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Globalization is often credited with the expansion of the welfare state and increased spending on social insurance programs. However, empirical evidence on the relationship between globalization and social welfare spending is mixed. One possible explanation for these mixed results might be country-specific factors that mediate the effect of globalization on social spending, such as key characteristics of a country's labor market. Countries with fluid, flexible labor markets likely respond to globalization differently than countries with rigid, inflexible markets. At the micro level, workers who find it costly to adjust to market volatility will likely demand compensatory and insurance programs to offset the high costs of adjustment. Given this, the relationship between globalization and social insurance is likely to be more sharply positive among countries with relatively immobile labor. I test this argument using data on social expenditures in both developed and developing countries. The findings indicate that trade exposure increases social spending in countries where workers face high adjustment costs. When workers face low adjustment costs, trade exposure has a strong reductive effect on social spending. This reductive effect declines as adjustment costs increase.

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Introduction

Globalization is often credited with the expansion of the welfare state and greater government spending on social insurance programs (Cameron 1978, Katzenstein 1985, Rodrik 1998, Garrett 1998). However, empirical evidence of the relationship between globalization and social welfare spending is mixed. Although prominent studies like those by Cameron (1978), Hicks and Swank (1992), and Huber et al. (1993) find a positive relationship between trade exposure and government spending, other studies by Garrett and Mitchell (2001), Burgoon (2003), and Kaufman and Segura-Ubiergo (2001) find that trade openness has a negative and significant effect on welfare spending. In response to this mixed evidence, scholars have begun to investigate the empirical validity of the assumptions underlying the expected positive relationship between globalization and social spending, namely that: (1) globalization will lead to greater labor market volatility and higher risk of unemployment; (2) workers facing greater labor market volatility will demand greater social spending; and (3) governments respond to demands for greater social spending.

Several prominent studies have examined the conditions under which the first and third assumptions are likely to hold. For example, Iversen and Cusack (2001) investigate whether globalization actually generates enough market volatility to spur workers to demand greater social spending. Adsera and Boix (2002), like Rudra and Haggard (2005), examine when and under what conditions government respond to demands for increased social spending generated by globalization. However, much less attention has been paid to the second critical assumption underlying the 'compensation hypothesis': that workers facing greater labor market volatility demand greater social spending. Most studies implicitly or, in the case of Rudra (2003), explicitly assume that all workers facing increased market volatility demand higher levels of

social spending. However, market volatility is not equally costly (or worrisome) for all workers. Some workers are able to respond to market volatility with relative ease and few costs. For example, workers with general skills that are valued by many employers across a wide range of industries find it relatively easier (i.e. cheaper) to adjust to increased labor market volatility than workers with skills that are valuable to only a single employer.

At the micro-level, workers with non-general skills face relatively higher adjustment costs. Adjustment costs include the search costs involved in finding a new job, the costs of re-training, foregone earnings, lower wages, and the potential obsolescence of skills (Fernandez de Cordoba, Laird and Serena 2004). These costs are determined, in part, by individuals' characteristics, such as age, level of education, and skill sets. Workers' skills may be either general or specific in nature. General skills are valued by many employers across a wide range of industries. In contrast, specific skills are valuable to only a select set of employers often concentrated in a single industry or sector. Workers with specific skills face relatively higher adjustment costs, as they often face longer unemployment spells and the near certainty of lower wages upon reemployment. As a consequence, specific-skill workers are relatively more vulnerable to market volatility and consequently prefer higher levels of spending on income insurance and social welfare programs, as convincingly demonstrated by Iversen and Soskice (2001).[1]

It seems straight forward to suggest that this micro-level argument has important macro-level implications, especially given that workers' skill sets vary systematically across countries. Cross-national variance in the adjustment costs facing workers is due, in part, to differences in

[1] It is important to note that volatility resulting from increased exposure to foreign trade is itself exogenous to the skill sets of a country's labor force. Iversen and Soskice (2001) assume, however, that risk is endogenous to skill specificity (875).

countries' education systems (Iversen and Soskice 2001), market structures (Hall and Soskice 2001), and economic development (Hiscox 2002). At the macro level, government expenditures on social insurance programs should be related to the market volatility and adjustment costs facing the median voter. The relationship between globalization and social insurance should be more sharply positive in countries where the median voter faces relatively high adjustment costs.

This argument suggests a possible explanation for the mixed empirical evidence found to date regarding the effect of globalization on social spending. The ability of workers to adjust to market volatility mediates the effect of globalization on social spending. Countries in which workers can adjust to market volatility with relative ease likely exhibit different policy responses to globalization than countries with specific-skill labor. Failure to account for cross-national variance in costs of adjustment may explain, in part, the mixed empirical evidence found to date regarding the effect of globalization on social spending.

In the following section, I review briefly related arguments and existing studies of the globalization-welfare nexus. The argument relating labor mobility, globalization, and social spending is then developed formally. Finally, this argument is tested using macro-level spending data for both developing and developed countries.

Literature Review

Two competing arguments exist regarding the relationship between globalization and social insurance. The first, termed the efficiency perspective, argues that increased international competition generates pressures for a reduction in government spending on social insurance. Social spending is assumed to reduce the international competitiveness of a country's products. Higher levels of social spending may, for example, engender higher payroll taxes, which increase

the costs of labor and reduce the competitiveness of a country's products. Additionally, footloose capital can avoid paying higher taxes imposed to fund more generous social programs by moving to a different country. Taken together, this implies that globalization will result in lower levels of social spending, all else constant. In contrast, the compensation hypothesis (or embedded liberalism thesis) argues that globalization generates incentives for greater social spending. This is because increased exposure to international trade generates short-term adjustment costs, dislocations, economic insecurity, and unequal distributive effects. This is true regardless of countries' factor endowments, comparative advantages or the long-term net economic gains brought by trade liberalization.[2] In response to increased market volatility, domestic actors demand greater social spending to offset the costs of increased trade exposure.

The compensation hypothesis is based on three critical assumptions. First, globalization is assumed to lead to greater labor market volatility and higher risk of unemployment. Second, it is assumed that workers facing greater labor market volatility will demand greater social spending. Third, governments facing workers' demand for greater social spending are assumed to respond by increasing the level of expenditures. In part in response to the mixed empirical results found regarding the effect of globalization on social spending, researchers have begun to investigate the conditions under which these assumptions are likely to hold. To date the vast majority of such research has focused primarily on the first and third assumptions. For example, a rigorous debate surrounds the assumption that globalization leads to increased market volatility (e.g. Wacziarg and Wallack 2004). For example, Iversen and Cusack (2001) call into question whether globalization generates enough market volatility to spur workers to demand greater social spending.[3] If trade does not increase job security, the compensation hypothesis by

[2] Leamer 1997; Rodrik 1997.
[3] They argue that deindustrialization causes considerably larger labor market dislocations.

definition cannot be true. There are, however, several reasons why greater trade openness is expected to lead to greater economic insecurity. First, openness will tend to increase the elasticity of labor demand for all workers (Rodrik 1997, 1998; Scheve and Slaughter 2004). Second, trade exposure may signal more general exposure to risk of market dislocation that fuel subjective insecurity (Burgoon 2003). Importantly, even a small amount of market volatility may impose significant costs for some workers.

An equally important debate sounds the assumption that workers demands translate into policy outcomes. Research on this assumption generally focuses on those political institutions that are likely to mitigate the effect of increased demand for compensation on actual policy outcomes (e.g. Swank 1998). Adsera and Boix (2002), for example, examine the importance of regime type. They find that democratically elected governments are relatively more responsive to demands for increased social spending resulting from trade openness than non-democratically elected regimes. Garrett (1998) argues that globalization will result in greater social insurance only when Left-Labor power and/or corporatism are in place.[4] Iversen and Cusack (2001) argue that governments elected via proportional electoral rules will be relatively more responsive to demands for increased social spending. Taken together, these studies suggest that political institutions mediate the effect of globalization on observed levels of social spending via the supply side of the policy making process.

Given the relatively large bodies of scholarship that examine two of the three critical assumptions underlying the compensation hypothesis, the lack of attention given the assumption that workers facing greater labor market volatility demand greater social spending is somewhat puzzling. I address this gap in the literature by examining when and under what circumstances

[4] Interestingly, a strong Left party aligned with labor's interests is possible only when workers are relatively mobile between uses in the domestic economic, as demonstrated by Hiscox (2002).

workers respond to increased trade exposure be demanding greater spending on social insurance programs. I argue that not all workers response to increased trade exposure by demanding greater social spending. Instead, workers' response to increased market volatility is conditional on the costs of adjustment they face. Workers with specific skills face higher adjustment costs than workers with more general skills, all else equal. As a consequence, workers with specific skills are more likely to respond to globalization with demands for greater social spending.[5] In short, I argue that the adjustment costs facing the median voter in a given economy condition the effect of globalization on social spending.

