of adjustment are high.²¹ If capital and labor mobility are positively correlated, estimates of labor mobility can be used as general estimates of the costs of adjustment facing owners of both labor and capital. Given this, my results would generalize from labor mobility to the costs of adjustment more generally.

Evidence exists to suggest that capital and labor mobility covary. Hiscox (2002) finds a general correspondence between changes in labor and capital mobility over time. Given this, we expect the preferences of capital and labor to coincide. Facing similar adjustment costs both labor and capital will prefer the same form of transfers. This does however introduce a potential problem for my analysis. If capital and labor have the same preferences over transfer form, it becomes difficult to conclude how much influence labor has relative to capital. It is theoretically possible that a large portion of the effects I find for labor mobility may in fact be due to demands made by capital facing similar adjustment costs. Without a measure of capital mobility, I am not able to estimate the relative political strength of labor. This

²¹ Hiscox 2002.

is a fruitful area for extensions on this study. Even if future work attributes much of the estimated effect to capital rather than labor, such results would still constitute evidence in support of the general micro-foundational theory developed in chapter 2.

If however the costs of adjustment facing labor are very different from those facing capital, their preferences will diverge. If they diverge, it is not clear what the policy outcome will look like. The observed policy outcome might favor the preferences of capital, as suggested above. On the other hand, it might represent a bargained compromise between labor and capital. In this case, labor's preferences will not be strongly related to policy outcomes and the estimated relationship between labor specificity and policy outcomes will likely be biased down. If the costs of adjustment facing labor are different from those facing capital, it biases against finding the predicted relationship between labor mobility and transfer form.

3.8 Conclusion

The evidence presented in this chapter indicates that the level of labor mobility varies significantly across countries. The question remains whether this cross-national variance in labor specificity explains the cross-national variance in transfer form. I explore this question in the following chapters. In chapter 4, I use expenditures on subsidies, grants and loans to test the relationship between labor specificity and transfer form. In chapter 5, I examine the standard deviation of tariff rates in Latin America to determine the dominant transfer form provided using trade policy and in chapter 6 I examine instances of international disputes over narrow benefits.

Table 3.1: Average rate of inter-industry labor movement by country, 1980-1990

Country Code	Mean
AUS	0.99
AUT	1.97
CAN	1.53
DEU	0.72
DNK	1.53
ESP	1.43
FIN	1.30
FRA	0.42
GBR	1.75
ITA	2.36
JPN	1.52
NLD	1.82
NOR	1.33
NZL	2.19
POL	0.79
PRT	1.90
SWE	1.57
USA	1.14

Table 3.2: Predicting the rate of inter-industry labor movement

Labor movement	1	2	3
Policy			
Job security	0.74 (1.3)	0.63 (1.2)	-1.29 (1.09)
Unemployment benefits	-0.24 (0.97)	-0.92 (0.89)	-0.21 (0.78)
Federal	-0.18 (0.48)	0.15 (0.47)	0.4 (0.38)
Incentives			
Collective bargaining	-0.59 (0.44)	-0.52 (0.4)	-0.23 (0.35)
Open	0.01 (0.01)		
Growth (ln)	0.12 (0.26)		
Population demographics			
Urban pop	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.01)
Pop (ln)	-0.19 (0.26)	-0.37 (0.14)**	-0.21 (0.10)*
Education	-0.07 (0.12)	-0.09 (0.12)	0.04 (0.1)
Other			
Income			-0.13 (0.03)**
Period	-0.08 (0.08)	-0.01 (0.06)	0.04 (0.05)
Constant	164 (165)	29 (124)	-65 (108)
Observations	48	53	52
Countries	23	53	52
R-squared	0.28	0.26	0.46

Pooled cross-sectional OLS regression with robust standard errors in columns 1-3. Dependent variable is the rate of inter-industry labor movement. Base sample is an unbalanced panel from 1980-1999, with data averaged over 5-year periods (80-84, 85-89, 90-94, 95-99). Model 1 contains data from 2 periods (90-94, 95-99). A period dummy is included in Model 1, although it is not statistically significant. Influential outliers are excluded. Models do not exhibit multicollinearity. The variance inflation factor (VIF) is less than 4 for all variables included in models 1-3, as recommended by Huber et al. (1993).

Table 3.3: Pairwise correlation of residuals

	r1	r2	r3
r1	1		
r2	0.99	1	
r3	0.92	0.93	1

Table 3.4: Descriptive statistics of predicted residuals (inverse)

Variable	N	Mean	Std Dev	Min	Max
r1 (inverse)	48	1.15e-09	1.03	-3.06	1.82
r2 (inverse)	53	-7.03e-09	1.04	-3.36	1.82
r3 (inverse)	52	1.86e-09	0.92	-2.84	1.91

Table 3.5: Lowest adjustment costs countries

Residual (1)			Residual (2)			Residual (3)		
EGY	(1990)	-3.07	EGY	(1990)	-3.36	EGY	(1990)	-2.85
NZL	(1995)	-2.46	PHL	(1990)	-2.27	PHL	(1990)	-1.80
PHL	(1990)	-2.45	NZL	(1995)	-1.78	URY	(1995)	-1.71
ITA	(1990)	-1.31	BGR	(1995)	-1.61	CAN	(1995)	-1.53
CAN	(1995)	-1.15	ITA	(1990)	-1.22	ITA	(1990)	-1.52

Table 3.6: Highest adjustment costs countries

Residual (1)			Residual (2)			Residual (3)		
POL	(1990)	1.22	POL	(1990)	1.22	ZWE	(1995)	0.89
IND	(1995)	1.27	FIN	(1990)	1.39	AUT	(1990)	0.96
NLD	(1990)	1.29	AUT	(1995)	1.43	EGY	(1995)	1.14
MEX	(1995)	1.40	IND	(1995)	1.46	COL	(1995)	1.21
AUS	(1990)	1.68	AUS	(1990)	1.74	BOL	(1990)	1.48
AUT	(1990)	1.82	AUT	(1990)	1.82	AUT	(1990)	1.91

Appendix A: Variable descriptions

Population Demographics

Urban population: Percent of total population living in urban areas (WDI 2001).

Population: Natural log of a country's population (WDI 2001).

Education: Average number of years of education for the population over 25 (Barro and Lee 2001).

Business Cycle and Incentives to Move

Economic growth: Annual percentage growth rate of GDP at market prices based on constant local currency. (Heston, Summers and Aten 2002).

Open: Exports plus imports divided by GDP (Heston, Summers and Aten 2002).

Collective bargaining: Measures the protection of industrial (collective) relations laws as the sum of the sub index of collective bargaining; the sub index of worker participation in management and the sub index of collective disputes (Botero et al. 2004).

Policy (Indirect)

Federal: Dummy variable indicating if a country was a federal system for a majority of years during the specified 5 year period. A system is coded as being federal if the state/province governments are locally elected. Indirectly elected state/province governments elected by directly elected state/province bodies are considered locally elected (Beck et al. 2001).

Policy (Direct)

Job security: Measures the protection of the rules governing the termination of the employment contract as the average of: 1) protection of grounds for dismissal; 2) protection of dismissal procedures; 3) notice and severance payments and 4) right to job security in the constitution (Botero et al. 2004).

Unemployment benefits: Measure the level of unemployment benefits as the average of mandatory contributions, wage replacement rate, waiting period for benefits and deductions (Botero et al. 2004).

Technology and production strategies

Income: Real GDP per capita based on purchasing power parity (PPP). GDP PPP is gross domestic product converted to international dollars using purchasing power parity rates (WDI 2001).

Appendix B: Country Codes

Country Code	Country Name
AUS	AUSTRALIA
AUT	AUSTRIA
BEL	BELGIUM
BGR	BULGARIA
BOL	BOLIVIA
CAN	CANADA
COL	COLOMBIA
DEU	GERMANY
DNK	DENMARK
EGY	EGYPT
ESP	SPAIN
FIN	FINLAND
FRA	FRANCE
GBR	U.K.
IND	INDIA
ITA	ITALY
JPN	JAPAN
MEX	MEXICO
NLD	NETHERLANDS
NOR	NORWAY
NZL	NEW ZEALAND
PHL	PHILIPPINES
POL	POLAND
PRT	PORTUGAL
SWE	SWEDEN
URY	URUGUAY
USA	UNITED STATES
ZWE	ZIMBABWE

Chapter 4: Subsidies

Evidence presented in the previous chapter indicates that levels of inter-industry labor mobility vary substantially across countries. In light of this evidence, the question remains whether or not this variance has produced observable differences in transfer form. According to the argument advanced in chapter 2, narrowly targeted transfers should be more likely when labor mobility is low, while broad transfers should be much more prevalent when labor mobility is high. How exactly would we recognize such differences in transfer form? I address this question here and then test the observable implications of my argument.

4.1 Measuring transfer form

Measuring the form of transfers is difficult given the myriad policy tools available to the government to target benefits to voters. Regulatory, tax, monetary, exchange rate and trade policy can all be used to target benefits to subsets of the population. An ideal measure of narrow transfers would estimate the total amount of industry-specific transfers provided through all such redistributive measures. However, this would be extremely difficult to calculate.

Instead, I focus on narrow transfers provided through government outlays such as subsidies, loans and grants in this chapter. These types of transfers are relatively transparent and easy to measure. Although government outlays measure only a fraction of the total transfers provided by a government, they can be used to estimate of the prevalence of narrow transfers relative to broad.

Significant cross-national variance exists in the form of transfers provided through government outlays. This is true even among highly developed European countries as illustrated in Table 4.1. From 1990 to 1999, the average European country targeted 51 percent of its total manufacturing subsidies to individual industries. Finland, however, spent only 18 percent on individual industries. The rest of its manufacturing subsidies were available to all industries to promote sector-wide improvements in technology, international competitiveness, and environmental standards. In contrast, over 75 percent of manufacturing subsidies were awarded to individual industries in Sweden.

This variance is not consistent with existing institutional explanations of government spending. Among corporatist countries, significant variance in transfer form exists despite having similar *levels* of transfers. While Sweden spends over 75 percent of its manufacturing subsidies on individual industries, Denmark spends only 36 percent on narrow subsidies. Furthermore, transfer form is similar in Belgium and the United Kingdom with both countries targeting approximately half of their manufacturing aid to individual industries. This despite the fact they have very difficult political institutions.

Institutions alone cannot account for the full range of cross-national variance in transfer form. Domestic demands influence transfer form. The preferences of domestic actors over transfer form are shaped by the costs of moving from one segment of the economy to another. Workers, for whom it is prohibitively costly to move out of a declining industry, prefer narrowly targeted redistributive policies designed specifically to benefit their industry. As a result, politicians in countries with relatively

immobile labor forces tend to provide narrowly targeted transfers. I test this argument here using data on government outlays and quantitative measures of labor mobility described in the previous chapter.

4.2 Estimating the form of transfers

Here, I describe the empirical relationship between the form of government transfers and labor mobility during recent decades. I show that the relationship between transfer form and labor mobility varies across countries in the way predicted by the theoretical model developed in chapter 2. I begin with a discussion of the data used in the statistical analysis and the methodological issues that I confronted. I then present the empirical results. Details regarding data sources and coding can be found in Appendix A.

4.3 Government outlays by function

Data on total outlays to a particular segment of the economy provide a good estimate of narrow transfers. Using the Classification of Functions of Government (COFOG),¹ the IMF reports total government outlays for grants, loans and subsidies to support manufacturing industries for over 100 countries from 1970 to 1997. So, for example, cash transfer payments to a single industry, the purchase of goods and services from that industry by the government, or the acquisition of an asset for that industry are all reported as transfers to that industry by the IMF's *Government Finance Statistics* (2001). Outlays that are not directed to a single industry, such as

¹ OECD 2000.

subsidies and grants designed to increase employment opportunities throughout the economy, are excluded.²

Narrow transfers to manufacturing industries are reported as a percent of government expenditures (excluding interest payments). Reporting narrow transfer as a percent of government expenditures controls for cross-national variance in the size of government. It also provides a crude estimate of the weight of narrow transfers relative to broad given that a large portion of government spending included in measures of government expenditures is directed towards relatively broad segments of the population. For example, health care and pensions account for large shares of government spending.

Countries spend very different amounts on industry-specific transfers, as illustrated in Table 4.2. This is true even among developed countries. The United States spends less than 0.2 percent of its total expenditures on manufacturing industry transfers.³ In contrast, Italy spends 3.5 percent of its total expenditures on industry-specific outlays. The United Kingdom, often characterized as a liberal market economy in the varieties of capitalism literature, spends almost 2 percent on narrow transfers to manufacturing industries.⁴ In fact, the UK spends slightly more than Austria, the archetype of coordinated market economies. Similarly, Australia and Sweden spend very similar amounts on narrow manufacturing transfers at 0.85 and 0.9 percent respectively.

4.4 Model using narrow manufacturing transfers

² IMF *Government Finance Statistics Manual* 2001.

³ Throughout this dissertation interest payments are excluded from total government spending.

⁴ See, for example, Hall and Soskice 2001.

Using data on the percent of government expenditures devoted to narrow manufacturing transfers from 1975-1999, I test the relationship between transfer form and labor mobility. The percent of government expenditures devoted to narrow manufacturing transfers is averaged over five-year periods. Similarly, the rate of labor movement is also averaged over five-year periods. This helps to reduce the influence of short-term volatility on the estimate of adjustment costs. All other control variables included in the model are also reported for five-year periods.

I include several control variables to account for the incentives for workers to move between industries, political institutions, and other factors that likely influence the form of transfers provided by the government. I describe each in turn.

The degree to which a country is exposed to exogenous economic shocks will affect the observed rate of labor movement. To account for this, I include the average rate of economic growth and a country's openness to foreign trade as control variables. Exposure to international trade may generate incentives for labor to move between industries. Import competition may reduce the returns in one industry relative to another providing labor with an incentive to move out of declining industries into competitive industries. Comparing the rate of labor movement in two countries with different levels of exposure to the international market may result in incorrect inferences. I therefore control for the level of openness.

Although I do not expect a country's current account balance to determine the *form* of its transfers, the strengthening of a current account balance will reduce total

government expenditures.⁵ Because narrow transfers are reported as a percent of total government expenditures, I include the current account balance as a control variable. This variable is positive and significant suggesting that the strengthening of a current account balance does in fact reduce total government expenditures but not spending on narrow transfers.

I control for a range of institutions that are likely to affect the supply-incentives facing politicians, including regime type and electoral systems. Although my argument is most likely to hold in high functioning democracies, my sample includes countries with various regime types. If high functioning democracies are most responsive to domestic preferences, including all regime types in my sample bias against finding support for my hypothesis. I do, however, control for the level of democracy in models 1-3.

Whether a country's electoral system is proportional or not, is often cited as a potential explanation for the form of transfers.⁶ I therefore include a dummy variable that is set to 1 if a country's electoral system was majoritarian for a majority of years in a given five-year period and 0 otherwise.

Variance in party strength is also cited as a possible reason for variance in the provision of narrow, particularistic transfers. To control for this, I include a measure of the extent to which a candidate is directly chosen by the electorate versus a political party. Higher values indicate strong parties with relatively tight control over ballot access.⁷ I expect strong parties to be negatively correlated with narrow transfers.

⁵ Clements et al. 1998.

⁶ See, for example, Persson and Tabellini 2004.

⁷ Wallack et al. 2003.

Moene and Wallerstein (2003) argue that right governments are likely to prefer narrow transfers to broad. I therefore include a dummy variable coded 1 if the government was characterized as being right for a majority of year in a given five-year period and 0 otherwise.

