SOCIAL PROTECTION AROUND THE WORLD
External Insecurity, State Capacity, and Domestic Political Cleavages

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This article develops and tests a political model specifying the conditions under which external risk leads to the introduction of redistributive social policies and argues that external risk sharpens a domestic political cleavage over the design of institutions of social insurance. Workers in sectors facing high volatility of income will support the introduction of social policies characterized by broad levels of insurance coverage and high redistribution of costs across occupations, whereas workers in low-risk sectors will oppose redistributive social policies. The strength of preexisting state institutions also affects policy preferences of various sectors. In the presence of weak, ineffective states that are unable to collect social insurance contributions from sectors that are net contributors to the system, high-risk sectors will find redistributive social policies unattractive. The article tests predictions of the model using new measures of the level of social insurance coverage in more than 100 countries.

Keywords: *social insurance; economic insecurity; economic openness; state capacity*

A long and distinguished tradition of research in comparative political economy regards economic openness as a critical factor accounting for the expansion of the welfare state. The identification of a positive relationship between the exposure to trade of an economy and the size of the welfare state goes back to a pioneering article by David Cameron (1978). Cameron's initial findings are based on the analysis of 18 Organization for Economic Cooperation and Development (OECD) economies during the period

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between 1960 and 1975. Other scholars supplement these statistical findings with qualitative analyses of the industrial and social policies pursued by many European economies during the postwar period and document how these economies "complemented their pursuit of liberalism in the international economy with a strategy of domestic compensation" (Katzenstein, 1985, p. 47; Ruggie, 1982). Geoffrey Garrett and Deborah Mitchell (2001) update Cameron's initial findings for the period up to the mid-1990s and examine the relationship between additional measures of economic openness—such as openness of the financial markets—and the size of the public sector. In recent research, Dani Rodrik (1997, 1998) demonstrates that the positive relationship between economic openness and the size of the public sector is not a finding that is idiosyncratic to advanced industrialized economies alone but that, the result is robust and holds in a broader sample, comprising more than 100 countries (see also Bates, Brock, & Tiefenthaler, 1991).

These findings are regarded with considerable skepticism by welfare state scholars. These scholars formulate three important objections to the arguments linking economic openness and the size of the public sector. The first objection is empirical. After reanalyzing data for the expansion of social policy transfers in OECD economies, Iversen and Cusack (2000) dispute Cameron's (1978) and Garrett and Mitchell's (2001) findings and argue that the relationship between economic openness and larger welfare states is spurious and disappears with the introduction of a sufficient number of control variables. This empirical objection disputes, however, only the finding for OECD economies alone and not Rodrik's (1997, 1998) result that holds across a much larger number of cases. The second objection concerns the absence of a political mechanism linking economic openness and larger welfare states (Adserà & Boix, 2002; Huber & Stephens, 2001). As Huber and Stephens (2001) express this concern,

> We are skeptical about the openness argument, both with regard to its presumed direct effect on welfare state expansion and its indirect effect via corporatism, because decisions about welfare state expansion are politically mediated rather than automatic reactions to needs for social protection. (p. 48)

A third important limitation of the literature linking economic openness and the size of the public sector is the type of data used as measures of the dependent variable. Most statistical findings rely on highly aggregated measures of total government expenditures or government receipts. Cameron (1978, p. 1244) uses measures of the total revenue of governments, Rodrik (1998) uses data on government consumption, and Adserà and Boix (2002,

p. 239) use data on current receipts of the central government. These broad measures—lumping together all government revenues or expenditures—are, however, problematic for three reasons. First, these measures are too aggregated and do not capture the specific expenditures that actually mitigate the economic dislocations resulting from changes in the terms of trade. Rodrik's (1997, 1998) argument that military expenditures, for instance, or government procurement of capital goods play an important role in insuring against external risk is very tenuous and begs the political question why some governments choose these particular expenditures rather than social insurance expenditures to protect workers against external risks. Second, expenditure-based measures do not capture questions of policy design that are politically salient and distributionally divisive. As Gøsta Esping-Andersen (1990) expresses the objection to the use of these measures in many quantitative studies of the welfare state, "Expenditures are epiphenomenal to the theoretical substance of the welfare state. . . . It is difficult to imagine that anyone struggled for spending *per se*" (pp. 19-21). Third, the distribution of social policy expenditures is probably as important as the levels of spending. What matters for the workers that have lost their jobs as a result of economic downturns is not the statistical artifact known as "per capita social policy expenditures" but instead, the actual conditions of their social policy coverage—the level and duration of social policy benefits, the stringency of eligibility criteria, and so on. Countries with equal amounts of welfare state spending often distribute these expenditures unevenly to various subgroups of the population or across social policy programs. Some countries might target very high levels of expenditures to narrow political clienteles, whereas others might distribute it broadly across the entire population. Similarly, the mix between public services and social policy transfers can also vary significantly across countries with similar levels of social policy expenditures. Hence, important information about the distributional aspects of many welfare states is simply discarded if aggregate expenditure data are used.