Several other mediating variables have recently been suggested by scholars of the globalization-welfare nexus. One such set of mediating variables focuses exclusively on the supply side of the story, namely domestic political institutions. These arguments typically suggest that a positive relationship between globalization and social spending will exist only when certain political institutions are in place (e.g. Adsera and Boix 2002; Garrett 1998). Another possible mediating variable recently suggested is economic development. Preliminary evidence suggests that the direction of the effect of globalization varies across developed and developing countries. Rudra (2003) argues that globalization has a positive effect on social spending in developed countries but negative effect in developing countries.[6] I argue here that the distinction between developed and developing countries is perhaps less critical than the distinction between specific-labor and mobile-labor countries. Skill specificity often correlates with economic development; more developed countries tend to display lower average levels of

[5] Iversen and Cusack (2001) make a similar argument with respect to deindustrialization. They argue that the effect of deindustrialization on welfare spending is conditional on the skill system and on the electoral system. Iversen (2005) concedes that this logic has never been directly linked to globalization (183).

[6] She argues that this is because countries with relatively more skilled workers will exhibit larger increases in welfare spending as a result of globalization. This prediction is strikingly similar to my own. However, we arrive at this prediction quite differently. Rudra argues that skilled labor is better able to organize because of lower collective action costs. In contrast, I argue that skilled labor has larger incentives to overcome the challenges of collective action because they face relatively high adjustment costs.

labor mobility (Hiscox 2002). However, this is not always the case and significant variation in workers' skill characteristics exist among both developed and developing countries, as demonstrated by the VOC literature (e.g. Hall and Soskice 2001; Iversen and Soskice 2001). The distinction between mobile-labor countries and specific-labor countries provides a novel micro-level explanation for why some countries exhibit a positive relationship between globalization and welfare spending while others exhibit a negative relationship.

As argued here, the positive relationship between globalization and social spending posited by the compensation perspective is most likely to hold amongst countries with specific labor and high adjustment costs. In contrast, the relationship between globalization and social insurance in countries with general-skill workers is likely to be less strongly positive. Indeed, it may be the case that the negative relationship posited by the efficiency perspective is more likely to hold amongst general-skill countries. Failure to account for the key characteristics of countries labor forces, namely the costs of adjustment, may explain, in part, the mixed empirical results surrounding the globalization-welfare nexus. In the next section, I present a fuller explanation for why this may be the case.

Argument

The adjustment costs facing the median voter in a given country condition the effect of globalization on social spending. Where the costs of adjustment are relatively high, the effect of globalization on social spending is more likely to be positive. The costs of adjustment are exogenous to market volatility and include the search costs involved in finding a new job, the costs of re-training, foregone earnings, lower wages, and the potential obsolescence of skills (Fernandez de Cordoba, Laird and Serena 2005). These costs are determined by individuals'

characteristics, such as age, level of education, and skill sets. Workers' skills may be either general or specific in nature. General skills are valued by many employers across a wide range of industries. In contrast, specific skills are valuable to only a select set of employers often concentrated in a single industry or sector. Workers with specific skills face relatively higher adjustment costs, as they often face longer unemployment spells and the near certainty of lower wages if reemployed. As a consequence, specific-skill workers are relatively more vulnerable to market volatility. When there is little market volatility and a low risk of involuntary separation like, for example, in a closed economy with firing restrictions, both mobile and immobile workers have little incentive to lobby for social spending. However, as market volatility increases the preferences of specific and mobile labor begin to diverge. Specific labor facing relatively higher adjustment costs will begin lobbying for insurance transfers before mobile labor. Specific-skill workers prefer higher levels of spending on social insurance programs than general-skill workers when facing increased market volatility. This is because workers with specific skills have more to loose from unemployment than general-skill workers as workers with general skills can move between jobs with relative few costs, either in terms of income loss or time unemployed

To demonstrate this formally, I build on a model developed by Iversen and Soskice (2001). They demonstrate convincingly that specific-skill workers prefer greater social insurance than general-skill workers, holding all else constant. Insights from this micro-level argument have interesting, yet previously unobserved, macro-level implications for the relationship between globalization and spending on social insurance programs. Prior to liberalization, countries in which the median voter is a specific-skilled worker should tend to spend relatively more on social insurance programs than countries characterized by general-skill workers.

Following liberalization, increases in social spending are most likely among specific-skill countries. Increases in social spending are likely to be relatively larger in specific-skill countries.

Model

Like Iversen and Soskice (2001), I assume that workers derive their income from their skill sets. Workers are paid *sg*, the value of her combined specific and general skills. The market value of a worker's general skills is defined as *g*. All workers have general skills. If a worker has no specific skills, then $s = 1$ and she is always employed at the market value of her general skills. If a worker has specific skills, then s is greater than 1.

In addition to the income earned from their skills, workers receive transfers from the government. Such transfers may include unemployment benefits, health care benefits, pensions and other forms of non-wage compensation. Like Iversen and Soskice, I assume that transfers come in the form of a flat-rate payment *R*. All workers receive that same flat-rate subsidy.

Transfers are paid out of a flat-rate tax (t) on all wages. Total per-capital receipts are T and all receipts are spent on transfers. As in the Meltzer-Richard model, taxation is assumed to create work disincentives, modeled here, as by Iversen and Soskice, as the following labor supply function:

$$l(t) = \frac{1}{1 + t}$$

Where $l(t)$ is the number of hours worked or the intensity of effort. Tax income per capita is defined as

$$T = t \cdot w \cdot l(t) = \frac{t \cdot w}{1 + t} = R$$

where *w* is defined as the average hourly pretax earnings. Given this, the disposable income for specific-skill workers is equal to:

$$DI = s \cdot g \cdot \left(\frac{1 - t}{1 + t} \right) + R$$

$$DI = s \cdot g \cdot \left(1 - \frac{2 \cdot R}{w} \right) + R$$

Following liberalization, workers may experience either: 1) continued employment in the same job or 2) unemployment. Given this, workers' expected utility is equal to:

$$U = (1 - p) \cdot \left[s \cdot g \cdot \left(1 - \frac{2 \cdot R}{w} \right) + R \right] + p \cdot R$$

where p is the probability of being unemployed. To determine the effect of increased market volatility, I take the derivative of workers expected utility with respect to *p*. The derivative with respect to *p* is equal to:

$$\partial / \partial p = (-s) \cdot g \cdot \frac{w - 2 \cdot R}{w}$$

If no transfers are provided by the government, any increase in the risk of unemployment lowers workers' expected utility. This is because $\partial / \partial p < 0$ for both specific-skill and general-skill workers when R is equal to 0.

$$\partial / \partial p = (-s)g$$

When no transfers are provided by the government, all workers lose from increased risk of unemployment. However, specific skill workers lose relatively more than general skill workers,

as illustrated in Figure 1. Does the same hold when generous transfers are provided by the government? To address this question, I substitute R equal to (w/2). This is the maximum possible value of R where the tax rate (t) is equal to 1.

Following this substitution, the derivative of workers expected utility with respect to p is equal to zero. Workers facing an increased risk of unemployment when transfers are equal to their maximum possible level ($R = w/2$), do not expect either an increase or decrease in their expect utility. Indeed when transfers are provided at the maximum possible level, workers neither gain nor lose from increased unemployment risk. An interesting implication of this result is that it is likely to be prohibitively expensive for governments to buy off opposition to globalization using social spending. It would, in theory, require a tax rate approaching 100%. It is only at the maximum level of R, that workers are indifferent about their exposure to unemployment risk.

As transfers become more generous (i.e. as R increases from 0 to w/2), the rate at which workers expected utility declines as a result of increased unemployment risk decreases. Across all values of R less than w/2, however, specific-skill workers lose relatively more than general-skill workers from increased risk of unemployment. Specific-skill workers always prefer higher levels of transfers than general-skill workers because any given increase in p results in a relatively greater loss for specific-skill workers. This result is similar to that found by Iversen and Soskice (2001). They, however, hold the level of risk (p) constant and take the derivative of R with respect to g. In contrast, I take the derivative of p in order to identify how workers' utility changes in response to change in market volatility and unemployment risk. While Iversen and Soskice (2001) argue that exposure to risk is inversely related to the portability of workers skills (875), I argue that risk exposure is exogenous to workers' skill sets. Workers' exposure to risk is

determined here by their country's exposure to international trade.[7] The costs of risk are inversely related to the portability of workers' skills. For workers with highly portable skills (i.e. general skills), the cost of unemployment risk or market volatility is relatively low. In contrast, market volatility and unemployment risk entail significant costs for specific-skill workers and as a result, these workers demand relatively greater spending on social insurance programs.