The number of veto players in a government has been shown to influence the *level* of transfers.⁸ It is likely that the number of veto players also influences the *form* of transfers. Cox and McCubbins (2001) argue that countries with a greater number of effective veto players will tend to have more narrowly targeted benefits. They define the effective number of veto players as being the number of political actors that possess a veto over a policy change that hold different position on the issue. Here, due to data limitations, I use the number of institutionally defined veto players without regard to their policy positions. By doing so, it is possible that I overstate the number of actual veto players. The non-relationship between veto players and transfer form reported in Table 4.5 should therefore be treated with caution.

Federalism may engender particular political compromises at the cost of effective policy.⁹ Having representation allocated on a geographical basis adds a particular type of rent seeking in which the interests are regionally organized. Although I exclude regional transfers from my analysis, I include a federalism control variable to account for the possibility that industry-specific subsidies could serve as regional transfers. If so, we would expect narrow transfers to be more prevalent in federal systems. However, I find no evidence of this.

⁸ Bawn 1999; Persson, Roland and Tabellini 2003.

⁹ Cox and McCubbins 2001.

The structure of a country's economy will likely shape its outlays and transfers. To control for the structure of the economy, I include a measure of the size of the agricultural sector. More precisely, I control for the output of the agricultural sector less the value of intermediate inputs as a percent of GDP. I expect that countries with large agriculture sectors will spend less on industry transfers.

4.5 Results using narrow manufacturing transfers

Narrow transfers, measured as the percent of government expenditure (excluding interest payments) spent on industry-specific grants, loans and subsidies, are less generous in countries characterized by high average levels of labor mobility. Narrow transfers are significantly and negatively related to labor mobility, as reported in Tables 4.5 and 4.6. Countries in which labor faces high average adjustment costs have more generous narrow transfers, as reported in Table 4.7. I discuss briefly each set of results below.

Democracy is negatively and significantly related to narrow transfers. Democratic leaders are beholden to a larger segment of the population than non-democratic leaders.¹⁰ Indeed, high-functioning democracies have much larger electorates than less democratic regimes. As a result, democratic leaders are less willing (or able) to provide narrowly targeted transfers as compared to non-democratically elected leaders.

Politicians elected by majoritarian systems appear to be more responsive to narrow demands. Narrow transfers are more generous in countries with majoritarian

¹⁰ Bueno de Mesquita 1999; Wintrobe 1998.

electoral systems than those with proportional systems, as reported in Model 3 of Table 4.5. Spending on industry-specific transfers is 1.3 percent higher in majoritarian systems, even controlling for domestic demands. This is consistent with previously theorized effects of electoral systems. Proportional systems are argued to diffuse electoral competition, giving the parties strong incentives to seek electoral support from broad coalitions in the population through broad redistributive programs. In contrast, majoritarian systems concentrate electoral competition in pivotal districts which creates incentives to target narrow benefits to voters in these swing districts. This effect is reinforced by the winner-takes-all property of plurality rule, which reduces the minimal coalition of voters need to win the election.¹¹ Politicians in majoritarian systems appear to use manufacturing industry subsidies to target benefits to narrow subsets of voters.

Although narrow transfers are more generous in majoritarian systems, labor mobility has no additional effect on manufacturing subsidies in majoritarian systems. The coefficient of the interaction term of plurality and labor movement reported in Model 4 of Table 4.5 is not statistically different from zero. Politicians in majoritarian and proportional systems appear to be equally responsive to changes in labor mobility.

Politicians in candidate and party-centered systems appear equally responsive to changes in labor mobility. Labor mobility has no marginal effect on manufacturing subsidies in candidate-centered systems. The coefficient of the interaction term of candidate-centered and labor movement reported in Model 5 of Table 4.5 is not statistically different from zero.

¹¹ Persson and Tabellini 2004.

Candidate-centered systems have an additional effect on manufacturing subsidies in *majoritarian* systems. The coefficient of the interaction term of candidate-centered and majoritarian systems is negative and statistically significant. It appears that candidate-centered majoritarian systems provide fewer narrow transfers than party-centered majoritarian systems, contrary to my expectations. Politicians in strong party majoritarian systems use manufacturing subsidies to target swing districts. In weak party majoritarian systems, like the United States, policy outcomes are a function of coalition building in the legislature. Politicians cannot be expected to vote along party lines in these systems. To pass legislation, a coalition of support must be built. Support could be garnered using promised side-payments to individual legislators.¹² Alternatively, support for legislation could be garnered among legislators representing a similar constituency by promising broad transfers to that constituency. McGillivray (2001) argues that it is less costly to use broad transfers than narrow transfers to form a legislative coalition in weak-party majoritarian systems. The results reported in Model 6 of Table 4.5 appear to support McGillivray's proposition.

I find no evidence that right parties prefer narrow transfers over broad. In fact, it appears that left governments provide greater narrow transfers than right governments. However, government ideology is a robust predictor of narrow transfers in only one of the three models reported in Table 4.5.

Both left and right governments appear to be equally responsive to changes in labor mobility. There is no additional effect of labor mobility on manufacturing subsidies in left governments, as reported in Model 7 of Table 4.5. The coefficient on

¹² Cox and McCubbins 2001.

the interaction between left government and labor movement is not statistically different from zero. Although left governments tend to provide more narrow transfers, right governments are equally responsive to labor demands over transfer. Qualitative evidence from the United Kingdom during the post-war period, discussed later in this chapter, supports this finding.

I expected countries with large agriculture sectors to spend less on narrow manufacturing transfers. However, agriculture is positively and significantly related to industry-specific manufacturing transfers. This result might capture subsidies to infant-industries in countries that are transitioning from agriculture to manufacturing and yet continue to have large agricultural output. Assets employed in agriculture are generally considered specific. We would therefore expect agriculture and narrow transfers to go together. However, these transfers are limited to those provided to the manufacturing sector. When agriculture is measured as the percent of the population employed in agriculture rather than the output of the sector, the positive relationship still holds.

To check whether these results could be upset by removing one of the countries from the sample, I estimate partial regression plots and Cook's D to identify potential influential outliers. Sri Lanka is an influential outlier in Models 1-7. It is excluded from the sample used to estimate the results reported in Table 4.5.

4.6 Estimation concerns

Observed labor mobility is likely shaped at least in part by policy. Industry-specific transfers may raise the wage rate in the subsidized industry above the market

rate thereby generating incentives for workers to move to that industry. It is possible then that there is a feedback effect from narrow transfers to observed labor movements. This type of dynamic could result in a spurious positive correlation between labor movement and narrow transfers, which is the opposite of my prediction. I use several different methods to deal with the potential endogeneity of labor mobility.

One method is to use the average rate of labor movement from the previous five-year period to predict government spending on narrow transfers in the current period. Although past labor mobility may be influenced by past policies, it is immune from the effects of current and future policy. Endogeneity is therefore minimized. These results are reported in Table 4.6.

Countries with high past levels of labor mobility have less generous current transfers than countries with previously immobile labor. A one percent increase in the rate of labor mobility decreases the percent of government spending on industry-specific transfers in the next period by 0.44, all else constant.

Other estimated coefficients are very similar to those reported in Table 4.5 where current labor mobility is used to predict current transfer form. Agriculture and majoritarian electoral systems remain positive and significant. Exposure to international trade is consistently positive in all of the models reported in Tables 4.5 and 4.6. Openness is a robust predictor of narrow transfers in Model 3 of Table 4.6. Countries more open to international trade have more generous narrow transfers, all else equal. This is consistent with Rodrik's (1995) argument that governments in open economies will spend more to insure their citizens from the risks and volatility

inherent in participation in the international market. The risks of international trade will vary across industries when labor mobility is low. Government spending in response to international trade is likely to be narrowly targeted when labor mobility is low.

The rate of inter-industry labor movement is used to estimate the average adjustment costs facing labor. However, things other than the costs of adjustment will determine the observed rate of labor movement. For example, inflows of foreign imports may reduce wages in non-competitive industries increasing the observed rate of labor movement from declining industries to competitive ones. Similarly, a country's economic performance and business cycles will likely influence the observed rate of labor movement. I have attempted to control for these factors by including things like trade openness and economic growth in previously estimated models. I also use alternative measures of adjustment costs to test the robustness of the results found using the rate of inter-industry labor movement.

4.7 Alternative measures of adjustment costs

Research and development spending is likely to be positively related to adjustment costs. Greater R&D spending results in technological advances which often require more skilled labor. This appears to have been the case in the early twentieth century.¹³ For example, key changes in U.S. industry in the 1910s and 1920 involved moving from assembly-line to continuous-process technology.¹⁴ This new

¹³ Griliches 1969; Hamermesh 1993; Bartel and Lichtenberg 1987 and Fallon and Layard 1975.

¹⁴ Goldin and Katz 1996.

technology required more skilled workers in the management and operation of highly complex tasks. Growth in the demand for specific skill workers has been concomitant with continued technological improvements since that time.¹⁵

In Table 4.7, I use non-government spending on research and development as a proxy for the costs of adjustment. I exclude research and development funds provided by the government because these expenditures are likely to be measured in the dependent variable. To avoid spurious correlations, I include only funds from businesses enterprises, higher education, private non-profit enterprises and foreign sources that are devoted to research and development. This measure presumably underestimates R&D spending because the government often provides the largest share of R&D funds. However, the level of non-government R&D spending provides an estimate of a country's *relative* level of technology and consequently the average costs of adjustment. As expected, countries with higher adjustment costs, as estimated by non-government R&D spending, have more narrow transfers relative to broad.

One might argue that comparing levels of non-government R&D spending across countries is misleading because governments provide R&D funds in precisely those cases where private sources are unavailable. Government funds may be generous in countries where private funds are relatively small. It is the effect of total R&D spending on technology and ultimately adjustment costs that I am interested in. Using measures of non-government R&D spending rather than total spending may result in incorrect inferences regarding the relationship between adjustment costs and transfer form. In an attempt to address this concern while simultaneously minimizing

¹⁵ Hiscox 2002; Goldin and Katz 1996; Mincer 1984.

measurement problems, I use previous levels of total R&D spending to predict current transfer form. As expected, countries with relatively high levels of past spending on R&D have generous narrow transfers in the current period.

I also use an estimate of technology-induced adjustment costs derived from models of labor movement described in Chapter 3. This measure of adjustment costs, like R&D spending, is positively related to narrow transfers. Countries in which the average *technology-induced* adjustment costs are relatively high tend to have more narrow transfers than countries with low average adjustment costs, as predicted.

4.8 Subsidies

Up to this point, I have used a measure of narrow transfers that includes grants, loans and subsidies provided to manufacturing industries. This measure has several obvious strengths. First, it is not limited to a single policy tool but rather captures the total transfers provided through several different means. Second, it is limited to narrow transfers provided to manufacturing industries. This is consistent with my measure of labor mobility, which is also limited to the manufacturing sector. Adjustment costs facing manufacturing workers are likely the best predictor of the form of *manufacturing* transfers.

To test the robustness of these results, I use a measure of narrow transfers provided to not only manufacturing enterprises but also those in the agriculture and service sectors. This measure estimates the current unrequited payments made to

producers in the form of subsidies.¹⁶ Subsidies are given to producers on the basis on the levels of their production activities or the quantities or values of the goods or services they produce, sell, export, or import. Subsidies may be designed to influence levels of production, the prices at which outputs are sold or the remuneration of the enterprises.¹⁷ The subsidies reported here are payable to producers only, not to final consumers. Transfers that governments make to households and consumers like social benefits are excluded from this measure. Also excluded are payments to producers to finance their capital formation or to cover large operating deficits accumulated over two or more years. These data are available for 67 countries for select years ranging from 1970 to 1997. Descriptive statistics are reported in Table 4.3.

During the period from 1970 to 1995, the average country spent 6.8 percent of its total expenditures (minus interest payments) on subsidies to producers. Finland was significantly above the average, targeting 56 percent of its spending to producers in 1995. Several countries spent no money on producer subsidies including Nicaragua in 1995.

4.9 Model and results using subsidies

Using spending on producer subsidies as a percent of total government expenditures (excluding interest payments) as my dependent variable, I estimate the effect of labor mobility on transfer form. Spending on producer subsidies as a percent of total government expenditures is averaged over five-year periods from 1975 to

¹⁶ Data are from IMF's *Government Financial Statistics* (2001).

¹⁷ IMF 2001.

1999. Similarly, measures of labor mobility and all control variables included in the model are also measured over five year periods. The controls variables included in this model are similar to those included in previous models.

Labor mobility is negatively and significantly related to government spending on producer subsidies. Countries with mobile labor tend to spend less on subsidies than countries with specific labor, all else equal. These results are reported in Tables 4.8 and 4.9. I discuss each in turn.

As expected, the rate of inter-industry labor movement does less well predicting agricultural and service sector subsidies than manufacturing transfers. However, observed inter-industry labor movements in the manufacturing sector are positively and significantly related to producer subsidies. A one percent increase in manufacturing labor mobility decreases the percent of government spending on subsidies by 1, all else constant. This suggests that the adjustment costs facing labor may be similar across sectors. High adjustment costs in manufacturing may correlate with adjustment costs in agriculture. This is consistent with the idea that countries have 'natural' adjustment costs common to all workers irrespective of their individual characteristics.

Interestingly, the number of veto players is negatively and significantly related to narrow subsidies in Models 2 and 3 in Table 4.8. This is counter to the prediction that more veto players will result in more narrowly targeted benefits.¹⁸ One possible explanation for this result may be Tsebelis' (1995, 1999, 2002) observation that a larger number of veto players tends to lock in economic policy and reduce the ability

¹⁸ Cox and McCubbins 2001.

of the government to respond to economic shocks. Countries with large numbers of veto players may be less responsive to demands for narrow transfers because of the difficulty of changing economic policy. Although the coefficient on veto players remains negative, it is not significant in models where labor mobility is lagged as reported in Table 4.9.

Labor strength increases the amount of producer subsidies provided by the government, as reported in Model 4 in Table 4.8. Labor strength is measured as the five-year average of net union density. In countries with relatively strong labor, narrow transfers (measured by producer subsidies) are more generous, all else constant.¹⁹ Labor mobility remains a robust predictor of producer subsidies when labor strength is included. The coefficient on labor mobility decreases and its standard error increases when labor strength is excluded from the model. This suggests that in models where I exclude labor strength because of the large number of missing observations, the effect of labor mobility on transfer form may be underestimated. Interestingly, the interaction of labor mobility and labor strength (not reported here) is not a robust predictor of narrow transfers.

The negative relationship between labor mobility and narrow subsidies is not an artifact of reversal causality, as demonstrated by the results reported in Table 4.9. Past labor mobility predicts current transfer form. A one percent increase in the past level of labor mobility decreases the percent of current government spending dedicated to producer subsidies by 0.76 percent.

¹⁹ Democracy, federalism and plurality and excluded from models containing union density because of extremely high levels of multicollinearity.

Adjustment costs are positively and significantly related to producer subsidies, as reported in Table 4.10. Countries with higher R&D spending tend to provide more producer subsidies than low-tech countries.

4.10 European data

Producer subsidies are arguably examples of narrow transfers, especially in comparison to broad universal transfers like pensions and health care. Nevertheless, producer subsidies are a relatively crude measure of the prevalence of narrow transfers relative to broad. A more precise measure of narrow transfers is provided by The Commission of European Communities' (CEC) *Survey on State Aid in the European Union*. The CEC classifies state aid according to the primary objectives for which it is given or the sector to which it is directed. Broad transfers can therefore be distinguished from narrow, industry-specific transfers. These data are available for 15 EU countries from 1990 to 1999.

The Commission of European Communities monitors government subsidies because they are restricted, in theory, by the treaty establishing the European Economic Community (EEC). Article 92 of the EEC Treaty states that aid that distorts competition is incompatible with the common market. Narrow subsidies are argued to be particularly egregious because they distort competition and retard structural adjustment.