The above discussion suggests that we need to replace expenditure-based measures with better measures of qualitative differences in the level of social policy protection in different countries. We know that higher openness leads to "larger governments" (Rodrik, 1997) and bigger public economies. Does higher openness lead also to different types of welfare states? Do countries that differ in their exposure to external trade adopt institutions of social protection that differ in their institutional design—such as degree of coverage, mix between private and public carriers in the provision of benefits? So far, existing studies examining the relationship between economic openness and social protection and relying on expenditure-based measures of social protection alone have not addressed these questions.

This article reexamines the relationship between economic openness and social protection and attempts to address the three main objections to existing studies. Its first goal is to develop a model that explores the political conditions under which external openness leads to the development of more redistributive welfare states. The model develops a set of predictions about the impact of the level of risk on the social policy preferences of different sectors and specifies the institutional factors that foster or hinder demand for an increase in the level of social insurance coverage. In the empirical analysis of the article, I move beyond an analysis of variation in the level of social policy expenditures that is characteristic to research in this field. I develop a new set of indicators that measure the scope of social policy coverage in a broad cross-section of countries, and I examine the role played by economic openness alone, as well as in interaction with other economic and political variables in explaining differences in the character of social protection. Does external openness have any impact on the type of social policy coverage introduced by various countries? What are the main political and institutional factors that mediate the impact of economic openness on the character of social protection?

The main argument of the article is that economic openness—more specifically, the volatility in the terms of trade of an economy—sharpens a domestic political cleavage about the introduction and design of institutions of social insurance. Workers (and some employers) in sectors characterized by high levels of economic insecurity will favor the introduction of institutions of social protection that compensate them for the income losses experienced during these economic downturns. This high-risk coalition will favor the introduction of social policy institutions, characterized by broad levels of insurance coverage and by a broad reallocation of costs across industries, in an effort to lower their own social insurance charges. In contrast, workers (and some employers) in sectors facing lower volatility of demand and employment will oppose the introduction of social policies characterized by a high reallocation of costs across occupations, fearing that these policies will turn them into subsidizers of high-risk industries.

The model developed in this article predicts that two variables will influence the resolution of these political conflicts between high-risk and "low-risk" coalitions. The first of these variables is the balance of power between sectors characterized by a high and a low volatility in the level of employment. The second significant variable is the capability of the state to enforce existing policies. Consider the case of an economy in which "high-risk" sectors are economically and politically pivotal—either as a consequence of the underlying economic structure or of their organizational capabilities—and that is characterized by a strong and efficient state. In this economy, high-risk

sectors—who benefit from the introduction of a compulsory social policy—will succeed in introducing institutions of social insurance characterized by wide insurance coverage and a broad redistribution of costs across occupations. The political strategies of high-risk sectors might change, however, if the state is unable to enforce existing policies. Faced with a weak and inefficient state—that is unable to collect social insurance contributions from those groups that are net contributors to the system—high-risk sectors might find state-administered social policies unattractive. If low-risk sectors are politically pivotal, we should see "residualistic" welfare states characterized by no or very low levels of social insurance coverage (no matter whether the state is "weak" or "strong").

The remaining part of the article has the following outline. The following section lays out the logic of the argument by developing a simple formal model that highlights the main causal dynamics linking economic insecurity and social policy expansion. The model highlights the distributional conflict between high-risk and low-risk sectors over the expansion of social policy and illustrates how the variation in the enforcement capabilities of states affects the political strategies made by these sectors with respect to social policy coverage. The following section tests these arguments by using a data set measuring variation in the type of social insurance institutions in a broad cross-section of countries. The final section of the article concludes by drawing out implications of the findings for future research.

THE MODEL

What are the political conditions under which economic openness leads to an expansion in the level of social insurance coverage? What are the policy preferences of groups facing different levels of risk? I begin by presenting a simple model that examines these questions.

Consider a two-sector economy, consisting of a "risky" export sector and a "riskless sector." Let λ denote the share of workers in the risky sector of the economy and $1 - \lambda$ the share of the workforce in the riskless sector. Let w_h denote the level of wages earned by workers in the risky sectors and w_l the wages in the riskless sector. (The subscripts h and l stand for high risk and low risk, respectively.) The employment shares in these two sectors are a_h and a_l, respectively (with $a_h \in [0,1]$, $a_l \in [0,1]$). The focus of the model is on the effect of changes in the level of export prices on the level of employment, thus, I assume firms are price takers in a competitive economy. We assume that firms maximize total revenue (price $\times$ output) minus labor costs. There-

fore in both sectors, firms choose the level of employment a_h and a_l, by maximizing

$$\pi \times t(a) - w \times a, \tag{1}$$

where w stands for both w_h and w_l and a stands for both a_h and a_l. A technology function is represented by t, and π denotes the level of prices. Rearranging terms, the first-order condition of Equation 1 yields

$$t'(a^*) = \frac{w}{\pi}, \tag{2}$$

where a^* is the equilibrium level of employment chosen by a firm in either sector.

I model risk as a stochastic movement in π, the level of prices. Thus I assume that π is a random variable, with mean $\mu(\pi) = \pi_h$ and a standard deviation, $s(\pi) = \sigma$. For the risky export sector, π is determined by the terms of trade, the relative movement of the prices of export goods in terms of the import goods. As a result, unemployment in the risky sector is also a random variable. In contrast, I assume that the level of unemployment in the riskless sector is known (deterministic).