Empirical evidence

The prediction derived from the simple formal model developed above is that the relationship between globalization and income insurance should be more sharply positive in countries where the median voter faces relatively high adjustment costs, all else equal. A convincing test of this argument would compare two countries with the same level of exposure to the international market where one of the countries has relatively mobile labor and the other has specific labor. The expectation is that larger increases in social spending following trade liberalization will be observed in the country with specific-skill workers.

As a first cut, I examine a sample of 31 countries that liberalized their trade policies after 1975 but prior to 1994.[8] I divide these countries into two groups based of the observed level of labor mobility in each.[9] I then examine the year-to-year differences in spending on social security and welfare as a percentage of total government expenditures three years prior to and

[7] This is a slight oversimplification as workers employed in the production of the good in which the country has a comparative advantage face little risk of involuntary separation as a result of increased trade exposure.
[8] Liberalization dates come from Wacziarg and Wallack (2004). I use their de facto liberalization years which are the years in which there is a year-to-year increase of 5% or more in the ratio of exports plus imports to GDP following Sachs and Warner's (1995) de jure liberalization date.
[9] Labor mobility is measured using UNIDO employment data. For complete details, see the data and measurement section of this paper. Countries above the sample median are coded as specific-labor countries. Specific-labor countries include: AGR, COL, ECU, ESP, GTM, IND, IRN, KEN, MEX, NZL, PHL, PRY, URY, ZMB and ZWE. Mobile labor countries are those that fall below the sample median and include: BOL, BRA, CHL CHN, CMR, CRI, GHA, ISR, LKA, NIC, SLV, SYR, TTO, TUN, and TUR. Note that this sample of countries differs from the sample used to estimate the error correction models and OLS models presented later in the paper.

three years following trade liberalization.[10] The results are displayed in Figure 2. Data for mobile labor countries are presented on the left side; specific labor countries are on the right. Prior to trade liberalization, there are virtually no year-to-year changes in social spending in either the mobile labor or specific labor countries. In fact, the average yearly changes in social spending are virtually zero for each of the three years prior to liberalization. This is consistent with previous studies that suggest that spending on social programs changes only very slowly over time. We do, however, observe yearly increases in social spending following liberalization in specific-labor countries. Among specific-labor countries, average social spending levels increase during each of the three years following liberalization. The difference between yearly changes prior to and following liberalization is statistically significant among specific-labor countries, as determined by t-tests. This provides preliminary support for the argument advanced here. In the following section, I conduct more sophisticated empirical tests of this argument, controlling for important variables including economic development and growth. Before moving to these tests, I first describe in detail the measures of the key concepts.

Data and Measurement

Globalization

In this paper, I focus exclusively on the effect of trade openness on social spending.[11] Although globalization often refers to increased flows of goods, capital, and people across

[10] Spending data come from the IMF Government Finance Statistics. Additional details about these data are provided in following sections.

[11] Some may object that trade openness is endogenous. However, at least some part of increased exposure to international trade can be considered exogenous. Trade flows have increased over the past decades in part because of innovations in transport and telecommunication (Garrett and Mitchell 2001, 150). This part of increased trade is exogenous to politics. Furthermore, developing countries have often been the recipients of loans and other aid packages that require a reduction in the country's trade barriers. Although the decision to accept these packages is endogenous, the economic necessity of these packages may make it such that trade barrier reductions are effectively exogenous.

national boarders, here I examine only the effect of increased commodity trade for several reasons. First, theoretical models of international trade make precise predictions about the effect of increased trade on the fortunes of both mobile labor (Stolper and Samuelson 1941) and immobile labor (Jones 1971, Mussa 1974).[12] Second, developing countries are relatively more exposed to foreign goods than foreign capital. In the sample of 31 developing countries examined here, FDI inflows account for only 1.5 percent of GDP, on average, while foreign imports account for nearly 40 percent of GDP. Trade flows appear to be more relevant for developing countries than capital flows. For this reason, previous studies of the globalization-welfare nexus have focused primarily on trade exposure rather than capital exposure (e.g. Rodrik 1998). Recent studies that have examined the effects of both trade and capital openness on government spending generally find that trade exposure has a larger effect on spending than exposure to foreign capital inflows (Rudra and Haggard 2005; Avelino, Brown, Hunter 2005). For these reasons, I focus here on the effects of trade exposure on social spending. I leave the effects of FDI and capital inflows for future research.

I use two different measures to estimate countries' exposure to foreign trade. The first, a conventional measure of trade openness, is the sum of imports and exports divided by GDP. [13] These data are taken from the World Development Indicators. I also employ a second measure of trade exposure, namely the ratio of imports to GDP. I do so because I suspect that imports may have a substantively different effect on domestic demands for social spending. For example, exporters may prefer lower levels of social spending in order to increase the competitiveness of

[12] Although Mundell (1957) demonstrates that factor flows can be a perfect substitute for trade in commodities in the standard Heckscher-Ohlin model with constant returns to scale. In theory then, capital inflows and imports may have similar effects on domestic labor.

[13] Although Avelino, Brown, and Hunter (2005) make a persuasive argument about the use of trade measured as a percentage of GDP based on purchasing power parity, I do not use this measure here because PPP conversions are not available for my dependent variable. To maintain consistency in measurement, I use the conventional measure of trade openness, namely the sum of imports and exports as a percentage of GDP.

their products on the international market. As such, an increase in a country's level of exports may increase the political clout of exporters (Rogowski 1989) who in turn demand lower levels of social spending. In short, one might expect a negative relationship between exports and social spending. In contrast, import-competiting producers, particularly those facing high adjustment costs, likely demand greater social spending, as argued above. Given this, it seems possible that the two components of conventional measures of trade openness (i.e. imports and exports) have opposite effects on social spending. Perhaps this might account for some part of the mixed empirical findings on the effect of trade openness on social spending. Given this possibility, I use imports as a percentage of GDP as an alternative measure of trade exposure. I expect that imports are more likely to exhibit the predicted effects on social spending than total trade, for the reasons outlined above.

Social insurance

To measure social spending, I use data on consolidated central government spending on social security and welfare programs as a percentage of total government expenditures.[14] Social security and welfare spending captures governments' provision of certain types of social insurance programs, including disability, severance payments and unemployment benefits. These data come from the IMF Government Finance Statistics. This measure of social insurance spending is almost certainly an improvement over more aggregate measures of total government expenditures, current receipts, or government consumption used in previous studies of the globalization-welfare nexus (e.g. Adsera and Boix 2002, Rodrik 1998).[15] These aggregate

[14] Following Rudra and Haggard (2005), I use government expenditures as the denominator in the dependent variable ratio rather than GDP. Ratios using GDP are strongly affected by the size of government. Also, GDP ratios arguably do not capture how governments allocate the resources directly under their control.
[15] Of course data on social spending in the developing world likely vary in quality.

measures of total government spending include many types of spending programs that likely respond to different economic and political stimuli than those suggested here. Social security and welfare programs are likely to be the most pertinent to the globalization-welfare nexus because they provide relatively direct insulation from market forces, as compared to education or health expenditures (or other types of expenditures, such as military expenditures, included in more aggregate measures of government spending). However, spending on social security and welfare programs also include pensions which are almost certainly more responsive to voters outside of the labor market.[16] Ideally, we would want to subtract pensions from this measure of social insurance however the lack of disaggregate data for non-OECD countries makes this impossible. Throughout the analysis, it is vital to keep in mind the importance of demographics for this spending variable. For this reason, all estimated models include a control variable for the relative size of a country's aged population. It is also prudent to remember that the estimated effects of labor mobility and trade exposure are likely muted by the inclusion of pensions in our spending measures.

Labor mobility

To estimate workers ability to adjust to market volatility, I calculate inter-industry wage differentials between low-skill manufacturing industries. This is one of the most direct measures of inter-industry labor mobility and has been used previously in numerous studies of labor mobility (e.g. Krueger and Summers 1998, Hiscox 2002). Here, I calculate the coefficient of variation for wage rates across manufacturing industries that are characterized by Wood and Mayer (1998) as employing primarily low-skill labor. Data are from UNIDO's Industrial

[16] Although Iversen (2005) argues that old-age insurance is a form of insurance against labor market volatility.

Statistical Database 3-digit level of ISIC Code Revision 2 (2005).[17] Higher values are taken as indicators of less mobile labor. When labor is highly mobile, movement between industries (or even just the potential for it) should equalize returns to similar types of workers across industries. Given this, high inter-industry wage differentials suggest the existence of high adjustment costs that prevent labor from moving from low-wage industries into high-wage industries. Smaller differentials are indicators of higher level of mobility.