It is unclear to what extent these restrictions shape governments' decisions over subsidies. Although the European Commission has the legal right to regulate

member-state aid, it does not often enforce restrictions on narrow subsidies.²⁰ In fact, only one percent of state aid packages have been rejected by the Commission suggesting that the Commission has only a marginal impact on member's subsidies.²¹ Domestic governments appear to have an almost unlimited ability to use narrow subsidies to target benefits to segments of their constituencies, despite formal EEC restrictions on state aid.

To estimate the relative abundance of one type of transfer, I measure the percent of total manufacturing aid (excluding regional aid) spent on narrow, industry-specific transfers. Narrow transfers as a percent of total manufacturing transfers (excluding regional aid) are reported by country for the period 1990-1999 in Table 4.1. Sweden has the highest percentage of narrow transfers with 76 percent of manufacturing aid going to individual industries. In contrast, Finland spends only 18 percent of its manufacturing aid on individual industries. Germany targeted approximately half of its transfers to broad, sector-wide programs and the other half to narrow, industry-specific programs during the 1990s. This represents a marked shift from the heavy, almost exclusive, reliance on broad transfers in Germany during the 1970s.

The negative relationship between labor mobility and narrow transfers is illustrated graphically in Figure 1. Countries with mobile labor like the United Kingdom, Italy and Denmark have fewer narrow subsidies than countries with more specific labor, such as France and Sweden. This graph illustrates the variance that

²⁰ Gerber 1994; Shepherd and Duchene 1983.

²¹ Smith 1996.

exists in transfer form among countries with similar institutions. Although the United Kingdom and Belgium have very different political institutions, they spend similar amounts on narrow transfers. Countries that have been characterized as having similar welfare states also have significant variance in transfer form. For example, among countries characterized as *social-democratic welfare states* by Esping-Anderson (1990) Sweden dedicates 76 percent of its manufacturing transfers to individual industries while Denmark directs only 36 percent to narrow segments of the economy.

4.11 United Kingdom

Labor mobility explains the variation in transfer form across countries, as demonstrated above. The question remains whether labor mobility might also explain variation in transfer form over time. I examine this possibility using evidence from the United Kingdom during the post-war period.

Changes in labor specificity over time may result in policy shifts. Given the theory outlined in chapter 2, we might expect governments to shift from providing narrow transfers to more broadly targeted benefits as it becomes easier for employees to move between industries. Evidence from the United Kingdom's experience during the post-war period provides preliminary support for this temporal dynamic.

Table 4.11 summarizes the expectations for the British case. Periods are characterized as having either high or low labor mobility using data on rates of inter-industry labor movements, wage differentials, net union density and the wage replacement rate of unemployment benefits. The table also reports a brief summary of observed policy outcomes for each period. I discuss the details of each period below.

The match between the effects anticipated by the theory and the observed changes in British transfer form is quite close.

From the end of World War II until the mid 1960s, British labor was relatively mobile moving easily between uses in the economy. As predicted by my theory, this period is characterized by broad transfers. There was strong public support for broad transfers, such as enlarged welfare provisions and broader educational opportunities.²² Major legislation during this period, including the National Insurance Act of 1948, created broad transfer programs, such as a universal system of national insurance covering unemployment, sickness and other benefits. Also introduced during this period were universal family allowances and a National Health Service.²³ Broad benefits were also targeted to labor in the manufacturing sector through tax policies that discriminated against service employment. Few industry-specific transfers were provided during this period.²⁴

These broad transfers may have provided workers with incentives to invest in industry-specific skills. Programs like unemployment insurance are credited with reducing the uncertainty over wage level throughout workers' careers.²⁵ Decreased income uncertainty provides incentives for workers to obtain industry-specific skills that command a high return. Unemployment insurance guarantees that workers investments in these skills will not be wiped out by a job loss. Broad programs, like those implemented in Britain after World War II, may over time serve to increase

²² Shepherd 1987.

²³ Calvocoressi 1979.

²⁴ Shepherd 1987.

²⁵ Estevez-Abe, Iversen and Soskice 2001.

adjustment costs. Indeed in the mid to late 1960s, the rate of inter-industry labor movement began to decline in the United Kingdom.

This decline in labor mobility corresponds with increased demands for narrowly targeted transfers. Both Labour and Conservative governments responded to increased demands for narrow transfers. In 1965, the Labour government passed the Science and Technology and the Development of Inventions Acts which laid the groundwork for industry-specific government support.²⁶ By 1968, many individual industries had been singled out to receive transfers by various means. The Conservative government passed the Industry Act in 1972. It was a comprehensive piece of industrial legislation that provided for both regional grants and industry-specific assistance. In fact, narrow transfers totaling 290 million pounds were provided under Section B of the 1972 Industry Act.²⁷ Similarly, the National Enterprise Board, created by the 1975 Industry Act, was empowered to spend one billion pounds on improving the performance in key sectors of industry.²⁸ In November 1975, the government launched an initiative under the National Economic Development Office to improve performance in 30 sectors of industry.²⁹

As observed, transfer form changed over time during the post-war period in the United Kingdom. These shifts in transfer form do not correspond to changes in government. Both Labour and Conservative governments provided narrow transfers. Selective forms of industry policy arose during the Labour government in the late 1960s despite the fact that such transfers did not figure into mainstream Labour

²⁶ Shepherd 1987.

²⁷ OECD Economic Surveys United Kingdom 1976.

²⁸ OECD Economic Surveys United Kingdom 1976.

²⁹ OECD Economic Surveys United Kingdom 1976.

ideology.³⁰ Many industries were provided with narrowly targeted transfers by the Labour government during the late 1960s. The Conservative government also provided narrow transfers giving over 290 million pounds to individual industries and firms under Section B of the 1972 Industry Act.³¹ Similarly, both governments provided broad transfers in response to demands from mobile labor. Furthermore, the shift from narrow to broad transfers identified by economic historians in the late 1970s preceded the 1979 election that brought the Conservatives to power.

The costs of moving between industries in the United Kingdom changed over time during the fifty-year period following World War II. The theoretical expectation was that policy changes would follow changes in labor mobility. I hypothesized that benefits would become more narrowly targeted as labor became less mobile between industries. This was born out in the case of the United Kingdom.

4.12 Conclusion

Labor specificity explains the cross-national variation in transfer form, as demonstrated in this chapter using data on government outlays to producers and manufacturing industries. Evidence from the United Kingdom suggests that labor specificity might also explain variation in transfer form over time. Similarly, evidence from Belgium also suggests that changes in labor mobility result in changes in transfer form. A wide range of broad transfers were implemented in Belgium in the early 1890s including old age pensions and accident compensation. These broad transfers

³⁰ Shepherd 1987.

³¹ OECD Economic Surveys United Kingdom 1976.

were established following a rapid increase in labor mobility due to the extension of the rail network and the widespread use of subsidized rail transport.³² Belgium's experience and that of the UK suggests that labor mobility may not only determine the variance in transfer form across countries but also over time.

In this chapter, I have examined the relationship between labor specificity and the form of transfers provided by the government using subsidies, grants and loans. There are however many ways in which a government can provide benefits to segments of the population including tax and trade policy. In the next chapter, I examine whether the predicted pattern between labor mobility and transfer form holds in the area of trade policy.

³² Huberman 2004; Cassier 1980; Polasky 1995.

Table 4.1: Descriptive statistics of narrow manufacturing transfers relative to broad by country

Country Code	Narrow transfer (% total transfers)¹
AUT	67.86
BEL	49.34
DEU	52.23
DNK	36.06
ESP	64.72
FIN	18.84
FRA	58.04
GBR	49.81
GRC	58.39
IRL	36.19
ITA	60.7
LUX	42.54
NLD	43.85
PRT	61.67
SWE	76.85

1. Percent of manufacturing transfers (excluding regional transfers) that are targeted to specific industries.

Table 4.2: Descriptive statistics of narrow manufacturing transfers by country

Country	Narrow Manufacturing Subsidies¹
USA	0.0015
URY	0.0041
BOL	0.0054
NLD	0.0056
CHL	0.0065
FRA	0.0066
ARG	0.0078
AUS	0.0085
SWE	0.0090
ESP	0.0104
DNK	0.0115
NOR	0.0117
AUT	0.0156
GBR	0.0160
FIN	0.0175
ITA	0.0355

1. Percent of total government spending (excluding interest payments) devoted to manufacturing producer subsidies

Table 4.3: Descriptive statistics of narrow transfers

	N	Mean	Std Dev	Min	Max
Narrow manufacturing transfers (% exp)	327	0.020	0.028	0	0.26
Narrow producer subsidies (% exp)	188	0.068	0.08	0	0.56

Table 4.4: Descriptive statistics of narrow manufacturing transfers by region

	Mean	Std Dev	Min	Max
Europe	0.021	0.036	0	0.258
East Asia	0.014	0.016	0.0003	0.070
North America	0.016	0.024	0.0006	0.069
Sub-Saharan Africa	0.027	0.036	0	0.176
South Asia	0.033	0.027	0.0036	0.084
Middle East	0.021	0.019	0	0.074
Latin America	0.013	0.021	0	0.094

Table 4.5: Predicting manufacturing transfers using observed labor movement

Manufacturing subsidies (% expend)	1	2	3	4	5	6	7
Labor mobility							
Labor mvmt	-0.24 (0.12)*	-0.4 (0.12)**	-0.4 (0.16)*	-0.3 (0.18)	-0.1 (0.29)	-0.4 (0.16)*	-0.3 (0.17)#
Business cycle							
Growth (ln)	-1.1 (0.48)*	-1.17 (0.53)*	-1.18 (0.48)*	-1.18 (0.48)*	-1.11 (0.49)*	-1.24 (0.5)*	-1.19 (0.5)*
Current account	0.17 (0.06)**	0.18 (0.08)*	0.15 (0.09)	0.19 (0.1)	0.18 (0.09)	0.15 (0.09)	0.18 (0.09)
Open	0.001 (0.01)	0.001 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
Institutions							
Democracy	-1.36 (0.7)	-1.71 (0.76)*	-1.39 (0.69)*	-1.09 (0.67)	-1.12 (0.71)	-1.61 (0.67)*	-1.15 (0.67)
Federal		0.1 (0.66)	0.13 (0.67)	-0.24 (0.78)	-0.16 (0.81)	-0.21 (0.70)	-0.23 (0.78)
Veto players		-0.11 (0.1)	-0.16 (0.1)	-0.16 (0.1)	-0.16 (0.1)	-0.16 (0.09)	-0.15 (0.11)
Candidate centered		0.6 (0.64)	0.24 (0.61)	0.35 (0.61)	0.75 (1.14)	0.85 (0.56)	0.32 (0.62)
Plurality			1.29 (0.53)*	1.48 (0.89)	1.47 (0.56)*	4.41 (1.57)*	1.43 (0.59)*
Interaction (Maj*labor mvmt)				-0.009 (0.26)			
Interaction (Candidate*labor mvmt)					-0.19 (0.41)		
Interaction (Candidate*Maj)						-4.04 (1.78)*	
Interaction (Left*labor mvmt)							0.08 (0.27)
Other							
Agri	0.16 (0.04)**	0.18 (0.04)**	0.19 (0.04)**	0.18 (0.03)**	0.19 (0.04)**	0.16 (0.04)**	0.18 (0.03)**
Left	0.94 (0.38)*	0.74 (0.37)	0.63 (0.34)	0.71 (0.37)*	0.73 (0.36)*	0.69 (0.33)*	0.56 (0.61)
Constant	2.67 (0.96)**	3.16 (1.24)*	2.12 (1.25)	1.85 (1.24)	1.33 (1.72)	2.46 (1.30)	2.46 (1.30)
Observations	103	88	85	84	84	85	85
R-squared	0.39	0.43	0.51	0.52	0.52	0.55	0.55

Pooled cross-sectional OLS regression with robust standard errors in columns 1-7. Dependent variable is the percent of government expenditures spend on manufacturing subsidies targeted a specific industry. Base sample is an unbalance panel from 1975-1999, with data averaged over 5-year periods. Model 1 contains data from 5 periods (1975-95) for 11 to 26 countries. Period fixed effects are not significant in any of the models. The variance inflation factor (VIF) is less than 4 for all variables included in models 1-7, as recommended by Huber et al. (1993). Sri Lanka is excluded from models 1-7 because it is an influential outlier. Results, particularly the coefficients on labor mobility, are similar when democracy is excluded. Democracy is coded 1 if polity value is greater than 7. * significant at 5% level in two-tailed test, # significant at 10% level in two-tailed test (only reported for labor movement).

Table 4.6: Predicting manufacturing transfers form using lagged labor movement

Manufacturing subsidies (% expend)	1	2	3
Labor mobility			
Labor mvmt (lag)	-0.41 (0.17)*	-0.49 (0.18)**	-0.43 (0.18)*
Business cycle			
Growth (lag/ln)	-0.39 (0.33)	-0.47 (0.4)	-0.53 (0.37)
Open (lag)	0.02 (0.01)	0.02 (0.01)	0.03 (0.01)*
Current account	0.16 (0.11)	0.16 (0.12)	0.15 (0.14)
Institutions			
Democracy	-1.56 (0.80)	-2.12 (0.89)*	-1.64 (0.88)
Federal		0.27 (0.57)	-0.11 (0.73)
Veto players		-0.05 (0.11)	-0.08 (0.12)
Candidate centered		0.79 (0.65)	0.5 (0.59)
Plurality			1.44 (0.58)*
Other			
Agri	0.16 (0.04)**	0.17 (0.04)**	0.17 (0.04)**
Left	0.81 (0.41)	0.68 (0.43)	0.52 (0.37)
Constant	1.81 (1.02)	1.73 (1.29)	1.02 (1.29)
Observations	111	96	95
R-squared	0.37	0.4	0.46

Pooled cross-sectional OLS regression with robust standard errors in columns 1-3. Dependent variable is the percent of government expenditures (excluding interest payments) spend on manufacturing subsidies targeted a specific industry. Base sample is an unbalance panel from 1975-1999, with data averaged over 5-year periods. Model 1 contains data from 5 periods (75-79, 80-84, 85-89, 90-94, 95-99) for 17 to 25 countries. Period fixed effects are not significant in any of the models. Models do not exhibit multicollinearity. The variance inflation factor (VIF) is less than 4 for all variables included in models 1-3, as recommended by Huber et al. (1993). Finland (1990) and Sri Lanka (1990) are excluded because they are influential outliers. Democracy is coded 1 if polity value is greater than 7.

Table 4.7: Predicting manufacturing transfers form using proxies for adjustment

Manufacturing subsidies (% expend)	1	2	3
Labor specificity			
R&D (non gov)	0.17 (0.12)		
R&D (total)		0.44 (0.31)	
Adj costs (residual 2)			0.14 (0.13)
Business cycle			
Growth (ln)	-1.92 (0.6)***	0.21 (0.16)	
Current account	0.12 (0.09)	0.08 (0.06)	-0.11 (0.09)
Open	0.02 (0.01)	0.002 (0.01)	0.004 (0.01)
Institutions			
Democracy	0.93 (0.81)	0.35 (0.69)	-0.22 (0.42)
Federal	-1.21 (0.95)	0.54 (0.46)	-1.34 (0.43)**
Veto players	-0.49 (0.17)***	-0.1 (0.09)	0.0001 (0.08)
Candidate centered	0.81 (0.71)	0.015 (0.45)	-0.45 (0.52)
Plurality	1.55 (0.66)**	0.55 (0.47)	
Other			
Agri	0.24 (0.04)***	0.12 (0.04)**	0.1 (0.03)**
Left	0.86 (0.49)*	0.61 (0.36)*	0.36 (0.34)
Constant	2.79 (1.93)	-1.67 (1.45)	1.51 (1.39)
Observations	59	52	26
R-squared	0.65	0.50	0.78

Pooled cross-sectional OLS regression with robust standard errors in columns 1-2. Dependent variable is the percent of government expenditures (excluding interest payments) spend on manufacturing subsidies targeted a specific industry. Base sample is an unbalance panel from 1980-1999, with data averaged over 5-year periods. Model 1 contains data from 4 periods (80-84, 85-89, 90-94, 95-99) for 15 to 23 countries. Model 2 contains data from 2 periods (90-94, 95-99) for 18 and 8 countries respectively. Period fixed effects are not significant in any of the models. Models do not exhibit multicollinearity. The variance inflation factor (VIF) is less than 4 for all variables included in models 1-3. Democracy is coded 1 if polity value is greater than 7.