If introduced, a social insurance scheme would provide transfers to workers that are temporarily out of work. To model the redistributive tensions of social (as opposed to private) insurance, assume that both sectors would pay the same tax rate, τ. (A policy with tax rates differentiated by occupations according to the incidence of risk would be equivalent to a private social policy.) Social policy transfers would go to $\lambda(1 - a_h)$ workers in the risky sector and to $(1 - \lambda)(1 - a_l)$ workers in the riskless sector.

An important assumption of the model is that states differ in their ability to enforce the existing social insurance legislation and collect social insurance contributions. We can refer to the ability of the states to enforce existing legislation as the "efficiency" of the state. The efficiency of the state is a key determinant of the fraction of taxes that is returned as social policy benefits. Let the parameter ρ denote the efficiency of the state in collecting taxes and in distributing all taxes as social policy benefits to workers that are out of work. In the case of an efficient state ($\rho = 1$), the state is capable of enforcing existing institutions of social insurance, of minimizing tax evasion, and of collecting insurance contributions even from those workers that are, on balance, contributors to (and not beneficiaries of) the system. As $\rho \rightarrow 0$, the efficiency

of the state declines and the state is unable to enforce existing social insurance laws. It follows that the balanced budget equation of the social insurance system can be written as

$$\rho \times \text{tax revenue} = \text{benefits} \tag{3}$$

or

$$\rho \cdot \tau \cdot (a_h \cdot \lambda \cdot w_h + a_l(1-\lambda)w_l) = b(\lambda(1-a_h) + (1-\lambda)(1-a_h)), \tag{4}$$

where b denotes the level of social policy benefits.

This setup allows us to explore the social policy preferences of workers in sectors facing different levels of risk and the interplay between the level of external risk—modeled as an increase in volatility in the terms of trade (σ)—and the effectiveness of the state in delivering social policy benefits in explaining differences in the level of social policy protection. In this setup, it becomes immediately apparent that the low-risk sector—facing a lower probability of unemployment—is a net contributor to the social insurance system.[1] If $\lambda < 0.05$, the country will choose not to introduce a social policy that reallocates costs across occupations. If the low-risk sector is politically pivotal, policy proposals aiming at the introduction of a redistributive social policy will fail, irrespective of the level of riskiness of the exposed sector.

Under what conditions will the exposed sector demand the introduction of a redistributive social policy? How does variation in the efficiency of the state affect the demands for social insurance of the high-risk sector? To examine these questions we need to compare two outcomes. In the first case, no social insurance system exists. In this case, workers in the exposed sector pay no social insurance contributions and receive no benefits during periods of employment loss. Let $E[u(I_{NO.SI})]$ denote the expected utility derived by workers in the high-risk sector in the case in which no social policy is in place. In this case, the expected utility of the workers amounts to income received from work, in other words,

1. Note that in this model, public sector employees also face relatively low levels of economic insecurity and, thus, are expected to favor occupational-based social policies that involve no or little redistribution of risks across occupations and to oppose social policy proposals characterized by uniform level of contributions and benefits for all sectors. The implication is not that public sector employees oppose larger public sectors but, rather, that they favor more fragmented institutions of social insurance than the high-risk sectors of an economy.

$$E[u(I_{NO.SI})] = \pi \times \lambda. \tag{5}$$

The second outcome is a case in which a social policy covering both the risky and the riskless sector is in place. Let $E[u(I_{SI})]$ denote the expected utility of workers in the risky sector if a social policy exists. In this case, the expected utility of workers in the risky sector has two components: posttax wages and social policy benefits in case of income loss. The latter part is, in turn, a function of the relative size of the sector and of the capacity of the state to enforce social insurance legislation. More specifically, the expected utility of workers in the risky sectors if a social policy is in place is equal to

$$E[u(I_{SI})] = \pi\lambda(1-\tau) + \rho\tau(\pi\lambda + a_l w_l(1-\lambda)\frac{\lambda(1-a_h)}{\lambda(1-a_h)+(1-\lambda)(1-a_l)}. \tag{6}$$

A comparison of these two expected utilities yields the conditions under which workers in high-risk sectors opt for or against social insurance. The derivation of the comparative statics results is presented in Appendix A. Comparative statics analysis of changes in the strategy of the risky sector as we vary the parameters of the model yields the following results. First, as the volatility in the risky sector, σ, increases, the expected utility of the high-risk group from the introduction of a new social policy increases. For the export sector, the volatility in the level of risk is given by the volatility in the terms of trade. The result parallels Rodrik's (1997, 1998) finding and suggests that all things equal, economies facing high levels of volatility in the terms of trade and in which high-risk sectors are politically pivotal should introduce social insurance institutions characterized by broad levels of coverage.

The second implication of the analysis is that the demand for social insurance of the high-risk sector declines as the efficiency of the state (ρ) declines. The proof presented in Appendix A shows that for very low values of the parameter ρ, the costs of social insurance for workers in the risky sector can, sometimes, outweigh the benefits of social protection. This suggests that in the presence of an inefficient state, workers in the high-risk sector might nevertheless choose to oppose proposals to introduce a redistributive social policy and opt for no insurance. Thus the impact of external risk on the development of institutions of social protection is conditional on the efficiency of state institutions.