Although this measure has been widely used to estimate levels of labor mobility, there are some reasons to exercise caution when using this measure.[18] For example, wage differentials may exist due to differences in the skill levels of workers whose wages are compared. In an attempt to address this concern, I calculate wage differentials between those industries characterized as employing workers with similar skill levels. More precisely, I calculate the coefficient of variation for wage rates across the 15 manufacturing industries characterized by Wood and Mayer (1998) as being 'low-skill' industries. See Appendix A for more details on their industry characterizations.

It is important to note that I focus here only on the effects of labor mobility and the costs of adjustment facing *labor*. It is possible that the same political logic applies to capital owners. That is, capital owners facing high adjustment costs are more likely to demand compensatory and/or income insurance programs than capital owners facing low adjustment costs. However, specific capital owners facing increased trade exposure (or capital inflows) likely demand different types of compensation than specific workers. While specific workers demand social

[17] This series reports the number of people employed in each industry and the total amount of wages paid in the industry. The wage values are originally given in national currency values at current prices. These values are converted into current U.S. dollars using the average period exchange rates as given in the IMF International Financial Statistics (IFS). To calculate the average industry wage, I simply divide the industry's total wage bill by the number of people employed in the industry.

[18] See Hiscox (2002) for a complete discussion of the potential weaknesses of this variable.

spending programs such as unemployment benefits, specific capital owners likely demand other types of programs, including subsidies and/or capital controls. Because I am primarily interested in social insurance programs, I focus here on the costs of adjustment facing labor. I estimate these costs using inter-industry wage differentials, as discussed above.

Empirical models

I am primarily interested in *changes* in social spending as a result of globalization. Given this, I use an error-correction model with panel corrected standard errors to estimate the effect of trade exposure (Beck and Katz 1995). This model allows for direct predictions about how changes in trade openness and labor mobility lead to changes in social spending. The estimated error correction model has the following form:

$$\Delta Y_{i,t} = \alpha_i + \beta_1 \cdot Y_{i,t-1} + \beta^j \cdot X^j_{i,t-1} + \beta^j_\Delta \cdot \Delta X^j_{i,t} + \varepsilon_{i,t}$$

where $Y_{i,t}$ is social expenditures in country *i* during year *t* and X is an independent variable. The superscript *j* indexes a particular independent variable. Δ is the first difference operator. The model also includes country-specific intercepts α_i.

All models are run with a full set of country-specific intercepts to control for nationally-specific effects. Because the models include a full set of country dummies, the variance to be explained is entirely intertemporal. The question then arises, does wage variance exhibit meaningful variance across time. If not, wage variance will be perfectly (or nearly perfectly) collinear with the countries dummies. Wage variance does, in fact, change over time, as demonstrated by Hiscox (2002). However, these changes occur slowly. The average year-to-year

change in wage differentials is only 0.2 for the sample of countries used here. To demonstrate the intertemporal variance in labor mobility, the wage differentials for four countries are plotted in Figure 1. The least amount of variance is observed in the United States during the period from 1985 to 1995. Over this ten year period, the maximum value of wage variance was 26.5 and the minimum was 24.7. Although we do observe slight year-to-year changes during this period, the changes are relatively small suggesting that the wage differentials (and ultimately labor mobility) is relatively constant in the United States during this period. Given that labor mobility changes only slowly over time, the inclusion of country dummies absorbs some, but not all, of the explanatory power of wage variance. The estimated effects of wage variance on social spending would likely be far larger if country dummies were not included in the model.

The error correction model has several advantages. First, it allows for differentiation between short-term and long-term effects. Coefficients for the change variables measure the short term effects of a one-off change in that variable (Iversen 2005). In contrast, the estimated coefficients for the level variables (i.e. lagged variables) capture the permanent (or lasting) effect of a one-off change in the variable. Statistically significant coefficients on a level variable indicate that there is a long-term causal relationship between trends in the independent variable and trends in the dependent variable (Kaufman and Segura-Ubiergo 2001, 567). The implication then is that the change measure of wage variance (Δ*Wage Variance*) will likely have a smaller estimated effect on social spending than the level measure (*L.Wage Variance)*.

The error correction model has several other advantages. By differencing the series, the error correction model minimizes the potential for spurious correlation between two series exhibiting a time trend. The error correction model in combination with panel-corrected standard errors, country-specific intercepts, and a lagged dependent variable produces quite conservative

results. While this carries some risk that causal hypotheses will be rejected prematurely (i.e. a Type I error), it increases our confidence in the results that do emerge as significant.

Although the error correction model has many benefits, several prominent studies of the globalization welfare nexus use pooled cross-section, time-series data in simple partial-adjustment OLS models (e.g. Rodrik 1998, Garrett 1998, Rudra 2003; Avelino, Brown, and Hunter 2005). To allow for direct comparisons with previous studies, I estimate partial-adjustment OLS models in addition to the error correction model. The partial-adjustment OLS model estimates long-term trends (Huber and Stephens 2001, 57) and equilibria values (Adsera and Boix 2002, 241). The partial-adjustment OLS model has the following form:

$$Y_{i,t} = \alpha_i + \beta_1 \cdot Y_{i,t-1} + \beta_2 \cdot \text{Openness}_{i,t-1} + \beta_3 \cdot \text{Labor mobility}_{i,t-1} +$$
$$\beta_4 \cdot \text{Openness}_{i,t-1} \cdot \text{Labor mobility}_{i,t-1} \; \beta^j \cdot X^j_{i,t-1} + \varepsilon_{i,t}$$

where $Y_{i,t}$ is social expenditures in country *i* during year *t* and X is an independent variable where the superscript *j* indexes a particular independent variable. The model also includes country-specific intercepts α_i. β_1 is the coefficient of lagged welfare spending, incorporated to alleviate problems of serial correlations across error terms.

As in the error-correction model, economic development (*GDP per capita*), and economic growth are included as control variables. In the OLS models, I follow Huber and Stephens (2001) and include as a control variable the cumulative average of the aged population (i.e. percentage of total population over 65) since 1970. In the error correction model, I include the year-to-year change in the percent of the population over 65 and the lagged value of the percent of the population over 65.

Results

The results of both the error correction model and the partial-adjustment OLS model are reported in Table 1. All models reported in Table 1 were estimated using a sample of 31 developing, non-autocratic countries.[19] Data cover the period from 1976 to 1997 however; data are not available for all years for all countries. The countries and years during which they are included in the sample are listed in Appendix B. For all models reported in Table 1, trade exposure is estimated using imports as a percentage of GDP. Model 1 is an error correction model which includes a lagged dependent variable. Model 2 is an error correction model estimated without a lagged dependent variable. Achen (2000) demonstrates that the inclusion of a lagged dependent variable can underestimate the importance of other included variables, particularly is they do not vary dramatically over time. To address autocorrelation while simultaneously avoiding the problems of using a lagged dependent variable, I use the Prais-Winsten estimation technique for Models 2 (and 4).

In Models 1 and 2, the key interaction term is the product of the year-to-year changes in imports and the lagged level of wage variance.[20] I expect the coefficient for this interaction term to be positive and significant. Increased imports are expected to increase social spending when workers are relatively immobile between uses in the domestic economy. Recall that higher values of wage variance indicate lower levels of labor mobility. As expected, the interaction term is positive and significant in both models. The interaction term is also positive and significant in

[19] Some readers may object that low skill labor in developing countries stands to gain from international trade. In developing countries, low-skill labor is often the more abundant factor. As demonstrated by the Stolper-Samuelson theorem, abundant factors gain from increased trade, if the factor is relatively mobile. Why then would low-skill workers in developing countries ever demand increased social spending in response to trade openness? Even those workers that stand to gain from trade in the long-run face short-term adjustment costs (Leamer 1997; Rodrik 1997). The higher these adjustment costs the more social spending workers will demand.

[20] Both constitutive terms are also included in the model as suggested by Brambor, Clark, and Golder (2006).

Models 3 and 4 which estimate simple OLS models. In these models, the interaction term is the product of the lagged level of imports and the lagged level of wage variance. Model 3 includes a lagged dependent variable while Model 4 does not. Model 4 is estimated using the Prais-Winsten estimation technique. Across all four model specifications, the key interaction term is statistically significant at the 1% level in two-tailed tests and has a positive coefficient, as expected. Increased exposure to foreign imports increases social spending when workers face high adjustment costs. Workers facing high adjustment costs respond to increased market volatility and trade exposure by demanding greater social insurance spending.