Table 4.8: Predicting producer subsidies using observed labor movement

Subsidies (% expend)	1	2	3	4	5
Labor mobility					
Labor mvmt	-0.97 (0.56)#	-1.11 (0.59)#	-1.18 (0.56)*	-1.32 (0.56)#	-0.9 (0.68)
Business cycle					
Growth (ln)	-0.87 (1.11)	-0.76 (1.28)	-0.57 (1.38)	-0.14 (1.44)	-0.63 (1.57)
Current account	0.13 (0.32)	-0.05 (0.29)	-0.11 (0.27)	0.13 (0.24)	-0.04 (0.23)
Open	0.02 (0.03)	0.03 (0.03)	0.02 (0.03)	0.02 (0.02)	0.04 (0.02)
Institutions					
Democracy	-1.58 (3.95)	0.44 (3.67)	-0.18 (3.37)		
Federal		2.93 (3.72)	2.71 (3.78)		
Veto players		-1.55 (0.59)*	-1.62 (0.60)**	-0.84 (0.5)	-1.05 (0.50)*
Candidate centered		1.4 (2.22)	1.98 (2.27)	3.35 (2.05)	3.6 (2.59)
Plurality			-1.62 (1.96)		
Other					
Income	-0.29 (0.17)	-0.24 (0.17)	-0.17 (0.16)	0.06 (0.25)	0.14 (0.23)
Left	1.3 (1.55)	0.96 (1.5)	0.77 (1.64)	1.5 (1.01)	1.45 (1.16)
Union density (net)				0.07 (0.03)*	
Constant	13.06 (4.79)**	13.03 (4.75)**	13.59 (4.80)**	2.85 (3.67)	3.94 (4.04)
Observations	75	71	71	30	30
R-squared	0.12	0.24	0.25	0.41	0.25

Pooled cross-sectional OLS regression with robust standard errors in columns 1-5. Dependent variable is the percent of government expenditures (excluding interest payments) spend on subsidies targeted to producers. Base sample is an unbalance panel from 1975-1999, with data averaged over 5-year periods (75-79, 80-84, 85-89, 90-94, 95-99). Model 1-3 contains data from 5 periods for 3 to 25 countries. Period fixed effects are not significant in any of the models. Models do not exhibit multicollinearity. The variance inflation factor (VIF) is less than 4 for all variables included in models 1-5. Sri Lanka is excluded from models 1-3 because it is an influential outlier. (# significant at 10% level in two-tail test, reported only for labor mobility)

Table 4.9: Predicting producer subsidies using lagged labor movement

Subsidies (% expend)	1	2	3
Labor mobility			
Labor mvmt (lag)	-0.66 (0.33)*	-0.77 (0.42)#	-0.85 (0.41)*
Business cycle			
Growth (lag/l _n)	0.43	-0.7	-0.32
	1.08	0.93	0.85
Open (lag)	0.04	0.05	0.03
	0.03	0.03	0.04
Current account	-0.21	-0.13	-0.23
	0.33	0.28	0.27
Institutions			
Democracy	-0.28	-0.12	-0.42
	0.37	0.51	0.53
Federal		1.36	1.19
		2.54	2.45
Veto players		-0.69	-0.54
		0.38	0.35
Candidate centered		1.16	1.96
		1.91	1.99
Plurality			-4.01 (1.59)*
Other			
Income	-0.03	-0.15	0
	0.16	0.16	0.15
Left	-1.71	-0.42	-0.98
	1.53	1.05	1.08
Constant	8.75	9.32	11.49
	4.62	5.03	5.8
Observations	85	78	78
R-squared	0.05	0.13	0.19

Pooled cross-sectional OLS regression with robust standard errors in columns 1-3. Dependent variable is the percent of government expenditures (excluding interest payments) spend on subsidies targeted to producers. Base sample is an unbalance panel from 1975-1999, with data averaged over 5-year periods (75-79, 80-84, 85-89, 90-94, 95-99). Model 1-3 contains data from 5 periods for 3 to 25 countries. Period fixed effects are not significant in any of the models. Models do not exhibit multicollinearity. The variance inflation factor (VIF) is less than 4 for all variables included in models 1-7, as recommended by Huber et al. (1993). Sri Lanka is excluded from models 1-3 because it is an influential outlier. (# significant at 10% level in two-tail test, reported only for labor mobility, * significant at 5% level in two-tail test)

Table 4.10: Predicting producer subsidies using adjustment costs

Subsidies (% expend)	1	2	3
Labor specificity			
R&D (non gov)	0.003 (0.003)		
R&D (total)		0.034 (0.023)	
Adj costs (residuals 2)			0.019 (0.015)
Business cycle			
Growth (ln)	-0.027 (0.013)*	0.006 (0.015)	0.031 (0.022)
Current Account	-0.003 (0.002)	0.001 (0.003)	0.002 (0.005)
Open	0.0004 (0.0003)	-0.0005 (0.003)	0 (0)
Institutions			
Democracy	0.019 (0.018)	0.014 (0.027)	0.012 (0.006)*
Federal	-0.041 (0.032)	-0.11 (0.05)*	0.018 (0.037)
Veto players	-0.005 (0.003)	-0.011 (0.005)*	-0.005 (0.004)
Candidate centered	0.024 (0.013)*	0.082 (0.034)**	0.069 (0.026)**
Plurality	-0.011 (0.02)	-0.080 (0.033)**	
Others			
Income			-0.007 (0.004)*
Left	0.005 (0.015)	0.006 (0.015)	-0.027 (0.029)
Constant	0.102 (0.043)**	0.14 (0.04)**	0.02 (0.034)
Observations	59	63	26
R-squared	0.30	0.41	0.59

Pooled cross-sectional OLS regression with robust standard errors in columns 1-3. Dependent variable is the percent of government expenditures (excluding interest payments) spend on subsidies targeted to producers. Base sample is an unbalance panel from 1980-1999, with data averaged over 5-year periods (80-84, 85-89, 90-94, 95-99). Period fixed effects are not significant in any of the models. Models do not exhibit multicollinearity. The variance inflation factor (VIF) is less than 4 for all variables included in models 1-3. (* significant at 10% level in two-tail test)

Table 4.11: Changes in labor mobility over time in the United Kingdom

Period	Labor mobility	Prediction	Observed outcomes
1945 to mid 60s	High	Broad	Unemployment insurance Universal health care
1966 to mid 70s	Low	Narrow	Industry subsidies
1976 to early 80s	High	Broad	Horizontal subsidies

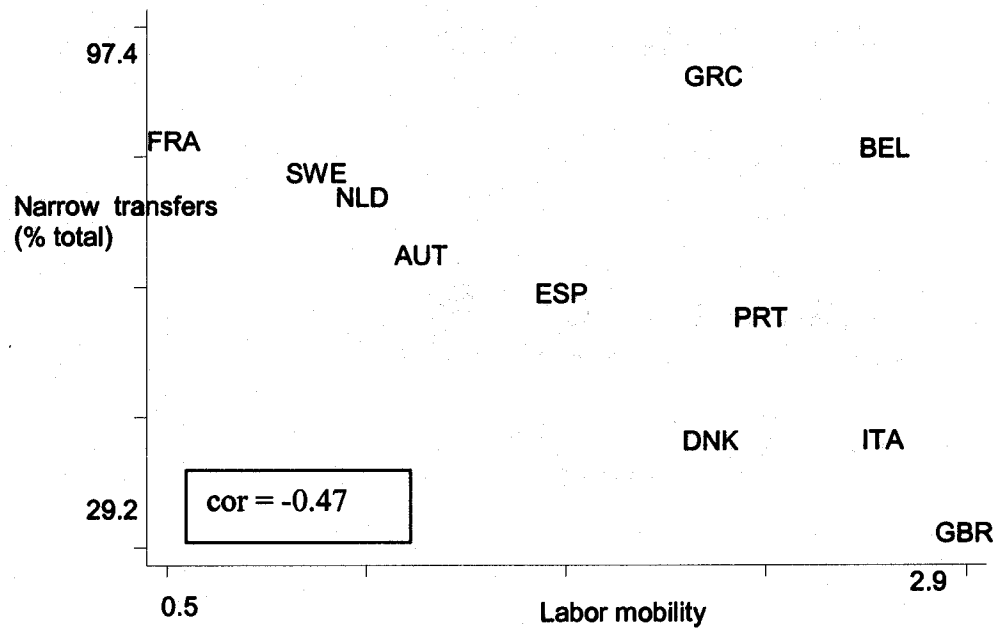


Figure 4.1: Scatterplot of labor mobility and narrow transfers, 1995-99

Appendix A: Data sources and coding

Agriculture: Value added in agriculture measures the output of the agricultural sector (ISIC divisions 1-5) less the value of intermediate inputs. Agriculture comprises value added from forestry, hunting, and fishing as well as cultivation of crops and livestock production. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources (WDI 2001).

Manufacturing transfers: Government outlays on grants, loans and subsidies to manufacturing enterprises and commercial mining activities. Programs that do not focus on any single industry are excluded (IMF Government Finance Statistics 2001).

Producer subsidies: Producer subsidies as a percent of total government expenditures minus interest payments. Subsidies are current unrequited payments that governments make to enterprises on the basis of the levels of their production activities or the quantities of values of the goods or services they produce, sell, export, or import. Subsidies are payable to producers only, not to final consumers, and are current transfers only, not capital transfers. Transfers that governments make directly to households as consumers are excluded from this measure, including social benefits (IMF Government Finance Statistics 2001).

Narrow transfers: Percent of total manufacturing aid (excluding regional aid) spent on narrow, industry-specific programs (CEC's Survey on State Aid in the European Union, various years).

Labor movement: Calculated as the rate of inter-industry labor movement in the manufacturing sector using UNIDO employment data for 28 industries. Complete details of this measure are reported in Chapter 3.

Economic growth: Annual percentage growth rate of GDP at market prices based on constant local currency (Heston, Summers and Aten 2002).

Current account balance: Sum of net exports of goods and services, income, and current transfers as a percent of GDP (WDI 2000).

Open: Exports plus imports divided by GDP (Heston, Summers and Aten 2002).

Federal: Dummy variable indicating if a country was a federal system for a majority of years during the specified 5 year period. A system is coded as being federal if the state/province governments are locally elected. Indirectly elected state/province governments elected by directly elected state/province bodies are considered locally elected (Beck et al. 2001).

Veto players: The number of actors that can veto legislation (Keefer and Stasavage 2003).

Candidate centered: Describes the relative strength of parties and citizens to shape candidates access to the ballot. Closed list electoral systems are coded as zero. Politicians in these electoral systems have a strong incentive to cater to the party rather than constituents. Systems are coded as one where parties exert strong influence over which candidates are on the ballot, but not the order of preferences among the candidates. Systems coded two are characterized by candidates that focus exclusively on gaining support within their constituency with little or no concern for party (Wallack et al. 2003).

Plurality: Coded 1 if most seats in the house are elected using plurality rules, zero if most seats are elected using proportional rules (Beck et al. 2001).

Income: Real GDP per capita based on purchasing power parity (PPP). GDP PPP is gross domestic product converted to international dollars using purchasing power parity rates (WDI 2001).

Left: Coded 1 if the executive's party is left for a majority of years during the five year period in question, zero if it is center or right for the majority of years during the five year period in question (Beck et al. 2001).

Democracy: Coded 1 if the median Polity score for a country during a 5 year period is greater than 7 (Marshall and Jaggers 2002).

Appendix B: Country Codes

Country Code	Country Name
ARG	ARGENTINA
AUS	AUSTRALIA
AUT	AUSTRIA
BEL	BELGIUM
BOL	BOLIVIA
CAN	CANADA
CHL	CHILE
DEU	GERMANY
DNK	DENMARK
ESP	SPAIN
FIN	FINLAND
FRA	FRANCE
GBR	U.K.
ITA	ITALY
JPN	JAPAN
NLD	NETHERLANDS
NOR	NORWAY
NZL	NEW ZEALAND
PRT	PORTUGAL
SWE	SWEDEN
URY	URUGUAY
USA	UNITED STATES

Chapter 5: Structure of Trade Protection

Trade policy is redistributive in nature. Protection from foreign import competition provides economic rents to the owners of assets employed in the protected industry at the expense of other domestic actors. Protective measures like tariffs can therefore be considered a type of government-provided transfer. Like other redistributive policies, tariffs can be used to provide broad transfers to large segments of the domestic economy. Alternatively, tariffs can be used to target transfers very narrowly to individual industries or firms. If a government routinely uses trade policy to provide narrow transfers, the country's tariff schedule will exhibit significant variance. Countries in which trade policy is used to provide broad transfers will tend to have more uniform tariff schedules. Using data on the within-country variance in tariff rates, I test the relationship between labor specificity and transfer form.

5.1 Introduction

Substantial reductions in tariffs are commonly viewed as one of the most significant success stories of post-war multilateral trade negotiations. The average tariff on manufacturing goods fell by almost 90 percent during the post-war period.¹ However, tariff reductions have not been even across countries and for all products and sectors. Countries' trade policies continue to look very different with both the average *level* of protection and the *structure* of protection varying across nations.

Many countries continue to target trade protection to select industries. Even countries that are quite open to foreign trade maintain select protections. For example,

¹ OECD 1999.

both Japan and Canada have tariff peaks that reach as high as 350 percent.² In fact, significant inter-industry tariff differentials persist in some countries despite the liberalization achieved during the Uruguay Round. Agreeing that protection is inefficient overall does not appear to mitigate the political incentives to privilege one group at the expense of others.

Given the electoral incentives politicians have to privilege groups using trade policy, how can we explain uniform tariff rates? Countries like, for example, Chile and Singapore, provide virtually the same level of protection to all of their domestic producers. Have politicians in Chile overcome the political incentives to privilege one group at the expense of others? I argue that they have not. Instead, I suggest that Chilean politicians face fewer demands for narrow protection.

The structure of a country's tariff schedule is determined by domestic demands. Domestic preferences over the form of protection vary systematically with the costs of adjustment. Workers facing low adjustment costs can move easily from an industry facing increased import competition. Given this, mobile workers are less interested in investing resources to lobby for protection for their current industry. Mobile workers will choose to move to a new industry rather than invest resources to demand industry-specific protection.

Mobile workers are, however, concerned with policies that affect the returns to labor throughout the economy. For example, mobile workers in a labor-scarce economy stand to lose from broad trade liberalization. In a domestic economy with relatively mobile scarce labor, liberalization will reduce wages across industries and

² OECD 1999.

sectors. Moving from one industry to another will not restore a worker's income to the pre-liberalization level. As a result, mobile workers demand broad trade protections that will insure their incomes against import competition regardless of where they are employed in the economy. Mobile labor in labor-scarce countries will focus their lobbying efforts on obtaining broad forms of protection rather than the narrow protection afforded by industry-specific tariffs. Countries with relatively mobile labor will therefore have fewer industry-specific tariffs and in general a more uniform tariff schedule. I test this hypothesis using data on the variance in tariff rates in ten Latin American countries from 1970 to 1995. Before I proceed to the empirical tests of the hypothesis, I first outline briefly the existing research on trade protection. I then reiterate the logic of the argument laid out in chapter 2 to the extent necessary to sensibly discuss the issue of trade protection.