THE DATA SET

The theoretical hypotheses advanced in the previous section yield specific implications about the scope and type of social insurance systems adopted by various countries. They suggest that countries facing a high volatility in the terms of trade will introduce social policies that redistribute risks across several occupations if two political conditions are met. A country will introduce a social policy characterized by broad coverage and that reallocates the costs of social insurance across occupations if the high-risk sector is politically more influential and if the country has an efficient state. However, in the presence of an inefficient state, the high-risk sector might find redistributive social policies unattractive. The model predicts that countries characterized by weak and inefficient state institutions and where the low-risk sector is politically pivotal will not introduce redistributive social policies.

To address and overcome the limitation of previous studies that have relied on expenditure-based measures, I have assembled a new data set that measures the scope of and type of social insurance coverage in a cross-section of countries that includes developed and developing countries alike. As scholars of the welfare state point out, the scope of social insurance coverage is a crucial dimension of variation among welfare states and the issue policy design that was politically most divisive during the introduction of a new social policy (Baldwin, 1990). As Peter Baldwin (1990) eloquently addresses this issue, only some welfare states "went from Bismarck to Beveridge":

> With insurance, from Babylonian bottomry to Lloyd's of London, humans have attempted to outcalculate fate, reapportioning misfortune so that no policyholder need face its effects alone. . . . Insurance has existed for millennia, social insurance developed in response to the widespread and multiplied uncertainties attendant on modern economies, while the solidaristic welfare state of a Marshallian cast has been the exclusive preserve of only a few nations at certain times in the twentieth century. (p. 5)

This variation in the character of institutions of social insurance is the result of several decisions of policy design. The first of these issues is the scope of coverage. Who has access to social policy benefits? Is insurance restricted to the members of a single firm or occupational group? Is social insurance mandatory for the entire population of a country—or are certain occupations excluded from coverage? The second issue that affects the variation in the character of social insurance institutions concerns the allocation of costs across different occupations. Does the calculation of insurance contributions follow actuarial principles? Does the state subsidize the policy of

social insurance (using additional sources of revenue) or are these policies "self-financing," relying exclusively on the contributions of future policy beneficiaries? These apparently arcane fiscal decisions affect the degree of redistribution of a social policy: Redistribution is lower in those policies where social insurance contributions are tightly coupled to the incidence of a risk; it is higher in those policies that loosen this relationship.

The social policy protection index combines, in one single measure, information about (a) the scope of social insurance coverage and (b) the redistribution across occupations undertaken by the particular social policy (see Figure 1). The second component of the index can be interpreted as a measure of a distance between the particular social policy and a policy that strictly adheres to actuarial criteria in the determination of the level of insurance contributions and benefits. A social policy diverges from a policy that adheres to actuarial criteria if (a) the level of insurance contributions is separated from the incidence of a risk, (b) the state finances additional costs of the insurance, or (c) both conditions are met. For each country in the sample, I compute an index for each of the four major subsystems of the welfare state—old-age, sickness, disability, and unemployment insurance. The social policy protection index is the sum of these four individual indices. For each policy, the index takes a value between 0 and 10. Thus the maximal possible value of the aggregate social policy index is 40. (Empirically, Denmark is the country with the highest aggregate social protection score of 38.)

In Appendix B, I present the rules followed in the coding of the various social policies. I assign to universalistic social policies the value 10, the highest value on the social policy index. In the case of these policies, the entire population has access to social policy benefits, guaranteeing, de facto, that "the community of risks coincides with the entire human community" (Baldwin, 1990, p. 3). Contributory social insurance policies take values between 9 and 5.5 on the social policy protection index, depending on the scope of coverage and mode of financing of the policy (see Appendix B). The most redistributive contributory social insurance policies (that take the value 9 on the social policy protection index) cover all employed persons. No major occupational group (such as agriculture, the self-employed) is excluded from the scope of social insurance. The insurance contributions of each group are separated from the incidence of a risk, and the state contributes toward the financing of the policy with grants and subsidies. On the other hand, the least redistributive contributory insurance policies—that take the value 5.5 along the social policy protection index—are characterized by very limited social insurance coverage. In the case of these policies, the insurance contributions are determined based on the level of risk faced by different occupations. There is no subsidy in the financing of the policy. Finally, policies taking val-