When wage variance in equal to zero (i.e. labor is perfectly mobile between industries), increased imports have a short-term negative effect on social spending, as demonstrated by the coefficients on Δ*Imports* in Models 1 and 2.[21] This result is fully consistent with the theory advanced in this paper. When labor is able to costlessly adjust to market volatility (in labor abundant economies), workers gain from increased exposure to international trade. As a result, increased exposure to trade does not generate demands for increased social spending amongst workers. Instead, it appears that 'efficiency concerns' win out. That is, when workers are able to adjust costlessly to increased market volatility, social spending provides few benefits but continues to entail costs. These costs (i.e. taxes, hiring costs) make domestic products less competitive internationally. Perfectly mobile workers may therefore support reductions in social spending in response to increased openness.[22] But what happens when labor is less than perfectly mobile? To demonstrate the effect of imports on social spending across various levels of labor

[21] This result is consistent with previous studies that find a negative relationship between trade openness and social spending among developing countries, when labor mobility is not considered (Kaufman & Segura-Ubiergo 2001; Rudra 2003).

[22] Although this result is consistent with the expectations derived from theory advanced here, it is perhaps less informative that one might think given that we never observe real world situations in which wage variance is actually equal to zero.

mobility, I estimate the elasticity of social insurance spending with respect to imports using the following equation:

$$\partial\Delta\text{Welfare}/\partial\Delta\text{Imports} = \beta_{\Delta\text{Imports}} + \beta_{\Delta\text{Imports*L.Wage variance}}\,\text{Wage variance}$$

Substituting, the coefficients from Model 1 of Table 1, I get the following equation:

$$\partial\Delta\text{Welfare}/\partial\Delta\text{Imports} = -0.216 + 0.0048*\text{Wage variance}$$

which I calculate for various values of *Wage variance.* These results are displayed graphically by Figure 2.[23] The solid line in Figure 2 indicates how the marginal effect of imports changes with the level of labor mobility. The broken lines represent the 90% confidence intervals (for two-tailed tests), which allow us to determine the conditions under which imports have a statistically significant effect on social spending. Whenever the upper and lower bounds of the confidence interval are both above (or below) the zero line, the relationship between imports and social spending is statistically significant (Brambor, Clark, and Golder 2006, 76). When workers face prohibitively high adjustment costs (i.e. inter-industry wage variance is high), increased exposure to foreign imports results in increased social spending, holding all else constant. However, imports have a strong reductive effect on social spending when labor faces low adjustment costs. This reductive effect declines as workers face higher and higher adjustment costs.

Figure 2 provides strong evidence that the effect of trade openness on social spending is conditional on workers' ability to adjust to market and price volatility. The effect of trade

[23] This figure was produced with the help of computer code discussed in detail in Brambor, Clark, and Golder (2006).

openness on social insurances depends critically on the level of labor mobility in a given country. Increased trade openness has a positive effect on social insurance spending only when labor is relatively immobile. When it is costly for workers to adjust to market volatility, workers demand greater social insurance spending. However, when workers are able to adjust easily to market volatility, imports have a strong reductive effect on social spending. These results call into question studies that exclude the costs of adjusting to market volatility in their investigations of the effect of market volatility on social insurance spending.

The results reported in Table 1 were obtained using a sample of 31 developing countries that are at least weakly democratic. The countries (or country-years to be more precise) included in this sample all scored above a zero on the Polity scale.[24] Although this sample includes countries with varying degrees of democracy, it excludes hard authoritarian regimes and autocracies. The relationship between workers' demands and observed policy outcomes is likely differ between democracies and autocracies. Although the effects of different regimes types is not the central focus of this paper, I test to see if a similar pattern is found is a mixed-regime sample by re-estimating each of the four models reported in Table 1 using a sample of 46 developing countries that have various regimes types. The results are reported in Table 2. Models 1, 2, 3, and 4 are identical to those from Table 1. Models 1.1, 2.1, 3.1, and 4.1 are estimated using the mixed-regime sample of 46 developing countries. This sample includes the 31 democracies from Table 1 and an additional 15 developing countries that have non-democratic regimes including Egypt, Kenya, and Tunisia. Amongst the mixed-regime sample, import exposure does not have a significant effect on social spending when wage variance is equal to zero. Furthermore, the effect of imports on social spending does not vary across levels of labor mobility in the mixed-regime sample. In fact, in three out of the four models estimated using the

[24] Marshall and Jaggers 2002.

mixed-regime sample, the interaction term is statistically insignificant. Only in Model 3.1 does the interaction term reach conventional levels of statistical significance (10% level in a two-tailed test). Here, it is positive and significant as expected. However, the marginal effect of imports on social spending is substantively smaller among the mixed-regime sample across all values of labor mobility. These results suggest that social spending levels are relatively less responsive to workers' demands in non-democratic regimes.[25] This finding is consistent with previous empirical studies that demonstrat that increased trade exposure has a larger effect on the size of government in democratic countries (Adsera and Boix 2002). It also confirms many of the comparative statics derived from formal models of redistribution, most notably those of Boix (2002).[26]

As discussed previously, imports are more likely to exhibit the predicted effects on social spending than total trade. To test this possibility, I re-estimate the four models reported in Table 1 replacing *Imports* with the conventional measure of trade openness, namely the sum of imports and exports as a percentage of GDP. These results are reported in Table 3. Models 1, 2, 3 and 4 are identical to those reported in Table 1 where openness is measured using imports as a percentage of GDP. In Models 1.1, 2.1, 3.1 and 4.1, openness is measured using the sum of imports and exports as a percentage of GDP. The results reported in Table 3 suggest that imports have a larger substantive effect on social spending than imports and exports together. Among the OLS models, the interaction term is positive and significant in each of the four models. The marginal effect of imports on social spending is substantively larger than the marginal effect of

[25] This is obviously a very crude test of the effect of political institutions. More nuanced arguments could certainly be made regarding electoral rules within high functioning democracies, as demonstrated by Iversen and Cusack (2001). These arguments are likely less applicable to the sample of developing countries examined here where few of these countries can be considered high-functioning democracies.

[26] This evidence does not, however, strongly support the Wintrobe (1998) hypothesis that authoritarian regimes may be responsive to the interests of labor.

imports plus exports, across all levels of labor mobility. In the error correction models, the interaction term is only significant when openness is measured using imports. When openness is measured using imports *and* exports, the interaction term remains positive but it is no longer statistically significant at conventional levels. Interestingly, both measures of openness have negative, significant effects on social spending in the short-term when labor is perfectly mobile between manufacturing industries (i.e. wage variance is equal to zero). When labor is perfectly mobile, a one percent increase in imports reduces social spending by 0.2% while a one percent increase in trade reduces social spending by only 0.08%. These results call into question studies that use the sum of imports and exports to test the compensation hypothesis.

The relationship that emerges between imports, labor mobility and social spending among developing countries may not exist among developed countries. Recall that the inter-industry wage differentials are calculated amongst low-skill industries.[27] The median voter in developing countries is more likely to be a low-skilled worker (or a worker employed in a low-skill industry). As a result, the measure of labor mobility is more likely to capture the adjustment costs facing the median voter in developed countries. Furthermore, low skill workers in developed countries lose from trade regardless of their level of mobility. In developed countries, low skill workers are relatively scarce and as a result they stand to loose from increased foreign trade, as demonstrated by the Stolper-Samuelson theory. This suggests that the effect of free trade may only be conditional on the level of mobility amongst low-skill workers in developing countries. To test for this possibility, I re-estimate the four models reported in Table 1 using a

[27] Some readers may object that low skill labor in developing countries stands to gain from international trade. In developing countries, low-skill labor is often the more abundant factor. As demonstrated by the Stolper-Samuelson theorem, abundant factors gain from increased trade, if the factor is relatively mobile. Why then would low-skill workers in developing countries ever demand increased social spending in response to trade openness? Even those workers that stand to gain from trade in the long-run face short-term adjustment costs (Leamer 1997; Rodrik 1997). The higher these adjustment costs the more social spending workers will demand.

sample of 24 developed countries including the United States, the United Kingdom and France. These results are reported in Table 4. Models 1, 2, 3, and 4 are identical to those reported in Table 1 and are reported here to allow for comparison between developing and developed countries. Models 1.1, 2.1, 3.1, and 4.1 are estimated using a sample of 24 developed countries. The interaction term is positive and significant for all of the error correction models. However, the interaction term is significant only for the developing-country samples in the OLS models. This may be because there is less intertemporal variance in both trade exposure and labor mobility among developed countries, as compared to developing countries.[28] Regardless, the OLS models suggest that imports have a long-term negative effect on social spending in developed economies, regardless of workers ability (or inability) to adjust to market volatility. The error correction model tells a slightly more complex story. In developed countries, imports have a significant, negative effects on social spending in both the short and long run when labor is perfectly mobile between manufacturing industries (i.e. wage variance equal zero). However, the short term effect of imports on social spending is mediated by the level of labor mobility in a given economy. This is virtually the same story as in developing countries except that imports do not appear to have a long-term negative effect on social spending in developing countries. Further work is needed to tease out the effects of economic development and labor mobility on social spending. However, these preliminary results suggest that labor mobility is perhaps a better predictor of the direction of the effect of globalization on social spending than economic development.