5.2 Level versus form of protection

Much of the research on international trade focuses on predicting average levels of protection from foreign imports. Such research is motivated by the observed variance in countries' exposure to international trade. However, examining only the level of trade protection misses important variation in the *structure* of protection. Countries equally exposed to the international market, on average, may have very different tariff schedules. In fact, in Latin America the structure of protection varies among countries with similar average levels of protection. Bolivia, Colombia, Mexico and El Salvador have the lowest average tariff rates among Latin American countries during the period from 1970 to 1995. They each fall in the bottom quartile of the

distribution of average tariff levels. Among this group of relatively open countries, tariff variance ranges from a low of 10 in Bolivia to a high of 19 in Colombia. Although the average tariff level is not entirely unrelated to the structure of protection, the structure of protection does vary among countries with similar average levels of protection. In this chapter, I focus on explaining the observed cross-national variance in the *structure* of protection.

The structure of protection has important economic effects. Large differentials in inter-industry tariff rates result in high rates of effective protection. Two countries with the same *average* rate of protection may, in fact, have very different *effective* rates of protection depending on the tariff schedules of each country.

Uniform tariff rates also imply very different politics. Trade politics in countries with uniform tariffs will look quite different from those in countries with highly variant tariffs. Examining only the average level of protection misses much of the politics that shape trade policy. Here, I seek to unpack the politics that explain the cross-national variance in tariff structure.

This research is distinct from attempts to explain which industries win protection. Scholars of endogenous tariff theory have generated numerous predictions for which industries are most likely to demand and receive protection. Variation in industry protection is often credited to the incentives and capacities of industry groups to organize. Building on these insights, a vast empirical literature examines the

variation of tariff rates across industries within a single country, most notably the United States.³

Although the number of industries that win protection will certainly affect the tariff structure, the level of analysis and research question in this project is fundamentally distinct from studies in the endogenous protection literature. I examine the variation in tariff rates across industries and compare this inter-industry variation across countries – making the first attempt to explain the cross-national variation in tariff dispersion.

As such, this research makes an important contribution to our understanding of trade politics. Theories of endogenous tariff formation cannot account for uniform tariff structures. Endogenous tariff theories assume that factors are unable to move between industries because of prohibitively high adjustment costs. As a result, it is simply assumed that lobbying occurs along industry lines. The goal then is to explain which industries are most likely to be successful in their demands for protection.

However, workers vary in their level of specificity across countries, as demonstrated in chapter 3. As a result, lobbying may occur by either industry or class. Mobile workers lobby together as a factor group representing workers employed throughout the economy, as demonstrated in previous research.⁴ In contrast, specific labor organizes by industry. By allowing the levels of labor specificity to vary, my theory expands the set of possible political organizations, domestic demands and policy outcomes. In my theoretical framework, the choice set facing policy makers is

³ See, for example, Magee, Brock and Young 1989; Pincus 1977 and Marvel and Ray 1983, 1987.

⁴ Rogowski 1989; Hiscox 2002.

no longer artificially limited to industry-specific benefits as it is in endogenous tariff theory. Instead, protection can take on the multitude of forms actually observed, from relatively uniform tariff schedules to those that are extremely fragmented. My theory provides a potential explanation for broadly targeted protection. It also suggests when and under what circumstances we are likely to observe opposition to multilateral trade agreements that require broad liberalization.

5.3 Theory revisited

The costs of moving from one industry to another influence the form of transfers demanded by domestic labor. This argument is explained fully in chapter 2. Here, I reiterate my logic only to the extent necessary to sensibly discuss the issue of trade protection.

Tariffs are redistributive in nature. Tariff protection provides economic rents to the owners of assets employed in the protected industry at the expense of other domestic actors. Tariffs can therefore be considered a type of government-provided transfer. Like other transfers, tariffs can be broadly or narrowly targeted. Indeed, tariffs can be used to target benefits to a single industry or firm.

Given the redistributive nature of tariffs and the ability of politicians to target trade protection quite narrowly, I argue that the form of tariffs, like the form of subsidies, will be determined by the preferences of domestic economic actors. Whether tariffs generally cover broad or narrow segments of the economy will be determined by the costs of adjustment facing domestic labor. Countries characterized

by relatively mobile labor will tend to have broadly targeted trade protections and as a result less inter-industry variation in tariff rates than countries with specific labor.

Mobile labor in favor of protection has few, if any, incentives to accept narrow, piecemeal protection. Such policies benefit only a fraction of labor and only in the short run. For example, a tariff protecting a singly industry provides benefits to only the labor in that industry.

Mobile factors coalesce across industries into broad interest groups, as demonstrated in previous research.⁵ I argue that these groups will neither demand nor accept narrow, industry-specific protection. Instead, they will push for broad policies that benefit all members of the organization. Politicians, in an attempt to maximize their electoral support from broad interest groups, will provide broad protections from foreign trade. For example, mobile workers that stand to lose from trade liberalization may be provided with broad, economy-wide programs like trade adjustment assistance to mitigate their opposition. This was, in fact, the response to labor opposition to NAFTA in the United States.⁶

In stark contrast, the lobbying efforts of immobile workers facing increased import competition will concentrate on winning specific protections for their industry and/or exemptions from across the board tariff cuts. For specific labor, narrow protections maximize their income and the returns to their lobbying investment. Politicians will attempt to meet these demands, within the constraints of international negotiations and commitments. Narrowly targeted protection results in different tariff

⁵ Hiscox 2002.

⁶ Sapir 2000.

rates across industries. Given this, I hypothesize that countries with relatively specific labor will tend to have more varied tariff rates than countries with mobile labor.

To illustrate with an example, compare the experiences of Brazil and Chile. In Chile, where trade policy is virtually uniform across all industries, labor is relatively mobile. During the 5 year period prior to 1992, the rate of labor adjustment among manufacturing industries was approximately 1.5 percent. In contrast, Brazil's labor is much less mobile during this period. Given this, we would expect Brazil to have greater tariff variance than Chile and indeed this is what we observe. The standard deviation of tariffs across manufacturing industries in Brazil in 1992 was 13.3 while Chile's was less than 2. While Brazil and Chile certainly differ in ways other than the mobility of their labor forces, this example illustrates the potential relationship between the costs of adjustment and the design of trade policy. I test this relationship systematically using data on tariff rates for 10 Latin American countries from 1970 to 1995.

5.4 Estimating the inter-industry variance in tariff rates

In this section, I describe the empirical relationship between tariff variance and labor mobility in 10 Latin American countries from 1970 to 1995. I show that the relationship between tariff variance and labor mobility varies across countries in the way predicted by my theory. I begin with a discussion of the data used in the statistical analysis. I then present the empirical results and discuss potential estimation concerns.

5.5 Measuring transfers provided using trade policy

Although my theory is not specific to trade, I focus here on tariffs because they are one of the easiest transfers to measure. I am not interested in explaining the level of transfers provided using tariffs but rather the *form* of such transfers. To measure the form of transfers provided through trade policy, I use the level of tariff dispersion across industries.

Tariff dispersion describes the variance in tariff rates across different products, industries and sectors. If different industries in an economy enjoy different levels of trade protection, significant tariff dispersion will exist. High levels of tariff dispersion indicate that trade policy is being used to target benefits to narrow segments of the economy. The average level of tariff dispersion can therefore be used as a measure of the prevalent form of transfers provided by the government through trade policy. Uniform tariff schedules suggest broad transfers while high tariff dispersion suggests narrow transfers.

The most commonly used indicator of tariff dispersion is the standard deviation. The standard deviation measures the absolute dispersion between tariff rates. When tariff lines within any one country are very different, a higher standard deviation will result. The higher the standard deviation, the more narrowly targeted trade policy is and the larger the distortions in the patterns of domestic production and consumption caused by tariffs.

5.6 Latin America data

Using data on the within-country variance in tariff rates, I estimate the relationship between labor mobility and transfer form in 10 Latin American countries from 1970 to 1995.⁷ I focus here on Latin America rather than the OECD economies, for which tariff data are also available, because Latin American countries still make regular use of tariffs. Furthermore, the region exhibits significant cross-national variance in tariff schedules. Descriptive statistics are reported in Table 5.1.

Tariff rates in OECD countries are restricted by multiple international agreements including the treaty establishing common external tariffs among EC member countries.⁸ Although these restrictions are much less problematic for the analysis of tariff schedules in Latin America, many Latin American countries are members of GATT/WTO. I control for the possible effects of GATT/WTO membership on their tariff rates. The introduction of MERCOSUR's common external tariff also limits the ability of domestic governments in four Latin American countries to provide domestic transfers using trade policy. However, these restrictions came into effect after my sample ends.⁹

Significant variation in tariff dispersion exists among Latin American countries, as illustrated by Table 5.2. Uruguay exhibits the greatest tariff dispersion

⁷ Data from Morley et al. 1999.

⁸ Article 9 of the Treaty of Rome (1958) included the adoption of a common external tariff.

⁹ Brazil, Argentina, Uruguay and Paraguay agreed to a common external tariff under the auspicious of Mercosur. The common external tariff was scheduled to begin on January 1, 1995. However, each country maintained a list of exemptions. These exemptions expired for Argentina and Brazil in 2001 and are scheduled to expire for Paraguay and Uruguay in 2006. Including a control variable for Mercosur member countries in 1990 and 1995 did not significantly alter the results. Neither was the control variable itself statistically significant.

with an average of 72 during the period from 1970 to 1995. This high average is due primarily to very large dispersion rates during the 1970s. In the 1990s, Uruguay reformed its tariff schedule to provide more uniform tariff protection across industries and sectors. Chile's tariff schedule is virtually uniform with an average standard deviation of only 8 during the period from 1970 to 1995. Bolivia's level of tariff dispersion is also quite low during this period.

5.7 Model

Using the standard deviation of tariff rates within a given country as my dependent variable, I estimate the effect of labor mobility on the form of transfers provided using trade policy in 10 Latin American countries from 1975 to 1999. The standard deviation of tariff rates is averaged over five-year periods as is the inter-industry rate of labor movement and other control variable. Averaging the rate of labor movement over five-year periods helps to reduce short-term volatility stemming from business-cycle effects.

As discussed previously, the level of trade protection is likely to affect the *form* of protection. Countries more open to foreign trade may have less variance in their tariff rates. To control for this possibility, I include a measure of a country's openness to foreign trade calculated as the sum of total imports and exports as a percent of GDP.

Multilateral trade agreements, like those negotiated under the auspice of the GATT/WTO framework, often entail reductions in tariffs across many sectors and seek to reduce tariff variance. In fact the Swiss Formula proposed by Switzerland in

the Tokyo Round negotiations in the 1970s requires larger tariff reductions for higher tariff rates in an attempt to reduce tariff peaks and the overall variance in tariff rates across industries. Given this, I include a dummy variable coded 1 if a country was a GATT/WTO member for a majority of the years in a given five-year period and 0 otherwise. I expect that GATT/WTO member countries will tend to have lower levels of tariff variance.

Rich countries may be less reliant on tariffs for income. Additionally, rich countries can afford to provide narrow transfer through direct cash payments. They do not need to use trade policy to privilege certain segments of the population. In contrast, less well off countries may use trade policy to provide transfers to segments of the population because doing so is relatively cheap. To control for this, I include a measure of a country's GDP per capita averaged over five-years. I expect that GDP per capita will be negatively correlated with tariff variance.

Several scholars have suggested that the number of veto players in a government will be positively correlated with narrow transfers.¹⁰ Veto players are able to demand particularistic payments for their support. Given this, we expect countries with large numbers of veto players to have relatively more narrow transfers. If narrow transfers are provided using trade policy, greater tariff variance should be observed in countries with more veto players.

I also include controls for the supply incentives facing politicians that are generated by electoral institutions. Some electoral systems provide politicians with incentives to reward broad segments of the population. In others, narrow transfers are

¹⁰ See, for example, Cox and McCubbins 2001.

the most efficient way to maximize electoral success. In this model, I control for the relative strength of parties in shaping candidates' access to the ballot and determining their chance to be elected. Electoral systems with party control over candidates' position on the ballot give politicians incentives to cater to the party rather than constituents in order to be chosen for the ballot and placed in a viable spot near the top of the list.¹¹ In contrast, systems with low independent candidacy requirements and plurality thresholds offer voters significant influence over the selection of candidates. In these systems, politicians focus more on gaining support within their constituency rather than party. Candidate-centered systems are expected to provide greater narrow benefits than party-centered systems. With their electoral fates riding primarily on a single constituency rather than a broad party, narrow benefits will be favored over broad.¹² I therefore expect weak parties to be positively correlated with tariff variance.

Both labor movement and narrow transfers are likely related to economic growth. Countries with weak economic performance are likely to experience significant movement in their labor markets and greater demands for illegal narrow transfers and protections. I therefore include the average annual rate of growth in a country's GDP as a control variable.

Right governments are thought to favor narrow transfers over broad.¹³ To account for this possibility, I include a dummy variable that is coded 1 if a country's government is right for a majority of years in a given five-year period and 0 otherwise.

Data on the governments' ideology are from Beck et al. (2001).

¹¹ Wallack et al. 2003.

¹² Mayhew 1974; Fiorina and Nool 1979; Arnold 1990; Fenno 1978; Ferejohn 1974; Fiorina 1977; Wilson 1986; Weingast et al. 1981.

¹³ Moene and Wallerstein 2003.

5.8 Results

Among Latin American countries, those with relatively mobile labor have less tariff variance than countries with specific labor. These results are reported in Table 5.3. A one percent increase in the rate of inter-industry labor movement reduces tariff variance by 1.46 units, on average. This is a notable effect especially given that the measure of labor mobility is calculated for the manufacturing sector and the tariff variance is calculated across the entire economy. I expect that the average costs of adjustment in the manufacturing sector would best explain the manufacturing tariff schedule. The fact that labor movement in the manufacturing sector is a robust predictor of economy-wide tariff form suggests that the costs of adjustment may be similar across sectors.

The average level of protection is negatively and significantly related to tariff variance, as expected. Countries more open to foreign trade tend to have less inter-industry variance in tariff rates. Similarly, GATT/WTO member countries exhibit less tariff variance than non-members.

5.9 Estimation concerns and possible objections

Readers may object that I have oversimplified countries' tariff structures. Certainly the structure of virtually every country's tariff schedule is complicated, typically involving thousands of tariff lines. Here, I make broad generalizations regarding a country's tariff structure in order to characterize it as being either more or less uniform across industries relative to other countries' tariff schedules. I do so not because the details of a country's tariff structure are unimportant but because I am

theoretically interested in the relative weight of narrow protections in a country's portfolio of trade policies.

A second possible objection is that tariffs are no longer an important barrier to trade. Some observers of international trade have suggested that non-tariff trade restrictions are used increasingly to compensate for internationally agreed-upon tariff reductions. Yet, as noted above, tariff reductions have not been even across countries and for all products and sectors. This observation, along with the fact that the practice of tariff escalation continues to affect some sectors, casts doubt on the popular assertion that tariffs no longer matter as an instrument of trade policy.¹⁴ An uneven tariff structure, with some high nominal rates stratified along the different stages of production, can yield high levels of effective protection.

A third possible objection to this study is that the rate of labor movement between industries is determined in part by the tariff structure. Industry-specific tariffs raise wages above the market rate. Workers have incentives to move to protected industries to capture these relatively high returns. It might be the case then that labor movement is greater in response to industry-specific tariffs. This possibility biases against finding the negative I propose. In an attempt to address this concern, I use estimates of previous levels of labor mobility to predict current tariff structure. So for example, the average rate of inter-industry labor movement from 1980 to 1984 is used to predict tariff variance in the period from 1985 to 1989. These results are reported in models 3 and 4 in Table 5.3.