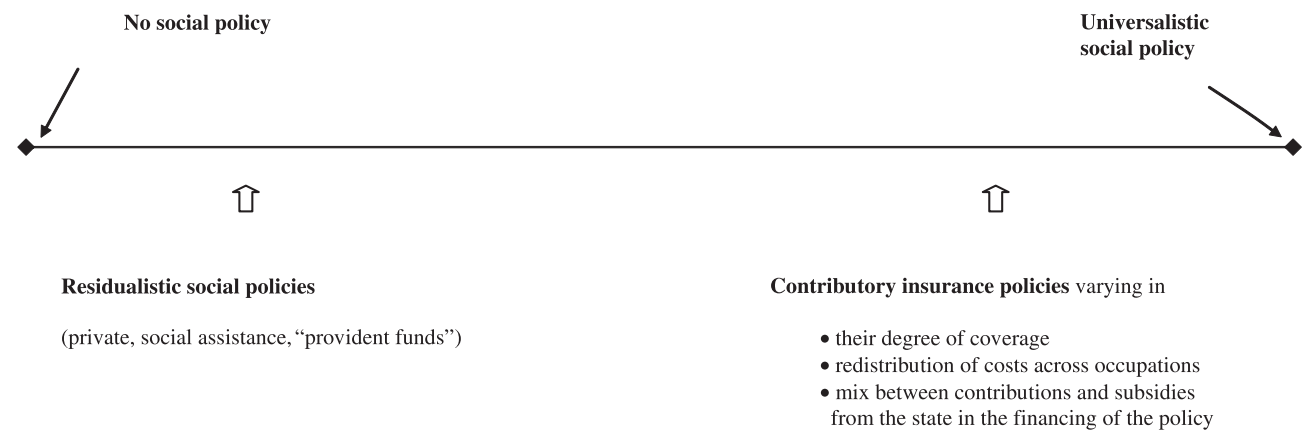

Figure 1. **Empirical variation in the scope of social policy coverage.**

Table 1
Social Policy Protection Score

	Combined Social Policy Score	Old-Age Average	Sickness Average	Disability Average	Unemployment Average
Industrialized countries[a] ($n = 24$)	33.16 (2.51)	9.32 (0.61)	9.18 (0.54)	7.17 (1.58)	7.47 (1.79)
Sub-Saharan Africa ($n = 38$)	13.76 (5.32)	6.13 (2.47)	1.64 (3.06)	5.72 (1.91)	0.26 (0.32)
Latin America and Caribbean ($n = 27$)	24.01 (5.14)	7.69 (1.00)	7.49 (2.26)	6.70 (1.30)	2.18 (3.43)
Other ($n = 40$)	19.27 (8.81)	6.40 (2.40)	5.30 (3.70)	5.56 (2.51)	2.00 (3.13)
Entire sample ($N = 129$)	21.22 (9.19)	7.13 (2.28)	5.39 (3.96)	6.14 (2.05)	2.54 (3.56)

Note: Interregional variations in parentheses.
a. Includes countries in Western Europe, Australia, New Zealand, United States, and Canada.

ues between 5 and 1 along the social policy index are residualistic social policies, such as private policies, "provident funds," or social assistance policies.

This new index provides, for the first time, a unified metric that allows us to compare systems of social protection in all countries of the world, not only in OECD countries. Some descriptive statistics can provide a sense of the variation in the character of institutions of social protection in the countries included in the data set (see Table 1). In 1995, all countries in the data set had some old-age insurance policy in place. Of the countries in the sample, 126 had some policy of sickness insurance and 89 countries had a policy providing benefits to victims of workplace accidents and their families. Only 49 countries (37% of the sample) had a policy of unemployment compensation, demonstrating that the risk of unemployment is the most "problematic social risk" (Alber, 1982, p. 49; Leibfried, 1977; Topalov, 1994). The level of social insurance coverage and, thus, the character of social insurance protection vary dramatically across the regions of the world. It is not surprising that industrialized countries in Western Europe and North America rank highest on the combined social protection score, with an average social policy protection score of 33.16, and have the lowest interregional variability in the character of social protection institutions (2.51). Countries in Latin America have an average social protection score of 24.01, with an interregional variability of 5.14. Countries in sub-Saharan Africa have an average social policy protection score of 13.76 (with an interregional variation of 5.14). In this region, only 2 countries (Mauritius and South Africa) have a policy of unemployment compensation.

INDEPENDENT VARIABLES

What is the role of external factors in explaining these differences in the nature of the institutions of social protection? To examine these questions, I have used the following measures of the degree of openness of the economy. The first measure—openness—is computed as the sum of exports and imports as a percentage of GDP. Data are from the Penn World Tables 5.6 (http://pwt.econ.upenn.edu/). This is the standard measure of openness used in most political science analyses examining the impact of trade on the size of the public sector, from Cameron (1978) to Garrett and Mitchell (2001) and Iversen and Cusack (2000).

The second independent variable used in the analysis is the variability in the terms of trade (external risk). This is the relevant measure for the theoretical variable suggested by the model, namely, the volatility in income associ-

ated with fluctuations in the terms of trade. To ensure comparability with existing studies, I have used the measure of the volatility in the terms of trade developed by Rodrik (1997).[2] As Rodrik points out, the volatility in the terms of trade and the level of openness are not necessarily correlated (p. 58). Two countries may have similar levels of openness yet very different levels of variability in their terms of trade:

> The ratio of trade to GDP is around 20 percent in both Japan and the United States, yet the terms of trade are almost twice as volatile in Japan. New Zealand and the United Kingdom are equally open (around 55 percent), but New Zealand's terms of trade fluctuate twice as much as the United Kingdom's. (Rodrik, 1997, p. 58)

For the cross-section of countries, the correlation between the terms of trade measure and the openness measure is, in fact, very weak (–0.0037).