[28] By definition, the variance in the dependent variables in the two separate samples is reduced by separating the samples (Lewis-Beck and Skalaban 1990).

Conclusions and implications

The compensation hypothesis rests on the assumption that workers respond to the increased market volatility brought about by globalization with demands for higher levels of social spending. To date, little research has examined the empirical validity of this assumption. In this research, I develop a theoretical model to identify those workers that are most likely to respond to increased market volatility with demands for greater social insurance. In sum, workers facing relatively high adjustment costs like, for example, those workers with specific skill sets are more likely to demand increases in social spending levels following trade liberalization. I empirically test the macro-level implications of this argument and find that the effect of increased trade exposure on social spending levels is, in fact, conditional on the average level of labor mobility in any given country. Imports have a strong reductive effect on social spending when labor faces low adjustment costs. This reductive effect declines as adjustment costs increase. When workers face very high adjustment costs, increased trade exposure results in increased social spending, holding all else constant. This pattern emerges most clearly amongst developing countries with democratic institutions.

The findings reported here suggest a relatively simple solution to the persisting division in the scholarly literature between the efficiency and compensation hypotheses. Both arguments can be justified under different conditions. The efficiency hypothesis appears to hold when labor is relatively mobile between uses in a country's economy. When workers can adjust to the price changes brought about by increased trade exposure with relative ease and few costs, they have little incentive to demand increased social spending. Instead, it appears that they support cuts in spending levels in order to increase the international competitiveness of their products. The compensation hypothesis finds the strongest empirical support when workers face high

adjustment costs. Workers for whom market volatility and unemployment risk are relatively more costly will demand increased social spending to offset some of the costs of risk. As such, the compensation hypothesis is most likely to find empirical support when workers face high adjustment costs.

Globalization is likely only one piece of the welfare spending story. As such, there are reasons to be cautious about the findings reported here and what we can make of them. Equally important for explaining inter-temporal variance in social spending are other sources of market volatility and unemployment risk, such as deindustrialization (Iversen and Cusack 2001). Although I focus here solely on the effects of trade openness on social spending, I do so not because I believe that deindustrialization is unimportant for explaining temporal variance in social spending levels but rather because Iversen and Cusack (2001) have previously examined the effects of deindustrialization on welfare spending. It is reassuring to note that they find strikinly similar results. Labor mobility mediates the effect of deindustrialization on social spending in the same way that it has been shown here to mediate the effect of trade openness. Taken together, these studies suggest that labor mobility mediates the effect of any economic shock that increases labor market volatility on social spending,

Table 1: Estimated effect of increased imports on social spending conditional on labor mobility

	1 ECM	2 ECM AR(1)	3 PA OLS	4 OLS AR(1)
ΔImports*L.Wage variance	0.0048	0.005		
	(0.0016)***	(0.002)***		
L.Imports*L.Wage variance			0.0007	0.0009
			(0.0002)***	(0.0002)***
L.Wage variance	0.012	0.01	-0.017	-0.003
	(0.012)	(0.012)	(0.009)*	(0.007)
ΔWage variance	0.026	0.028		
	(0.007)***	(0.009)***		
L.Imports	-0.004	0.007	-0.014	-0.035
	(0.012)	(0.011)	(0.013)	(0.019)*
ΔImports	-0.216	-0.227		
	(0.057)***	(0.064)***		
L.Social spending	-0.216		0.776	
	(0.061)***		(0.063)***	
L.GDP per capita (nl)	0.162	-0.112	0.169	0.798
	(0.331)	(0.292)	(0.323)	(0.646)
ΔGDP per capita (nl)	-1.439	-0.349		
	(2.353)	(2.105)		
L.Pop over 65	1.055	0.673	2.102	5.487
	(0.338)***	(0.371)*	(0.838)**	(2.156)**
ΔPop over 65	0.074	-0.067		
	(1.653)	(1.62)		
L.Growth	-0.033	-0.069	-0.018	-0.011
	(0.042)	(0.038)*	(0.024)	(0.028)
ΔGrowth	0.031	-0.07		
	(0.038)	(0.038)*		
Observations	312	312	313	325
Number of countries	31	31	31	31

Notes: All models estimated using a sample of 31 developing, non-autocratic countries (ARG, BOL, BRA, BWA, CHL, COL, CRI, CYP, DOM, ECU, FJI, GHA, GTM, IND, LKA, MEX, MLT, MUS, MYS, PAK, PAN, PHL, POL, SLV, THA, TTO, TUR, URY, VEN, ZAF, ZWE) Data covers the period from 1976 to 1997. See Appendix B for the years during which each country enters the sample. Panel-corrected standard errors are reported in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%. In models 3 and 4, the level measure of aged people (*L.Pop over 65*) is calculated as the cumulative country average beginning in 1970, following Huber and Stephens (2001).

Table 2: Estimated effect of imports in democracies versus all countries regardless of regime type

	1 ECM	1.1 ECM	2 ECM AR(1)	2.1 ECM AR(1)	3 PA OLS	3.1 PA OLS	4 OLS AR(1)	4.1 OLS AR(1)
ΔImports*L.Wage variance	0.0048	0.002	0.005	0.002				
	(0.0016)***	(0.002)	(0.002)***	(0.002)				
L.Imports*L.Wage variance					0.0007	0.0004	0.0009	0.0003
					(0.0002)***	(0.0002)*	(0.0002)***	(0.0002)
L.Wage variance	0.012	-0.004	0.01	-0.001	-0.017	-0.016	-0.003	-0.014
	(0.012)	(0.008)	(0.012)	(0.009)	(0.009)*	(0.006)**	(0.007)	(0.006)
ΔWage variance	0.026	0.015	0.028	0.019				
	(0.007)***	(0.006)***	(0.009)***	(0.0007)***				
L.Imports	-0.004	0.009	0.007	0.017	-0.014	-0.002	-0.035	-0.019
	(0.012)	(0.012)	(0.011)	(0.011)	(0.013)	(0.012)	(0.019)*	(0.019)
ΔImports	-0.216	-0.091	-0.227	-0.095				
	(0.057)***	(0.066)	(0.064)***	(0.069)				
L.Social spending	-0.216	-0.225			0.776	0.760		
	(0.061)***	(0.047)***			(0.063)***	(0.047)***		
L.GDP per capita (nl)	0.162	0.01	-0.112	-0.072	0.169	0.227	0.798	0.806
	(0.331)	(0.249)	(0.292)	(0.23)	(0.323)	(0.189)	(0.646)	(0.399)**
ΔGDP per capita (nl)	-1.439	-0.599	-0.349	0.151				
	(2.353)	(1.888)	(2.105)	(1.823)				
L.Pop over 65	1.055	0.996	0.673	0.361	2.102	2.19	5.487	6.409
	(0.338)***	(0.282)***	(0.371)*	(0.3)	(0.838)**	(0.526)***	(2.156)**	(1.222)***
ΔPop over 65	0.074	-0.273	-0.067	-0.686				
	(1.653)	(1.428)	(1.62)	(1.325)				
L.Growth	-0.033	-0.026	-0.069	-0.043	-0.018	0.013	-0.011	0.002
	(0.042)	(0.033)	(0.038)*	(0.032)	(0.024)	(0.023)	(0.028)	(0.020)
ΔGrowth	0.031	-0.053	-0.07	-0.076				
	(0.038)	(0.027)*	(0.038)*	(0.028)***				
Observations	312	610	312	610	313	611	325	635
Number of countries	31	46	31	46	31	46	31	46

Notes: Panel-corrected standard errors are reported in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%. In models 3 and 4, the level measure of aged people is calculated as the cumulative country average beginning in 1970, following Huber and Stephens (2001).