¹⁴ OECD 1999.

Previous levels of labor mobility are a robust predictor of current tariff variance. A one percent increase in the previous rate of inter-industry labor movement results in a 0.7 percent decrease in current tariff variance, all else equal. These results help minimize concerns over endogeneity. However, this strategy may not fully address the potential endogeneity problem if tariff rates are relatively persistent over time. Simply lagging labor mobility as I have done here will not eliminate completely the possibility of reverse causation if tariffs persist over time. However, tariff variance does not persist over the medium-term. Tariff variance in the previous five-year period is not a robust predictor of current tariff variance. This suggests that using the average level of labor mobility for the five-year period prior to the observed tariff variance adequately addresses the potential endogeneity problem.

5.10 Conclusion

Post-war multilateral trade negotiations reduced tariff barriers on manufacturing goods in industrialized countries from nearly 40 percent at the end of World War II to four percent at the end of the Uruguay Round. Yet virtually all multilateral tariff negotiations have involved demands from countries to exclude particular industries, firms or products. Indeed, the most contentious issue in recent negotiations involves exemptions made for agriculture. Such exemptions allow countries to target protection to narrow segments of their domestic economies. This type of narrowly targeted trade protection results in a fractured tariff schedule in which tariff rates exhibit a great deal of variation across industries and sectors. An uneven tariff structure can yield high levels of effective protection. Why then do

countries simultaneously work for trade liberalization and continue to demand exemptions for particular industries?

Governments request exemptions for particular industries in order to gain the electoral support of owners of immobile assets employed in import competing sectors. Governments expect that if they are able to obtain protection for these asset owners, the asset owners will then provide the incumbent politicians with votes, contributions and other electoral benefits. The real puzzle then is why some governments appear uninterested or unwilling to provide narrowly targeted trade protection. I argue that such governments face few demands for narrow protection. Politicians in countries with relatively mobile labor face few demands for narrowly targeted protection. In these countries, tariff rates will tend to be similar across industries generating rents for a broad segment of the economy.

Governments in countries characterized by mobile labor are less likely to demand industry exemptions from broad liberalization. This prediction has important implications for multilateral trade negotiations. Such negotiations, particularly those conducted under the GATT/WTO, are often characterized by broad tariff reductions. In fact, the *Swiss Formula*, introduced during the Tokyo Round, was designed to achieve reductions in tariffs across the board and minimize tariff peaks within a country. Given this, public support for multilateral trade negotiations will vary systematically with the costs of adjustment. Mobile labor employed in labor-scarce countries stand to lose from broad liberalization. As a result, they will work to stall or undermine multilateral trade negotiations. In contrast, mobile labor that stands to gain

from tariff reductions, such as those workers in labor-abundant countries, will lobby in favor of multilateral trade agreements and work to promote successful negotiations.

Although trade policy and the structure of protection are determined in part by domestic demands, the global economy and international institutions almost certainly matter as well. In the following chapter, I explore the effects of international institutions on domestic transfer form. Using data on international trade disputes, I examine whether domestic demands for narrow protection are met when international restrictions on narrow transfers exist.

Table 5.1: Descriptive statistics of tariff variance by region

	N	Mean	Std Dev	Min	Max
<i>Latin America</i>					
Std Dev Tariff	60	22.64	31.88	0.69	211.18
Average Tariff	90	51.63	69.50	9	534
<i>OECD</i>					
Std Dev Tariff	25	9.03	2.85	4.8	15.7
Average Tariff	27	10.62	10.62	3.7	46

Table 5.2: Descriptive statistics of tariff variance by country

Country Code	Mean
ARG	16.87
BOL	10.34
BRA	18.61
CHL	8.96
COL	19.40
ECU	22.39
MEX	11.63
PER	18.89
PRY	19.30
SLV	16.57
URY	72.22
VEN	20.12

Table 5.3: Estimated tariff variance in Latin America

Tariff variance	1	2	3	4
Labor mobility				
Labor mvmt	-1.48 (0.55)*	-1.44 (0.59)*		
Labor mvmt (lag)			-0.72 (0.38)#	-0.71 (0.44)
Business cycle				
Growth (ln)	-0.14 (2.14)	-0.3 (2.5)		
Growth (lag/ln)			-3.93 (1.67)*	-4.9 (2.03)*
Institutions				
Veto players		-0.15 (1.78)		-0.16 (1.1)
Candidate centered		1.24 (3.99)		5.09 (3.48)
Openness				
Open	-0.26 (0.10)*	-0.24 (0.10)*	-0.28 (0.09)**	-0.24 (0.12)
GATT/WTO	-9.0 (3.40)*	-8.93 (3.90)*	-16.98 (2.50)**	-17.06 (3.10)**
Other				
Income	-0.81 (0.82)	-0.84 (0.79)	-0.02 (0.56)	0.06 (0.51)
Left	4.2 (2.97)	4.53 (3.24)	0.6 (2.48)	2.52 (2.54)
Constant	40.9 (5.96)**	40.1 (8.13)**	45.6 (4.79)**	42.8 (5.09)**
Observations	27	27	32	31
R-squared	0.52	0.53	0.63	0.7

Pooled cross-sectional OLS regression with robust standard errors in columns 1-4. Dependent variable is the standard deviation of tariff rates. Models 1-4 contain data on Latin American countries from 1975-1999 averaged over 5-year periods (75-79, 80-84, 85-89, 90-94, 95-99). Countries in this sample include Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Peru, El Salvador, Uruguay and Venezuela. There are no influential outliers. (# significant at 10 percent level in two-tailed test)

Appendix: Country Codes

Country Code	Country Name
ARG	ARGENTINA
BOL	BOLIVIA
BRA	BRAZIL
CHL	CHILE
COL	COLOMBIA
ECU	ECUADOR
MEX	MEXICO
PER	PERU
PRY	PARAGUAY
SLV	EL SALVADOR
URY	URUGUAY
VEN	VENEZUELA

Chapter 6: International constraints

The form of domestic transfers is determined by domestic demands, as demonstrated in previous chapters. The question remains whether international institutions play a role in shaping the form of domestic transfers. Multilateral international agreements like the GATT/WTO include restrictions on narrowly targeted transfers. A member-country's decision to provide narrow transfers often violates their international commitments. Such violations are often dealt with through the dispute settlement mechanism of the GATT/WTO. In fact, virtually every dispute filed with the GATT/WTO in the past two decades pertained to illegal narrow transfers. The number of disputes can be taken as a proxy for the existence and prevalence of narrow transfers in defendant countries. Using data on international disputes over narrow transfers, I test the relationship between labor mobility and transfer form.

6.1 Introduction

Over 180 disputes were filed with the General Agreement on Tariffs and Trade's (GATT) Dispute Settlement Body during the period from 1980 to 1994. Virtually all of these disputes involved narrow transfers. Despite the restrictions on narrowly targeted transfers included in the GATT/WTO agreements, some governments continue to provide benefits to narrow segments of the domestic economy. The question then arises why some governments appear to comply with international agreements by providing only broad transfers while others provide

narrowly targeted transfer in violation of their international commitments. Here, I seek to explain this cross-national variation in non-compliance by examining variance in domestic demands.

Non-compliance is not random but instead can be systematically explained by variance in domestic demands. The electoral benefits of providing narrow transfers are greater in some countries than in others. It is in precisely those countries in which the electoral benefits of narrow transfers are large that we expect to see violations of international restrictions on narrow transfers. Using the theory outlined in chapter 2, I identify those countries in which the electoral benefits of non-compliance are large.

Politicians face considerable pressure for narrowly targeted transfers in countries where labor is relatively immobile. For these politicians, the electoral benefits of providing narrow transfers are significant. In contrast, politicians in countries characterized by mobile labor face relatively few demands for narrow transfers. Workers able to move easily between industries demand broad benefits that are entirely consistent with international agreements. Countries characterized by relatively mobile labor are therefore less likely to be named as defendants in international dispute over narrow transfers.

If the predicted relationship between adjustment costs and transfer form does not emerge from the data, domestic policy choice may be constrained by international institutions. Domestic policy makers facing narrow demands may refrain from providing narrow transfers in light of their international commitments. If politicians comply with international restrictions, narrow transfers may be no more generous in countries with specific labor than countries with mobile labor. A second possible

explanation for a non-finding is that sensitivity to the costs of non-compliance varies across countries in a way unrelated to labor specificity. Some countries may be more responsive to the international costs of non-compliance. As a result, the pattern between labor specificity and transfer form will look different from the one predicted by my theory.

Before I present my empirical results, I first outline the restrictions on narrow transfers included in the GATT/WTO agreements. I then describe the complaints that were filed with the GATT/WTO during the period from 1985 to 1994 and identify those that deal specifically with narrow transfers.

6.2 International restrictions on narrow transfers

Narrow subsidies have been explicitly restricted by international agreement since the Tokyo Round of 1979. Although the ability of governments to provide narrow subsidies free from international constraints has been limited for several decades, international restrictions and their effectiveness have increased over time.¹ Building on the Tokyo Round Subsidy Code, the WTO Agreement on Subsidies and Countervailing Measures (ASCM) was established during the Uruguay Round and took effect in 1995. This agreement sets out a precise definition of what constitutes a subsidy and clearer rules regarding their use. Unlike the 1979 Tokyo Round Subsidies Code, all countries that become members of the WTO will automatically be subject to the Subsidies Agreement.

¹ Horn (1987) argues that the subsidy restrictions agreed to in the Tokyo Round were irrelevant in practice.

Although international agreements negotiated under the GATT/WTO generally limit a government's ability to provide benefits to a narrow segment of its economy, there are circumstances under which exceptions for narrow transfers are made. For example, countervailing duties can be applied to a single product when production of that product is being subsidized by the exporting government. Countervailing duties in effect provide narrow benefits to domestic producers of the product in question. However, the general principle of GATT/WTO agreements is to limit the provision of narrow benefits that distort the allocation of domestic resources. Policies that benefit a broad segment of the economy are presumed to have minimal effects of the allocation of resources within an economy and are therefore permissible under GATT/WTO rules.²

Greater international restrictions on narrow transfers increase the potential costs of providing such benefits. Narrow transfers are likely to provoke international conflict. Given the strengthening of international restrictions and the legalization of the dispute process, the costs of being involved in and potentially losing an international dispute are greater today than in previous times. Despite this, we continue to see governments providing narrow transfers. In this chapter, I seek to explain why some governments choose to provide narrow benefits in violation of these international restrictions.

² Subsidies allowed under GATT/WTO ("non-actionable" subsidies) include those that are generally available (i.e. broad), and subsidies for research and development, regional development and the environment.

6.3 Implications

This research has important implications for our understanding of how international institutions affect domestic politics and the potential constraints they may impose. Martin and Simmons (1998) call for research that examines how international institutions shape the decisions of domestic policy makers. While previous studies have examined the effect of international institutions on various policy areas including trade and monetary policy,³ I examine the effects of international institutions on a purely domestic policy choice, namely the form of domestic transfers. This sets up a difficult test of the effects of international institutions. Do international institutions affect policy decisions that are primarily domestic in nature? If the relationship between labor mobility and transfer form predicted by my theory holds despite international restrictions on narrow subsidies, then we might conclude that the effects of international agreements on domestic transfer form are minimal.

The microfoundational theory I develop in chapter 2 provides a potential explanation for a country's international bargaining position on subsidies and narrow exemptions. Governments that regard narrow transfers as politically essential will not easily acquiesce to restrictions on them. By understanding the origins of domestic preferences over redistribution, we have a better understanding of international negotiations that occur over subsidies and the compromises that are struck. Using the theory developed in this dissertation, we can identify those countries that compromised when agreeing to international restrictions on narrow transfers, like those contained in the WTO ASCM. My theory suggests that international restrictions

³ See, for example, Kastner and Rector 2005; Bagwell and Staiger 2001.

on narrow transfers represent a concession from specific-labor countries to mobile-labor countries. Given that developed countries tend to have more specific labor, as demonstrated in chapter 3, international restrictions on narrow transfers may represent a concession from developed countries to developing countries. Scholars of international relations have called for this type of microfoundational research.⁴

This research also makes a contribution to the literature on international trade disputes. Much of the existing research on GATT/WTO disputes focuses exclusively on explaining who files complaints. These studies often assume that WTO-inconsistent activity is randomly and uniformly distributed across countries.⁵ However, I argue that non-compliance varies systematically with domestic adjustment costs. This has important implications for explaining the pattern of disputes filed with the WTO. A given country is more likely to file a dispute if its major trading partners are characterized by relatively specific labor.

6.4 Nature of international disputes filed with GATT/WTO

In theory, complaints made to the GATT/WTO could be either particularistic or systemic in nature.⁶ Particularistic complaints are characterized as being made on behalf of a particular producer or concentrated group of producers within a country in response to a narrow transfer in the defendant country. In contrast, systemic complaints allege a violation that affects a diffuse group of exporters across sectors. An example of a systemic case is the dispute filed by the US against France in the

⁴ See, for example, Moravcski 1997; Lake and Powell 1999.

⁵ See, for example, Horn et al. 1999.

⁶ This typology is made by Sevilla 1998.

1950s for customs stamp taxes that applied to all imports, not just those from a particular sector or industry.

In practice however, systemic complaints are rare. Less than 3 percent of all disputes filed under the GATT were systemic in nature.⁷ During the period from 1980 to 1994, eight disputes pertained to broad issues and four were overtly political in nature.⁸ These disputes are listed in Table 6.2. Despite these occasional disputes over broad issues, the vast majority of disputes filed during this period relate to narrowly targeted transfers. For example, the United States filed a GATT dispute against Korea in 1991 on behalf of two US export firms. The complaint was in response to the Korea Trade Commission's decision to implement domestic protection from foreign imports of polyacetal resins in the form of antidumping and countervailing duties.

Given the particularistic nature of complaints made to the GATT/WTO, especially during the 1990s, instances of disputes can be taken as evidence of narrowly targeted transfers. Most often, the illegal narrow transfers occur in the defendant country. The general exception to this is countervailing duties disputes. For example, in 1991 Canada filed against the US to complain about countervailing duties imposed by the US on Canadian magnesium. The US claimed that it imposed these duties in response to Canadian subsidies of the production of pure and alloy magnesium. I take up the task of correctly identifying which country has the illegal narrow transfers in the empirical section of this chapter. Before I do so, I first revisit my theory and outline its implications for international disputes.

⁷ Sevilla 1998.

⁸ This excludes any disputes in which the EC/EU was involved.

6.5 Theory revisited

International disputes litigated within the GATT/WTO framework generally occur over benefits targeted to a narrow segment of a country's economy. Given this, the incidences of international disputes have implications for the form of transfers provided by a country's government. Countries involved in international trade disputes, and particularly defendant countries, can be characterized as having relatively narrow transfers. As argued previously, narrow transfers are most prevalent in countries with specific labor. As a result, I hypothesize that countries with relatively specific labor are more likely to be involved in an international trade dispute than countries with mobile labor.

To illustrate with an example, consider the 1991 dispute between the US and Korea. The United States filed against Korea in response to countervailing duties imposed on imports of polyacetal resins. These taxes were quite narrowly targeted. In fact, they applied to the imports of only two US firms and one Japanese importer. These taxes benefited only a single Korean firm, the sole domestic producer of polyacetal resins. Owners of assets employed by this firm benefited at the expense of other Korean producers and Korean consumers.