I proxy the political influence of the export sector with a measure of the product concentration of exports in each country. This measure is a Gini-Hirschman index of concentration based on 239 three-digit standard international trade classification categories of exports that has been computed by the United Nations Council on Trade and Development (1999). Theoretically, this index can take values between 1—for an economy with a highly concentrated structure of exports—and 0—for a highly diversified economy. A more concentrated export structure is expected to lower the collective action problems faced by workers and employers in the export sector and increase their organizational capabilities. This hypothesis has been confirmed empirically (for OECD economies), as similar measures of product concentration are strongly correlated with measures of "corporatism" (Stephens, 1979). To test the hypothesis of the model that economies with a more volatile structure of exports, in which the export sector is politically more influential, will introduce social insurance policies characterized by broader levels of coverage, I include an interaction term between this variable and the variable measuring external risk in various specifications of the model.

One of the predictions of the theoretical model is that the impact of external volatility on the character of institutions of social protection is condi-

2. More specifically, the variable TOTDLOGSTD, which is the standard deviation of the first logarithmic differences in the terms of trade (Rodrik, 1997, p. 56). Rodrik (1997) suggests the following justification for the use of this measure. Let π stand for the natural logarithm of the terms of trade (the price of exports relative to the price of imports). If the log of the terms of trade follows a random walk, the unanticipated component of a change in the terms of trade as a percentage of GDP is $1/2[(x + m/y)][\partial\pi - \alpha]$, where x is the value of exports, m is the value of imports, y stands for GDP, and α for the trend growth rate in the terms of trade. The standard deviation of this variable is $1/2[(x + m/y)] \times$ standard deviation of $\partial\pi$.

tional on the strength of existing state institutions. As a proxy of state efficiency, I use the "rule of law" variable constructed by Andrei Shleifer and his collaborators and reported in the *Quarterly Journal of Economics* (see LaPorta, Lopez-de-Silanes, Shleifer, & Vishny, 1999, pp. 1142-1143). The sources of this variable are estimates compiled by various credit risk agencies for the use of foreign investors interested in doing business in the respective countries. Because the measure pertains to the ability of governments to enforce existing laws, it tests the implications of the theoretical model directly. The measure is unfortunately available only for a limited sample of 49 countries. The variable takes values from 1.9 to 10. The mean of the variable is 6.84; the standard deviation is 2.62.

In addition to the variables testing the theoretical implications of the model concerning the impact of external risk and state capacity in determining the variation in the character of institutions of social protection, I have added a range of economic and political control variables that might affect variation in existing institutions of social protection. To test for the hypothesis derived from the writings of modernization scholars that wealthier countries have more redistributive welfare states, I have included real GDP per capita (economic development) as a control in all specifications of the model. I rely on data assembled by Barro and Lee (n.d.). The second control variable is the dependency ratio (based on estimations of the World Bank, 2001).[3] Finally, each specification of the model includes as controls a series of regional dummy variables, a standard procedure in economics to control for the specific effects of particular regions (Adserà & Boix, 2002; Barro, 1997; Rodrik, 1998).

The second set of control variables that have been intermittently included in some specifications are variables measuring labor strength and the political regime. In many existing studies, these variables have figured prominently as key explanatory factors accounting for the divergence in the magnitude of social spending across countries. To measure the presence of a democratic regime, I follow the classification proposed by Alvarez, Cheibub, Limongi, and Przeworski (1996).[4] Authoritarian regimes—coded 1—are defined as those regimes in which neither the chief executive nor the legislature is selected and there is no more than one party. In contrast, in democratic regimes, some governmental offices are filled as a consequence of contested elections (Alvarez et al., 1996). Based on the findings of existing studies, we

3. This variable is defined as the ratio of "dependents" (people younger than 15 and older than 64 years old) to the working-age population.

4. I use the Alvarez, Cheibub, Limongi, and Przeworski (1996) coding for 1990 (the last year in the data set). Hence, the regime variable is effectively "lagged" by 5 years, as the measures of the dependent variable are for 1995.

expect a negative relationship between this variable and the level of social policy coverage (i.e., democracies should have more redistributive welfare states; see Adserà & Boix, 2002; Brown & Hunter, 1999).

Finally, a large empirical literature developed by scholars of advanced industrialized democracies suggests that differences in the character of social protection are the result of the "political resources" of labor-based associations (Esping-Andersen & Korpi, 1984, 1985; Korpi, 1983; Shalev, 1983; Stephens, 1979). We expect larger and more redistributive welfare states in economies characterized by strong and well-encompassing trade union associations. When examining the relationship between economic openness and social protection for a set of cases that is broader than OECD economies, most scholars do not include a variable measuring labor strength due to the absence of good unionization measures for most developing countries (Adserà & Boix, 2002; Rodrik, 1997, 1998). I measure union strength by the level of trade union density as computed by R. Artecona and M. Rama in their database of labor market indicators (personal communication).