Table 3: Estimated effect of imports versus total trade

	1 ECM	1.1 ECM	2 ECM AR(1)	2.1 ECM AR(1)	3 PA OLS	3.1 PA OLS	4 OLS AR(1)	4.1 OLS AR(1)
ΔOpen*L.Wage variance	0.0048	0.0017	0.005	0.002				
	(0.0016)***	(0.0013)	(0.002)***	(0.001)				
L.Open*L.Wage variance					0.0007	0.0004	0.0009	0.0005
					(0.0002)***	(0.0001)***	(0.0002)***	(0.0001)***
L.Wage variance	0.012	0.009	0.01	0.008	-0.017	-0.018	-0.003	-0.005
	(0.012)	(0.009)	(0.012)	(0.013)	(0.009)*	(0.009)**	(0.007)	(0.007)
ΔWage variance	0.026	0.027	0.028	0.03				
	(0.007)***	(0.007)***	(0.009)***	(0.009)***				
L.Open	-0.004	-0.007	0.007	0.004	-0.014	-0.015	-0.035	-0.028
	(0.012)	(0.008)	(0.011)	(0.007)	(0.013)	(0.008)*	(0.019)*	(0.013)**
ΔOpen	-0.216	-0.088	-0.227	-0.084				
	(0.057)***	(0.049)**	(0.064)***	(0.044)*				
L.Social spending	-0.216	-0.219			0.776	0.774		
	(0.061)***	(0.062)***			(0.063)***	(0.062)***		
L.GDP per capita (nl)	0.162	0.204	-0.112	-0.166	0.169	0.282	0.798	0.935
	(0.331)	(0.374)	(0.292)	(0.327)	(0.323)	(0.353)	(0.646)	(0.696)
ΔGDP per capita (nl)	-1.439	-1.227	-0.349	-0.105				
	(2.353)	(2.392)	(2.105)	(2.119)				
L.Pop over 65	1.055	1.091	0.673	0.713	2.102	2.06	5.487	5.405
	(0.338)***	(0.356)***	(0.371)*	(0.384)*	(0.838)**	(0.849)***	(2.156)**	(2.211)**
ΔPop over 65	0.074	0.511	-0.067	0.303				
	(1.653)	(1.653)	(1.62)	(1.651)				
L.Growth	-0.033	-0.040	-0.069	-0.082	-0.018	-0.012	-0.011	-0.009
	(0.042)	(0.042)	(0.038)*	(0.038)**	(0.024)	(0.025)	(0.028)	(0.028)
ΔGrowth	0.031	-0.038	-0.07	-0.08				
	(0.038)	(0.038)	(0.038)*	(0.038)**				
Observations	312	312	312	312	313	313	325	325
Number of countries	31	31	31	31	31	31	31	31

Notes: Panel-corrected standard errors are reported in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%. In models 3 and 4, the level measure of aged people is calculated as the cumulative country average beginning in 1970, following Huber and Stephens (2001).

Table 4: Estimated effect of imports in developing versus developed countries

	1 ECM	1.1 ECM	2 ECM AR(1)	2.1 ECM AR(1)	3 PA OLS	3.1 PA OLS	4 OLS AR(1)	4.1 OLS AR(1)
∆Imports*L.Wage variance	0.0048	0.003	0.005	0.003				
	(0.0016)***	(0.001)**	(0.002)***	(0.001)***				
L.Imports*L.Wage variance					0.0007	-0.0001	0.0009	-0.0001
					(0.0002)***	(0.0001)	(0.0002)***	(0.0002)
L.Wage variance	0.012	0.006	0.01	0.005	-0.017	0.0088	-0.003	0.008
	(0.012)	(0.005)	(0.012)	(0.006)	(0.009)*	(0.0054)	(0.007)	(0.006)
∆Wage variance	0.026	-0.003	0.028	-0.002				
	(0.007)***	(0.006)	(0.009)***	(0.007)				
L.Imports	-0.004	-0.099	0.007	-0.059	-0.014	-0.086	-0.035	-0.141
	(0.012)	(0.025)***	(0.011)	(0.025)**	(0.013)	(0.026)***	(0.019)*	(0.045)***
∆Imports	-0.216	-0.129	-0.227	-0.144				
	(0.057)***	(0.052)**	(0.064)***	(0.054)***				
L.Social spending	-0.216	-0.160			0.776	0.847		
	(0.061)***	(0.048)***			(0.063)***	(0.053)***		
L.GDP per capita (nl)	0.162	0.911	-0.112	0.411	0.169	0.746	0.798	1.682
	(0.331)	(0.438)**	(0.292)	(0.49)	(0.323)	(0.471)	(0.646)	(0.966)*
∆GDP per capita (nl)	-1.439	-0.504	-0.349	0.46				
	(2.353)	(3.32)	(2.105)	(3.53)				
L.Pop over 65	1.055	-0.352	0.673	-0.142	2.102	-0.364	5.487	0.154
	(0.338)***	(0.266)	(0.371)*	(0.319)	(0.838)**	(0.540)	(2.156)**	(1.111)
∆Pop over 65	0.074	-0.492	-0.067	0.256				
	(1.653)	(0.898)	(1.62)	(1.05)				
L.Growth	-0.033	-0.099	-0.069	-0.082	-0.018	-0.057	-0.011	-0.061
	(0.042)	(0.065)	(0.038)*	(0.068)	(0.024)	(0.038)	(0.028)	(0.043)
∆Growth	0.031	-0.056	-0.07	-0.059				
	(0.038)	(0.050)	(0.038)*	(0.053)				
Observations	312	383	312	383	313	383	325	391
Number of countries	31	24	31	24	31	24	31	24

Notes: Panel-corrected standard errors are reported in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%. In models 3 and 4, the level measure of aged people is calculated as the cumulative country average beginning in 1970, following Huber and Stephens (2001).