Narrowly targeted protection, like that granted by the Korea Trade Commission, benefits all asset owners employed in the protected industry or firm. However, specific assets benefit more from such protection than mobile assets. Mobile asset owners are not concerned with the returns in one specific industry. If the returns in their current industry begin to decline, they can easily move their asset to a new industry. Mobile asset owners are concerned with policies that affect the returns to the

asset throughout the economy. For example, mobile workers in a labor-scarce economy will lose from broad trade liberalization. Liberalization and the increased import penetration that follows will reduce wages in every industry and sector. Moving from one industry to another will not restore a worker's income to the pre-liberalization level. As a result, mobile workers demand broad trade protections that will insure their incomes regardless of where they are employed in the economy. Mobile labor in labor-scarce GATT/WTO member countries will focus their lobbying efforts on obtaining broad forms of protection rather than the narrow protection afforded by industry subsidies or industry-specific tariffs. Member countries with relatively mobile labor will therefore have fewer narrow transfers than countries with specific labor and as a result are less likely to be named as defendants in GATT/WTO disputes. In the following section, I empirically test this hypothesis.

6.6 Empirical Analysis

In this section, I describe the empirical relationship between instances of international disputes over illegal narrow transfers and labor mobility. The relationship between international disputes and labor mobility varies across countries in the way that is predicted by my theory. I begin with a discussion of the data used in the statistical analysis and of the methodological issues that I confronted. I then present my empirical results.

6.7 International disputes over narrow transfers

More than 180 disputes were filed with GATT during the period from 1980 to 1994.⁹ Most of these disputes were particularistic in nature often involving transfers to a single industry or firm. In fact, only 12 of the 187 disputes filed during this period were systemic in nature. These broad disputes included those filed for political purposes such as the trade embargo imposed by Canada on Argentina during the 1982 Falklands War. A complete list of broad disputes filed with GATT during the period from 1980 to 1994 is provided in Table 6.2.

The number of disputes filed against a given country can be taken as an indicator of the number of illegal narrow transfers in that country. For my first set of tests, I use the cumulative number of manufacturing-related disputes filed against a country between 1985 and 1994 as the dependent variable. During this period, the institutional rules governing international disputes and narrow transfers remained relatively constant. I restrict the sample to manufacturing disputes because my measure of labor mobility is limited to manufacturing. Approximately half of the disputes during this period involved manufacturing industries, firms or products.

Disputes over countervailing duty are treated differently. In countervailing duty disputes, it is often the plaintiff that has the alleged illegal narrow transfers. In instances of countervailing duty disputes, I examine the GATT Panel Report and identify the country accused initially of having illegal narrow transfers. The dispute is counted against the country accused of having the illegal narrow transfers that

⁹ Members of the European Community/Union were involved in over half of these disputes. These cases are excluded because of the conceptual difficulty of measuring average labor specificity in the EC and the possibility that the decision to file a dispute is different for the EC than a single country.

prompted the countervailing duties, regardless of whether that country is the plaintiff or defendant.

Anti-dumping measures pose another potential complication. Anti-dumping measures are imposed by governments in response to a firm's policy rather than a government's policy. Anti-dumping complaints are therefore not indicators of narrow *government* transfers. Given this, I exclude instances of anti-dumping complaints from my sample.

6.8 Estimation concerns

Three estimation concerns arise. First, unobserved factors may distinguish cases filed with GATT from those dealt with through other means like shuttle diplomacy and regional disputes settlements. If this is the case, then inferences drawn from studies of dispute settlement might be biased by the way these unobserved factors lead some cases to be litigated in Geneva rather than others. Unfortunately, data on non-cases are not available for the full sample of countries. However, I make use of data on countervailing duties in an attempt to measure the potential unobserved factors distinguishing international disputes. All instances of countervailing duties are potential cases for dispute.¹⁰ However, only a small percent of countervailing duties result in a dispute being filed with the GATT/WTO Dispute Settlement Body. Countervailing duties that are not litigated internationally can therefore be considered 'non-cases'. Using data on countervailing duties, I find a very similar relationship between mobility and litigated disputes and mobility and countervailing duties. This

¹⁰ Allee 2004.

suggests that the importance of labor mobility does not vary with the unobserved factors that distinguish cases filed with GATT/WTO.

A related concern is the myriad factors that influence a government's decision to file a GATT dispute. Once a complaint is made by a domestic industry to their government, the government must then decide whether to file a dispute with GATT. When deciding whether or not to file a dispute, governments take many factors into account including their past success with the dispute settlement process and the legal merit of the complaint. Given the numerous factors that influence a government's decision to file a GATT dispute, it will be difficult to find a relationship between labor mobility and disputes. Further complicating the matter is the fact that trade disputes may be filed in retaliation for previous disputes. This 'tit-for-tat' strategy was particularly clear between the US and the European Community during the early years of GATT. These types of filings have decreased over time. However, by including them in my sample, I bias the sample against finding a relationship between labor mobility and international complaints. I do, of course, control for these retaliatory disputes when estimating the number of complaints filed by countries.

A final concern is the distribution of disputes. Many governments participated in a few international trade disputes while relatively few governments participated in many. Only one country, the United States, was named in more than eight disputes in my sample. In an attempt to deal with this skewed distribution, I estimate a negative binomial distribution. This distribution has all of the properties of a Poisson distribution. Both model situations in which the dependent variable is a natural number and make predictions about the number of events that will occur given a set of

independent variables. I use the more flexible negative binomial, rather than the Poisson, because my dependent variables (the number of complaints filed against a country) is over-dispersed, meaning that the variance is greater than the mean. The negative binominal model includes two parameters for unobserved variance in the number of events (disputes) across observations (countries). This corrects for a problem analogous to the problem of heteroscedasticity in standard least-squares regressions that would otherwise lead to an underestimation of the standard errors. Results are reported in Table 6.3 and 6.4. I discuss each in turn.

6.9 Model

Using the cumulative number of manufacturing-related disputes over narrow transfers filed against a country during a five-year period as my dependent variable, I estimate the effect of labor mobility on non-compliance with international restrictions on narrow transfers. As in previous chapters, the measure of labor mobility is averaged over five-year periods in order to minimize short-term volatility stemming from business cycle effects. All control variables included in the model are also averaged over five-year periods. The base sample is an unbalanced panel from 1985-1994, with data averaged over two five-year periods: 1985-89 and 1990-94. The sample is limited to GATT member countries.

When estimating the number of GATT disputes filed against a country, I include a control variable measuring a country's exports. I expect that countries with a large number of exports are more likely to be accused of providing illegal narrow transfers. Countries file disputes in response to imports that are believed to benefit

from subsidies provided by the exporting government. Countries that export more products are more vulnerable to these allegations. They have many more products on the international market that are subject to scrutiny and potential disputes. Countries that do not export goods to other countries may provide narrow subsidies to their domestic producers however these subsidies are less likely to come to the attention of foreign producers and therefore less likely to be the basis of an international dispute.

Disputes may be filed in retaliation for previous disputes. This *tit-for-tat* strategy was particularly clear during the early years of GATT between the EC and US. I control for this strategy of retaliation in this model by including a dummy variable, labeled plaintiff, which is coded 1 if the country filed a dispute during the five-year period in question and 0 otherwise.

Other control variables included are democracy, the number of veto players, electoral system characteristics (majoritarian versus proportional and candidate versus party centered), economic growth, government ideology, and policy measures (collective bargaining, early policy, liberal welfare state). I discuss each briefly in turn.

Democracy: My argument is most likely to hold in high functioning democracies where politicians are responsive to domestic demands. This is not to say that leaders in less democratic systems are entirely unresponsive to domestic demands. However, I assume that domestic demands are most likely to translate into policy outcomes in high functioning democracies. If this is true then including all GATT member countries in my sample regardless of their form of government biases against

finding support for my argument. I control for level of democracy using Polity data to deal with the variance in regime type in the sample.

It has been suggested by several scholars that democratic countries may be more likely to comply with international agreements.¹¹ Like Tomz (2002), I find no support for this argument here. Once variance in domestic demands have been taken into account, democracies are no more likely to comply with their international commitments than non-democracies.

Veto players: Several scholars have suggested that the number of veto players in a government will be positively correlated with narrow transfers.¹² Veto players are able to demand particularistic payments for their support. Given this, we expect countries with large numbers of veto players to have relatively more narrow transfers. They are therefore more likely to be filed against in the GATT/WTO Dispute Settlement Board. I discuss the results obtained using this measure below.

Electoral system characteristics: Electoral systems generate supply incentives for politicians. Some systems provide politicians with incentives to reward broad segments of the population. In others, narrow transfers are the most efficient way to maximize electoral success. Here I control for two facets of the electoral system that are likely to affect the electoral benefits of narrow transfers relative to broad. The first is whether a country's electoral system is proportional or majoritarian. Several scholars have argued that PR systems make politicians responsive to a wider array of

¹¹ Smith 1996; Gaubatz 1996; Leeds 1999; McGillivray and Smith 2000; Mansfield, Milner and Rosendorff 2002.

¹² See, for example, Cox and McCubbins 2001.

interests and as a result they are less likely to provide narrow transfers than politicians in majoritarian systems.¹³ I find no evidence in support of this argument here.

The second characteristic of a country's electoral system that I control for is the relative strength of parties in shaping candidates' access to the ballot and determining their chance to be elected. Electoral systems with party control over candidates' position on the ballot give politicians incentives to cater to the party rather than constituents in order to be chosen for the ballot and placed in a viable spot near the top of the list.¹⁴ In contrast, systems with low independent candidacy requirements and plurality thresholds offer voters significant influence over the selection of candidates. In these systems, politicians focus more on gaining support within their constituency rather than party. Candidate-centered systems are expected to provide greater narrow benefits than party-centered systems. With their electoral fates riding primarily on a single constituency rather than a broad party, narrow benefits will be favored over broad.¹⁵ I find some support that countries with candidate-centered systems are more likely to be accused of having illegal narrow subsidies than party-centered countries.

Economic growth: Both labor movement and narrow transfers are likely related to economic growth. Countries with weak economic performance are likely to experience significant movement in their labor markets and greater demands for illegal narrow transfers and protections.

¹³ Magee, Brock and Young 1989; Rogowski 1987, 1989; Mansfield and Busch 1995.

¹⁴ Wallack et al. 2003.

¹⁵ Mayhew 1974; Fiorina and Nool 1979; Arnold 1990; Fenno 1978; Ferejohn 1974; Fiorina 1977; Wilson 1986; Weingast et al. 1981.

Government ideology: Right governments are thought to favor narrow transfers over broad.¹⁶ I find no evidence in support of this.

Policy measures: Government policy likely affects the observed rate of labor mobility. To control for this, I include several measures of government policy including the extent of collective bargaining, the wage replacement rate in 1960 and whether or not a country's welfare state can be characterized as liberal. These variables are described in previous chapters. Importantly, collective bargaining can be interpreted as an indicator of labor strength. It, like the wage replacement rate and a country's welfare state, does not exhibit an independent effect on international disputes. Labor mobility remains significant to the inclusion of measures of a country's unemployment insurance and welfare state. However, when collective bargaining is included labor mobility is no longer a robust predictor of GATT disputes. The interaction of labor mobility and collective bargaining is also insignificant.

It is worth discussing a common control that I do not include here, namely economic development. Numerous studies have examined the relationship between economic development and participation in international disputes. A casual observer of GATT disputes, particularly those prior to 1990, might suspect that economic development predicts participation in international disputes. However, recent research suggests that it is not economic development per se but rather a country's trade share, particularly their exports, that predicts involvement in an international dispute.¹⁷

¹⁶ Moene and Wallerstein 2003.

¹⁷ See, for example, Brown 2004a.

Economic development and exports tend to be positively related. Indeed when both are included in models of international disputes significant multicollinearity results.

In the models reported here, I include a country's exports as a percentage of their GDP rather than economic development. If economic development is included instead of exports, the results reported in Table 6.3 remain relatively unchanged. Labor mobility remains negatively and significantly related to instances of international complaints regarding narrow transfers when the level of economic development is included.

6.10 Model

Labor mobility is a robust predictor of GATT trade disputes. Countries with mobile labor are accused of having narrow transfers less often, arguably because they have fewer narrow transfers. Labor mobility is significantly and negatively related to the number of disputed filed against a country. Using Model 5 from Table 6.3, I predict the expected number of complaints using Monte Carlo simulations.¹⁸ An increase in labor mobility from quartile 1 to quarter 3 decreases the number of complaints by 30 percent, in countries with right governments and proportional electoral systems, holding all other variables at their median.

Countries with more veto players are less likely to be named in international disputes over narrow transfers. This is contrary to the prediction by Cox and McCubbins (2001) that more veto players will result in more narrowly targeted transfers, as each veto player demands a particularistic payoff in exchange for

¹⁸ Tomz, Wittenberg and King 2003; King, Tomz and Wittenberg 2000.

supporting a policy. Perhaps the international dimension is important here. It might be that countries with more veto players are less likely to violate their international agreements. Previous research has shown that countries with large numbers of veto players are less likely to join international agreements because it is difficult to get all of the veto players to agree.¹⁹ Given the difficulty of negotiating an international agreement to which all veto players agree, countries with large numbers of veto players may be less likely to violate an international agreement. Such an agreement is relatively more valuable in a country with a large number of veto players. Another explanation may be that a larger number of veto players tend to lock in economic policy and reduce the ability of the government to respond to economic shocks. This observation made by Tsebelis' (1995, 1999, 2002) suggests that countries with large numbers of veto players may be less responsive to demands for narrow transfers because of the difficulty of changing policy.

Countries who filed a complaint with GATT are more likely to be named as defendants in a dispute. Some disputes appear to be filed in retaliation for previous disputes rather than in response to illegal narrow transfers. Including these disputes in my sample makes it more difficult to find evidence in support of my hypothesis. Labor mobility remains a robust predictor of international disputes controlling for retaliatory disputes. As expected, countries that export a large amount are more likely to be named in international disputes.

¹⁹Mansfield, Milner and Pevehouse 2004.

6.11 Alternative measures of labor mobility

Adjustment costs are difficult to measure directly. In Table 6.4, I use proxy measures of adjustment costs. So, for example, I use the average rate of wage replacement provided by a country's unemployment insurance to proxy for high adjustment costs. Higher replacement rates provide greater insurance against income loss and therefore provide workers with incentives to invest in industry specific skills. Higher replacement rates are positively related to labor specificity. Countries with high wage replacement rates have high labor specificity, on average.

The results reported in Table 6.4 using proxy measures of adjustment costs are remarkable similar to those reported in Table 6.3 where the observed rate of labor movement between industries is taken as a measure the costs of adjustment facing workers. Wage replacement rates are positively and significantly related to the number of international disputes filed against a country. I argue that this is because countries with specific labor have more narrow benefits than countries with mobile labor thereby increasing the probability that they will face an international complaint, all else equal.

As expected, countries with candidate-centered electoral systems are more likely to face international complaints over narrow disputes than countries with strong parties. Politicians in candidate-centered systems favor narrow benefits over broad. The results reported here confirm this hypothesis.

6.12 Countervailing duties

Rules regarding narrow transfers and disputes changed significantly in 1995 with the implementation of the WTO Agreement. As a result, data prior to this change are not directly comparable to data after 1995. I use data on instances of countervailing duties from 1995 to 2003 to test the relationship between domestic preferences and low-level international conflict. More precisely, I use as my dependent variable the cumulative number of countervailing duties imposed against a country from 1995 to 2003. Recall that countervailing duties are imposed by member states in response to narrowly targeted transfers that benefit exporters. I use the number of countervailing duties imposed on a given country's exports and the number initiated as measures of a country's predominant transfer form. Again, I estimate a negative binomial distribution model here because many governments were accused of providing only a few illegal narrow subsidies to their exporting producers while relatively few governments are accused of providing many.