RESULTS

The basic estimation strategy was to use various specifications of the model in which the variable measuring external risk is interacted with (a) the level of export concentration, (b) the strength of state institutions, and (c) a combination of the former two variables. The two dependent variables of the analysis are the aggregate social policy protection index (which sums up the indices for the four major subsystems of the welfare state—old-age, sickness, disability, and unemployment insurance) and the index measuring the social policy coverage for unemployment insurance alone.[5]

The first three columns in Table 2 report the results for an economic model, which include the various measures of economic openness together

5. Although unemployment insurance is the subsystem of the welfare state that mitigates most directly the economic dislocation resulting from changes in the volatility in the terms of trade, it is not the only subsystem of the welfare state that fulfills this function. Consider the policy responses of advanced industrialized economies to the growing labor market deterioration of recent decades. To avoid massive deficits of unemployment insurance (and also a visible deterioration of unemployment statistics), policy makers in nearly all societies have relaxed the eligibility criteria for old-age or disability insurance. These policy changes, which have opened up avenues for early retirement from the labor market, have shifted and redistributed the costs of economic insecurity across multiple subsystems of the welfare state (Mares, 2003; Scharpf & Schmidt, 2000). The presence of multiple linkages and substitution possibilities among the various subsystems of the welfare state suggests that one can test the predictions of the model using an aggregate measure of social policy protection (and not just unemployment insurance alone).

Table 2
Impact of External Risk on Aggregate Measure of Social Protection (Social Policy Protection Index)

	Model 1	Model 2
Intercept	32.69*** (6.19)	36.16*** (6.42)
Openness		–0.017 (0.024)
External risk	–51.94* (26.20)	–51.76* (26.07)
Export concentration	–16.75 (10.81)	–13.42 (11.55)
External Risk × Export Concentration	97.90* (46.63)	88.25* (48.12)
Economic controls		
Economic development	0.0001 (0.0003)	0.0002 (0.0003)
Dependency ratio	–7.85 (7.30)	–11.48 (7.53)
Geographic controls		
OECD economies	8.27*** (3.06)	5.57*** (3.30)
Sub-Saharan Africa	–3.39 (2.37)	–3.46 (2.32)
Latin America	4.50** (2.07)	3.64* (2.11)
R^2	.50	.53
N	93	92

Note: Regression results; standard errors in parentheses. OECD = Organization for Economic Cooperation and Development.
*$p < .10$. **$p < .05$. ***$p < .01$.

with the economic and geographic controls. Economic openness—measured as the sum of imports and exports as a percentage of GDP—is not statistically significant. On the other hand, the measure of external risk in interaction with the measure of export concentration is significant at conventional levels in all three specifications of the model. These results reinforce Rodrik's (1997, 1998) earlier findings suggesting that external risk, rather than economic openness, is the theoretically relevant measure. Moreover, these findings suggest that external risk in interaction with the export concentration of the economy is a predictor not only of the level of government consumption but also of the level of social policy coverage. In substantive terms, the results of Model 1 can be interpreted as follows. Holding all values at their mean, the predicted level of social policy coverage is 22—which approximately corresponds to the level of social policy protection of Panama or El Salvador. An increase by 1 standard deviation in the level of volatility in the terms of trade and in the volatility interacted by the level of export concentration leads to a predicted level of social coverage of 25.92—approximating the social policy coverage of South Korea or Hungary.

An interesting result in these specifications is that the effect of the two economic control variables—the level of economic development and the old-

age dependency ratio—on the level of social policy coverage is statistically insignificant. This finding is in disagreement with the findings of the "modernization" approach to the development of the welfare state that have found a positive impact of economic variables of GDP per capita on the level of social policy expenditures (Cutright, 1965; Hicks & Swank, 1992; Huber, Ragin, & Stephens, 1993; Wilensky, 1975). The findings are in agreement, however, with Adserà and Boix (2002) and Rodrik (1998), suggesting that modernization variables are poor predictors of the size of the welfare state once the appropriate controls for the level of economic openness are introduced.[6]

The regressions reported in Table 3 examine the robustness of the relationship between external risk and the level of social policy coverage by introducing additional political control variables. Model 3 tests for the impact of political regimes on the magnitude of social protection. Although the variable measuring regime type has the predicted sign, the coefficient is not significant at conventional levels. Model 4 tests for the impact of labor strength on the scope of social insurance coverage by introducing the measure of trade union density. The trade union density variable is statistically significant at the 90% level, confirming, thus, a critical proposition of the power-resource perspective. However, the labor strength variable does not seem to have a large substantive impact. Holding all other variables at their mean, an increase in the level of trade union coverage by 1 standard deviation leads to an increase of 1.5 points on the social protection scale from 27.31 to 28.99.

Models 5 and 6 test another empirical implication of the model, namely, that the impact of the volatility in the terms of trade on the character of social policy coverage is conditional on the efficiency of state institutions. The results support the hypothesis developed in this article suggesting that external risk leads to an expansion in the size of social policy coverage in the presence of states that can enforce existing policies. The interaction term between the variable measuring state capacity and external risk is statistically significant in both Models 5 and 6 (and the fit of the model improves over the economic models reported in Table 2). In Model 6, I introduce a term interacting state capacity, external risk, and the level of export concentration. The vari-

6. In their analysis of public revenue as a percentage of GDP, Adserà and Boix (2002) find that

> except for the weight of the primary sector and the dependency ratio, all other economic and demographic variables related to development—the urbanization rate, the percentage of the labor force in the primary sector and in the manufacturing sector, the percentage of agricultural land and the proportion of the population below 15 and 25—are not statistically significant. (p. 244)

Table 3
The Impact of External Risk and Political Factors on the Level of Social Protection