Figure 1: Expected effect of an increased risk of involuntary separation

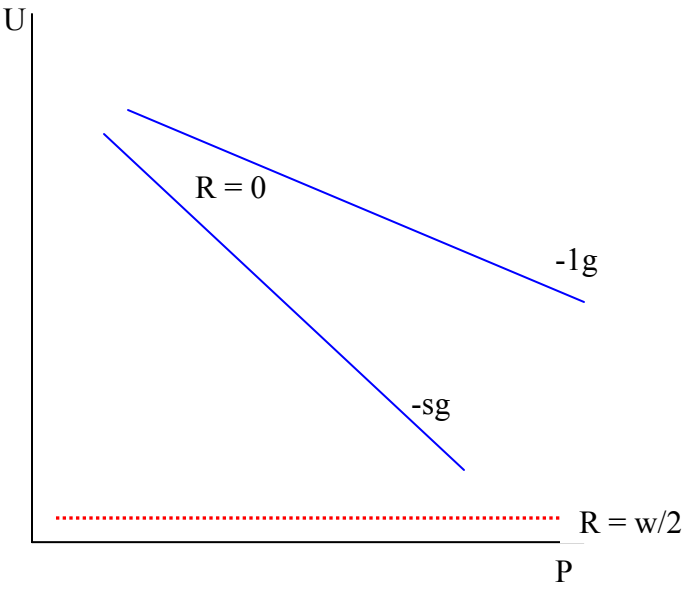
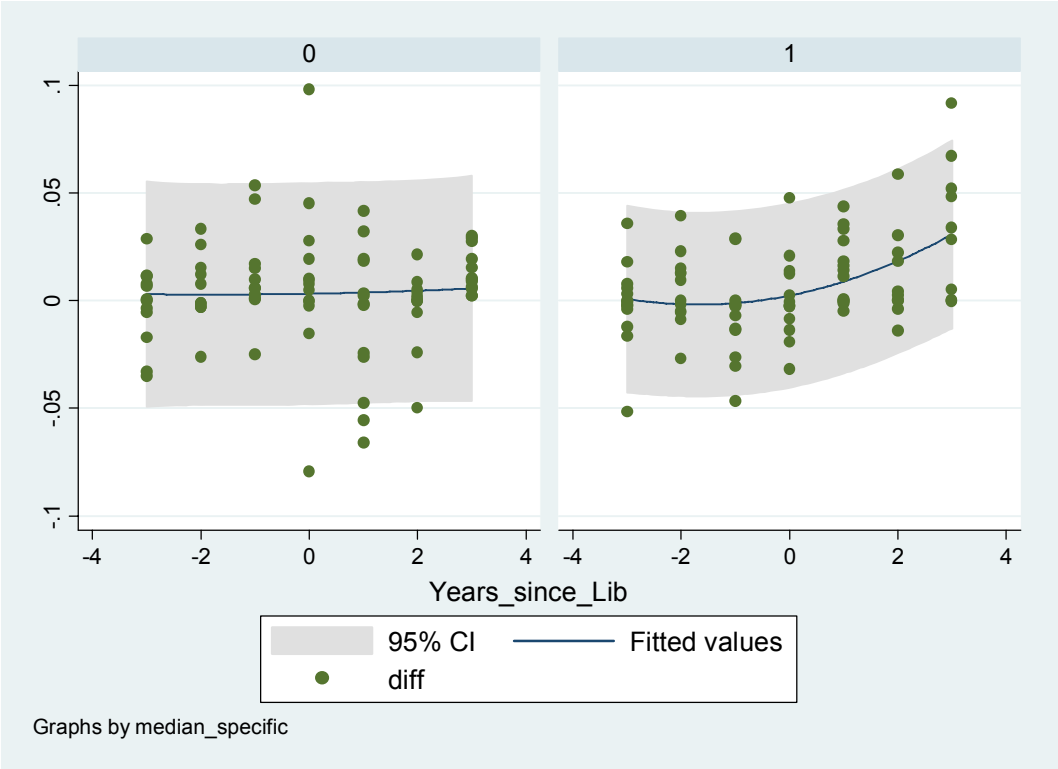
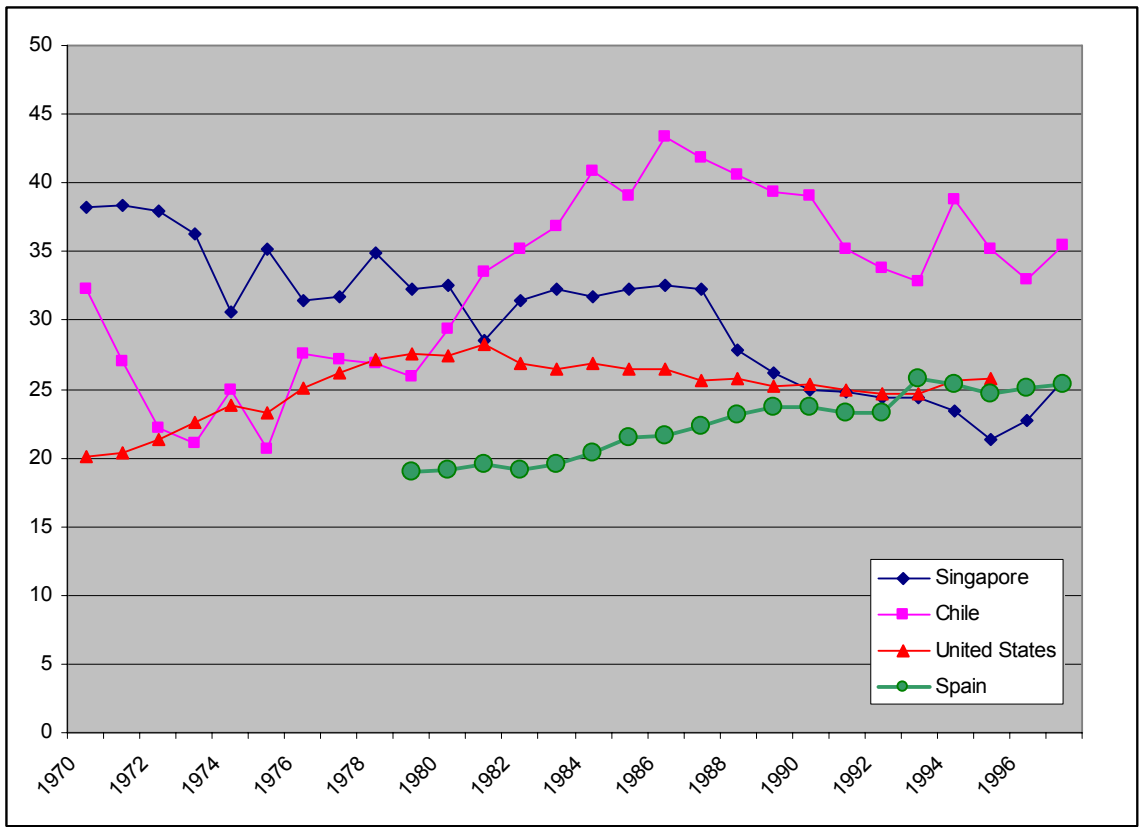


Figure 2: Year to year differences in spending on social security and welfare (as a percentage of total government expenditures) around trade liberalization date



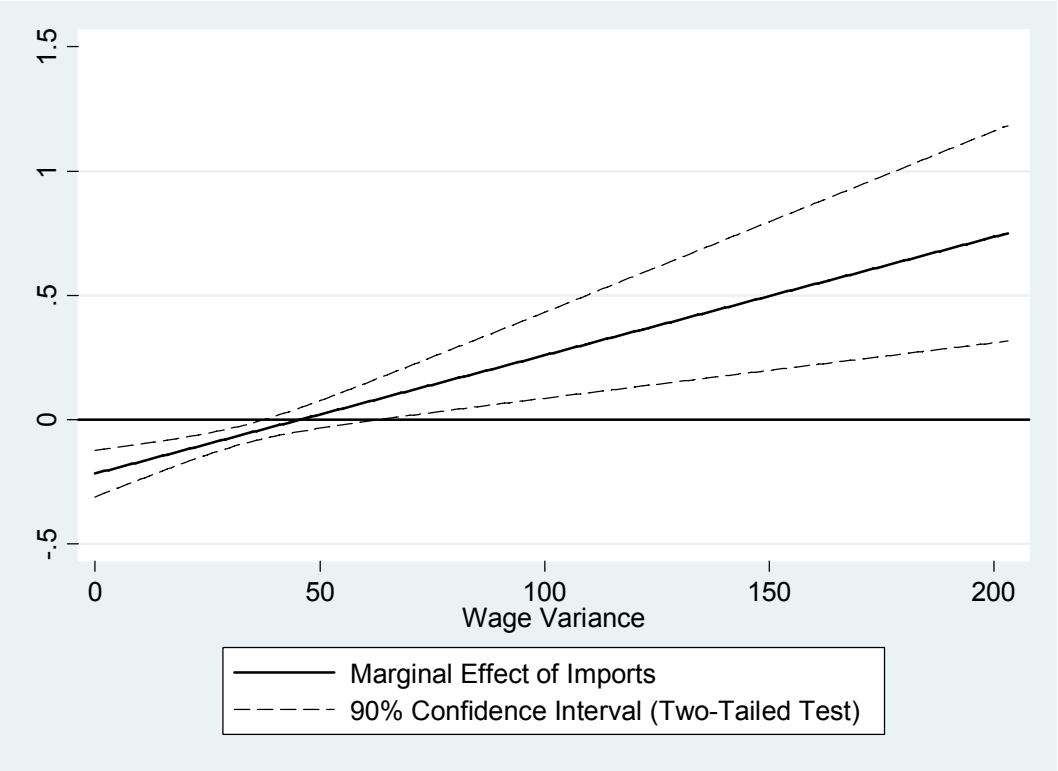
Notes: Spending data come from the IMF Government Finance Statistics (2001). Liberalization dates are from Wacziarg and Wallack (2004). Labor mobility is measured using UNIDO employment data (2005). Countries whose average rate of change in the employment distribution is above the sample median are coded as specific labor countries. Data for these countries are contained in the right box.

Figure 3: Inter-industry wage differentials over time



Notes: Inter-industry wage differentials are estimated using the coefficient of variance for average wages among 15 low-skill manufacturing industries. Data are from the UNIDO Industrial Statistics Database (2005).

Figure 4: Estimated marginal effect of imports on social spending



Notes: Values estimated using coefficients from Model 1 Table 1.

Appendix A: Low skill industries

Low-skill manufacturing industries	**ISIC categories**
Leather and rubber products	323, 355
Wood products, except furniture; paper and paper products	331, 341
Textiles; leather products; wearing apparel, except footwear; footwear, except rubber or plastic	312, 323, 322, 324
Other nonmetallic mineral products; glass and products; pottery, china, and earthenware	369, 362, 361
Iron and steel; fabricated metal products	371, 381
Furniture, except metal	332
Plastic products; other manufactured products	356, 390

Note: This classification of industries by average skill-level was originally developed by Wood and Mayer (1998).

Appendix B: Sample of 31 developing, non-autocratic countries

Country	Years in sample
Argentina	1985-90, 1994-97
Bolivia	1989-97
Botswana	1982-88, 1993-96
Brazil	1993-94
Chile	1989-97
Colombia	1983-86, 1991-97
Costa Rica	1985-97
Cyprus	1977-96
Dominican Republic	1978-85
Ecuador	1979-90
El Salvador	1982-85, 1994-97
Fiji	1976-86, 1990-92
Ghana	1979-80
Guatemala	1986-88
India	1979-97
Malaysia	1976-81, 1986-97
Malta	1976-78, 1981-95
Mauritius	1976-97
Mexico	1994-97
Pakistan	1976
Panama	1989-94, 1997
Philippines	1986-97
Poland	1995-96
South Africa	1985
Sri Lanka	1981-97
Thailand	1989-90, 1994
Trinidad and Tobago	1977-78, 1994-95
Turkey	1976-79, 1984-97
Uruguay	1985-97
Venezuela	1976-86
Zimbabwe	1977-86

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