Data on the rate of labor movement between industries is not available after 1999. I therefore use the average wage replacement rate in this model as a proxy for the costs of adjustment. High wage replacement rates indicate high levels of labor specificity. Countries with specific labor, as indicated by high wage replacement rates, are more likely to face countervailing duties because countries with specific labor tend to have relatively more narrow transfers. In response to these illegal narrow transfers, countries impose countervailing duties on the country's exports.

Labor mobility is a robust predictor of countervailing duties. Countries with more specific labor have more countervailing duties imposed on their exports.

Variance in the number of countervailing duties actually imposed is better explained by labor mobility than variance in the number threatened. This suggests that some threats to impose countervailing duties may be made for strategic reasons rather than in response to actual illegal narrow transfers. Although robust at conventional levels, these results should be treated with caution given the small sample size. The sample includes 20 developed, OECD countries.

The results are remarkably similar to those where the dependent variable is the cumulative number of GATT disputes filed against a country between 1985 and 1994. This is somewhat surprising given the dramatic rule changes that took place in 1995 with the implementation of the Uruguay Round agreement. Given the significant differences between these two tests, including differences in institutional rules, the fact that the relationship between labor mobility and accusations of illegal narrow transfers remains unchanged is strong evidence in support of my hypothesis.

6.13 Conclusion

Politicians in countries characterized by specific labor are more likely to violate international restrictions on narrow transfers than politicians in countries with mobile labor. For politicians facing significant demands for narrow transfers, like those in countries characterized by specific labor, the electoral benefits of providing narrow transfers outweigh the costs of violating their international commitments. The question remains why countries with specific labor agree to these restrictions on narrow transfers. Why would politicians that stand to gain from providing narrow transfers agree to limit their ability to use such transfers? One possible explanation is

that politicians want to tie their own hands by limiting their ability to provide narrow transfers. This explanation has been made in reference to trade²⁰ and monetary policy²¹ and may have implications for other redistributive policies like subsidies. Narrow subsidies encourage unproductive rent-seeking. It is possible that politicians want to limit this behavior and use international restrictions as a way to tie their own hands.

This research provides an important first step to understanding why politicians agree to limit their ability to provide narrow transfers by identifying those countries that are most likely to use narrow transfers. It is precisely these countries that are making a concession when agreeing to limits on narrow transfers. They are making a concession to those countries with relatively mobile labor in which transfers are likely to be broad in nature, regardless of international restrictions on transfer form. Countries with specific labor made concessions to countries with mobile labor when agreeing to the WTO's Agreement on Subsidies and Countervailing Measures. Given that developed countries tend to have more specific labor, as demonstrated in chapter 3, international restrictions on narrow transfers may represent a concession from developed countries to developing countries.

Despite international restrictions on narrow transfers, politicians facing demands from specific labor choose to provide narrowly targeted benefits. As a result, non-compliance with international restrictions on narrow transfers is systematic and can be explained by cross-national variance in domestic demands for narrow transfers.

²⁰ Ibarra 1995; Gould 1992; Whalley 1996; Smith 1997.

²¹ Cottarelli and Giannini 1998; Agénor 1994; Giavazzi and Pagano 1994; Martin and Simmons 1998.

Table 6.1: GATT disputes 1980-1994

Total Disputes	187
Excluded	
<i>EEC Plaintiff</i>	31
<i>EEC Defendant</i>	58
<i>Political</i>	4
<i>Systemic</i>	8
<i>Antidumping</i>	14
<i>Agriculture/Services</i>	35
Total Sample	37

Table 6.2: GATT disputes 1980-1994, by type

Plaintiff	Defendant	Year	Dispute
Political Disputes (Excluded)			
Argentina	Canada	1982	Falklands War Embargo
Argentina	Australia	1982	Falklands War Embargo
Nicaragua	USA	1985	Trade Embargo
Poland	USA	1982	Suspension of MFN
Systemic (Excluded)			
India	USA	1980	CVD w/o Injury
India	USA	1982	CVD Procedures
USA	Canada	1982	FIRA
USA	Japan	1984	Single Tendering Procedures
Canada	USA	1986	Customs User Fee
USA	Japan	1986	Twelve Agricultural Products
Austria	Germany	1989	Truck traffic restrictions
USA	Brazil	1989	QRs Ag & Mfd Products

Table 6.3: Predicting complaints

Defendant (manufacturing)	1	2	3	4	5	6	7	8
Labor mobility								
Labor mvmt	-2.11 (0.65)**	-1.38 (0.49)**	-1.33 (0.48)**	-1.82 (0.78)*	-2.09 (0.76)**	-2.56 (2.10)	-2.05 (0.76)**	-1.31 (0.65)*
Institutions								
Veto players				-0.48 (0.16)**	-0.32 (0.15)*	-0.32 (0.60)	-0.36 (0.27)	-0.38 (0.24)
Democracy				0.33 (0.24)	0.34 (0.25)			
Candidate centered				1.26 (1.35)	1.22 (0.82)			
Plurality				-0.53 (1.00)	-0.46 (0.89)			
Policy								
Collective bargaining						2.42 (2.69)		
Early policy							-4.75 (5.34)	
Liberal welfare state								0.52 (0.61)
Other								
Plaintiff	0.34 (0.27)	0.16 (0.08)*	0.16 (0.08)*	0.15 (0.09)	0.12 (0.02)**	1.42 (0.77)	0.12 (0.03)**	0.10 (0.03)**
Exports (ln)		0.74 (0.21)**	0.73 (0.21)**	0.76 (0.35)*	0.59 (0.26)*	0.66 (0.38)	0.59 (0.34)	0.71 (0.36)
Growth (ln)			-0.02 (0.38)	-0.07 (0.61)	-0.21 (0.49)	0.06 (1.15)	-0.33 (0.67)	-0.20 (0.52)
Left					-1.32 (1.12)	-0.15 (1.37)	-1.16 (1.04)	-0.56 (1.02)
Constant	0.92 (1.16)	-18.32 (5.39)**	-17.92 (5.26)**	-19.71 (7.69)*	-15.40 (7.09)*	-18.1 (12.58)	-10.57 (8.85)	-15.34 (9.20)
Observations	96	96	86	81	72	33	32	26
Countries	48	48	43	38/43	36	33	32	26
PR-squared	0.25	0.32	0.31	0.36	0.37	0.31	0.24	0.22

Pooled cross-section negative binominal regression with robust standard errors. Dependent variable is the cumulative number of GATT/WTO manufacturing-related complaints filed again each country. Except in countervailing duty cases where the dispute is analyzed to determine which country was initially accused of having illegal narrow transfers (often this is the plaintiff not the defendant). Base sample is an unbalanced panel from 1985-1995, with data averaged over 5-year periods (85-89, 90-94). *Plantif* indicates if a country was a plaintiff during the 5-year period in question.

Table 6.4: Predicting complaints using proxies for labor specificity

Defendant (manufacturing)	1	2	3	4
Labor specificity				
Wage replacement rate (1 year)	4.04 (2.36)*			
Wage replacement rate (5 year)		13.11 (8.03)*		
R&D (non gov)			-0.11 (0.14)	
Vocational training				-0.03 (0.05)
Institutions				
Veto players	-0.74 (0.78)	-1.01 (0.49)**	-0.57 (0.23)**	-0.25 (0.25)
Candidate centered	5.99 (3.58)*	3.53 (2.95)	0.08 (1.56)	0.99 (1.51)
Other				
Plaintiff	1.63 (0.75)**	0.31 (0.54)	0.25 (0.41)	0.13 (0.23)
Exports (ln)	1.52 (0.75)**	2.07 (0.88)**	1.32 (0.41)**	0.9 (0.24)***
Growth (ln)	-0.5 (0.57)	0.08 (0.73)	0.01 (0.5)	0.3 (0.62)
Left	5.19 (3.14)*	0.96 (1.69)	0.31 (1.45)	0.71 (1.31)
Constant	-47.37 (19.66)*	-56.59 (25.48)*	-34.22 (9.39)***	-23.77 (6.30)***
Observations	29	38	58	38
Pseudo r2	0.29	0.22	0.26	0.2

Pooled cross-section negative binomial regression with robust standard errors. Dependent variable is the cumulative number of GATT/WTO manufacturing-related complaints filed against each country. Except in countervailing duty cases where the dispute is analyzed to determine which country was initially accused of having illegal narrow transfers (often this is the plaintiff not the defendant). Base sample is an unbalanced panel from 1985-1995, with data averaged over 5-year periods (85-89, 90-94). (* indicates significant at 10% level in two-tail test; ** 5%; ***1%)

Table 6.5: Predicting countervailing duties

CVD	1 Initiations	2 Measures
Wage replacement rate	8.51 (3.23)**	12.18 (3.39)**
Exports (ln)	0.82 (0.47)	1.51 (0.53)**
Veto players	-0.58 (0.34)	-1.16 (0.41)**
Candidate centered	0.36 (0.71)	-0.27 (0.45)
Plurality	1.35 (0.53)*	1.18 (0.39)**
Left	0.18 (0.42)	-0.39 (0.19)*
Constant	-21.52 (11.37)	-37.84 (12.83)**
Observations	20	20
Pseudo r2	0.17	0.36

Pooled cross-section negative binominal regression with robust standard errors. Dependent variable is the cumulative number of countervailing duties initiated against a country from 1995 to 2003 in Model 1 and the cumulative number of countervailing duties imposed against a country from 1995 to 2003 in Model 2. Both models are estimated using a sample of 20 countries that includes Australia, Austria, Belgium, Canada, Switzerland, Denmark, Spain, Finland, France, United Kingdom, Greece, Ireland, Italy, Japan, Netherlands, Norway, New Zealand, Portugal, Sweden and the United States.

Chapter 7: Conclusion

The form of redistribution varies across countries. Even among countries with similar *levels* of redistribution, significant variance exists in the *form*. In some countries, governments target redistribution to narrow segments of the population using industry-specific subsidies and tariffs. For example, Austrian governments targeted over 67 per cent of their manufacturing-related redistributions to individual industries during the period from 1990 to 1999. In contrast, redistributive policies are broadly targeted in countries like Finland and Ireland during this period.

The theory developed in this dissertation predicts the pattern of transfer form as a function of labor specificity. Countries in which the average level of labor specificity is high tend to have more narrow transfers than broad. In contrast, countries characterized by mobile labor have redistributive portfolios weighted more heavily towards broad transfers. This pattern is observed among both developed and developing countries. In Europe, countries with high average levels of labor specificity provide relatively more narrow transfers to the manufacturing sector than broad. In specific-labor European countries, the majority of manufacturing transfers were made to individual industries. In contrast, European countries characterized by mobile labor tend to provide sector-wide transfers available to all manufacturing industries.

Among Latin American countries, those with relatively specific labor use trade policy to provide narrow transfers. Latin American countries with specific labor have greater tariff dispersion than countries with relatively mobile labor. Countries with relatively mobile labor use trade policy to provide broad transfers. In these countries,

the level of trade protection is relatively uniform across industries providing all domestic producers with the same level of benefits.

Both developed and developing countries are more likely to be named as defendants in international disputes over narrow transfers if they have high average adjustment costs. Politicians in countries with high average adjustment costs face significant demands for narrow transfers. For these politicians, the electoral benefits of providing narrow transfers likely outweigh the potential costs of violating international agreements on narrow transfers. Countries characterized by specific labor are therefore more likely to be involved in international disputes over narrow transfers.

The theory developed in this dissertation has important implications for why governments provide inefficient redistribution. The prevalence of inefficient redistribution is a major puzzle, as noted by Rodrik (1996, 2004), and has engendered a large research agenda.¹ This dissertation makes two potentially important contributions to the debate over inefficient redistribution. First, this project demonstrates that countries vary in the amount of inefficient redistribution they provide. Broad transfers are often considered to be more efficient than narrow transfers. Narrow transfers distort relative prices and discourage the reallocation of productive resources to industries in which they would be more productive. Of course variance in levels of efficiency exists among narrow transfers. For example, price subsidies targeted to an industry's product(s) are more inefficient than cash transfers to producers in that industry. In general, however, narrow transfers can be characterized as being inefficient relative to broad transfers. Given this, my research

demonstrates that the amount of inefficient redistribution provided by a government varies across countries.

Second, inefficient redistribution varies systematically with domestic adjustment costs. Certain domestic actors, namely those facing high adjustment costs, favor inefficient forms of redistribution, like industry-specific subsidies and tariffs, over more efficient forms such as broad transfers.² These actors do not internalize the negative externalities that result from narrow transfers. Instead, narrow transfers serve to maximize their utility and consequently are the primary goal of their lobbying efforts. Governments attempting to remain in office respond to these narrow demands with inefficient forms of redistribution. Although electoral institutions may help to insulate some politicians from such narrow demands, inefficient redistribution is likely in countries characterized by immobile labor forces despite the institutional design of the electoral system.

This research also suggests a potential explanation for the varied responses to globalization. Although it was feared that globalization would result in a race to the bottom, with governments reducing the size of the welfare state³ and eliminating labor market restrictions in order to compete for internationally mobile capital, policy convergence has not been observed.⁴ Instead, governments' responses to globalization have been mixed.⁵ My argument suggests that a government's response to

¹ See, for example, Acemoglu and Robinson 2001; Buchanan and Tullock 1962; Rodrik 1986; Wilson 1990 and Dixit and Londregan 1995.

² This prediction is opposite of that made by Acemoglu and Robinson (2001). They suggest that inefficient transfers are most likely when factors are mobile. However, they defined inefficient transfers as being those that provide benefits to everyone in a given industry or sector including new entrants.

³ Steinmo 1994.

⁴ Garrett 1995, 1998.

⁵ See, for example, Dion 2004.

globalization will be conditional on the average level of mobility of its domestic assets. If workers can change jobs in response to increased import competition with relatively few costs, governments in labor scarce countries are likely to see demands for broad transfers. Governments in labor abundant countries are unlikely to see demands from mobile labor in response to globalization. In these countries, both the level and form of government transfers are unlikely to exhibit significant changes in response to globalization. If however, labor is not able to move between industries because of prohibitively high adjustment costs, labor will lobby for narrow transfers in response to increased import competition. In these countries, government spending on narrow transfers is likely to increase. This suggests that looking at aggregate levels of government spending to gauge reaction to globalization may miss important cross-national variance in responses.

There are reasons to be cautious about the findings reported in this project. First, labor mobility is likely shaped in part by policy. Given this, it is difficult to tease out the relationship between labor mobility and transfer form. Transfer form may influence the average level of labor mobility in a given economy. In this research, I employ several methods to account for this potential endogeneity including estimating the costs of adjustment stemming from technology. Theoretically, it is labor specificity as determined by all the factors that influence it, including policy, that shape worker's preferences over transfer form. In theory then, the potential effect of transfers on labor specificity is not problematic.

A second reason to be cautious about the conclusions drawn in this research is my exclusive focus on labor mobility. Although the theory is general and holds for

both labor and capital, the empirical tests reported here focus exclusively on the relationship between labor mobility and transfer form. Using labor mobility sets up a difficult test of my theory and allows me to side step the potential differences between internationally mobile factors and those restricted to the domestic market. However, this limits what I can say about the mobility of owners of land, natural resources and capital and the effects on transfer form. If levels of labor and capital mobility move together, as has been suggested in previous research,⁶ their preferences over transfer form will converge. If however the costs of adjustment facing labor are very different from those facing capital, their preferences will diverge. If they diverge, the predictions for transfer form are less clear.

In future research, I plan to address this issue by testing the relationship between capital specificity and transfer form. I expect that the pattern found here will also hold between *capital* mobility and transfer form. Countries with relatively mobile domestic capital will have relatively more broad redistributive policies than narrow. Measuring the form of transfers in other redistributive policy areas such as taxation and regulations provides another area for potentially fruitful future research.

⁶ Hiscox 2002.

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