	Model 3	Model 4	Model 5	Model 6
Intercept	37.26*** (6.54)	32.04*** (7.09)	30.25*** (9.044)	23.61** (9.22)
Openness	0.002 (0.02)	0.004 (0.036)		
External risk	–69.98** (27.05)	–50.34 (31.76)	–132.87*** (41.69)	–64.39** (28.53)
Export concentration	–22.20* (12.55)	–26.65* (15.27)	15.37* (8.81)	–10.55 (13.45)
External Risk × Export Concentration	141.73*** (52.92)	115.69* (64.75)		
External Risk × State Capacity			19.24*** (6.74)	
External Risk × Export Concentration × State Capacity				22.11* (12.12)
Economic controls				
Economic development	0.002 (0.003)	0.0001 (0.0003)	0.0001 (0.0003)	0.0001 (0.0004)
Dependency ratio	–10.50 (7.49)	–4.31 (8.42)	0.570 (8.37)	5.44 (8.59)
Political controls				
Regime	–1.29 (0.52)	–1.35 (2.29)		
Trade union density		0.144** (0.06)	0.105** (0.005)	0.10* (0.05)
State capacity			–2.19* (1.21)	–0.39 (0.92)
Geographic controls				
OECD economies	2.95 (3.71)	1.803 (3.999)	10.15*** (2.78)	9.72*** (2.94)
Sub-Saharan Africa	–3.27 (2.43)	–4.52 (2.93)	–3.69 (3.38)	–4.15 (3.58)
Latin America	3.39 (2.17)	2.25 (2.53)	8.62*** (2.49)	8.85*** (2.65)
R^2	.56	.54	.64	.68
N	87	69	47	47

Note: Regression results; standard errors in parentheses. OECD = Organization for Economic Cooperation and Development.
*$p < .10$. **$p < .05$. ***$p < .01$.

able is statistically significant at the 90% level. In substantive terms, the results reported in Model 6 can be interpreted as follows. An increase by 1 standard deviation in the level of external risk and the level of state capacity contributes to an increase in the predicted social protection score from 26.9 to 30.81 (Korea—to Greece or Portugal).

The results reported in Table 4 test similar models, using the level of unemployment insurance coverage as the dependent variable. Clearly, unemployment insurance is the subsystem of the welfare state that provides the most immediate compensation to the workers dislocated as a result of downturns resulting from changes in the terms of trade. Models 7 and 8 examine whether external risk in interaction with export concentration explain the variation in the level of unemployment insurance coverage. Both models have the same political control variables, regime type and trade union density. The difference between the two models is that Model 8 also controls for the level of unemployment of the economy. The interactive term between external risk and export concentration is significant at conventional levels in both models, supporting the hypothesis advanced in the article that if the export sector is more organized, economies facing larger levels of external risk enact institutions of unemployment insurance characterized by broader levels of coverage. Models 9 and 10 test for the additional hypothesis advanced in the article, namely, that the impact of external insecurity on the development of institutions of social protection depends on the effectiveness of the state institutions. To test for this proposition, Model 9 introduces an interaction term between external risk and the measure of state capacity, whereas Model 10 introduces a "three-way interaction" between external risk export concentration and state capacity. In both models, I control for the level of trade union density that was significant in previous specifications. The results support the hypotheses advanced in this article, as the interaction terms in both models are statistically significant. By contrast, the economic controls—such as the level of economic development and the old-age dependency ratio—have no impact in predicting the variation in the level of unemployment insurance coverage.

To sum up, the empirical analysis provides support for some of the theoretical predictions of the model. The first important conclusion is that the interaction of two variables measuring the exposure of the economy to external forces—the level of external risk and the concentration of exports—is an important predictor of the scope of social insurance. This suggests that institutions of social insurance mitigate some of the risks emanating from the external economy. All things equal, countries facing a higher volatility in the terms of trade and a more concentrated structure of exports are more likely to develop institutions of social insurance characterized by wider coverage and

Table 4
Impact of External Risk and Political Institutions on the Level of Unemployment Protection

	Model 7	Model 8	Model 9	Model 10
Intercept	6.41** (2.91)	10.01** (4.47)	5.34 (4.95)	6.33 (4.83)
External variables				
External risk	–11.92 (13.74)	–51.71* (24.64)	–38.19* (19.63)	–33.70** (14.94)
Export concentration	–12.12** (5.75)	–24.49*** (8.87)		–9.09 (7.04)
External Risk × Export Concentration	47.12* (26.33)	149.81** (55.54)		
External Risk × State Capacity			6.17* (3.60)	
External Risk × Export Concentration × State Capacity				13.44** (6.34)
Economic controls				
Economic development	0.0001 (0.0002)	0.0001 (0.0002)	0.0001 (0.0002)	0.0001 (0.0001)
Dependency ratio	–2.79 (3.47)	–2.67 (5.06)	–0.085 (4.60)	0.059 (4.501)
Unemployment		0.04 (0.08)		
Political controls				
Regime	–0.89 (0.98)	–0.55 (1.43)		
Trade union density	0.08*** (0.02)	0.08*** (0.02)	0.05** (0.02)	0.05* 0.028
State capacity				–0.39 (0.48)
Geographic controls				
OECD economies	–0.68 (1.71)	0.05 (2.13)	2.84* (1.46)	3.36** (1.54)
Sub-Saharan Africa	–0.09 (1.27)	2.33 (2.34)	1.84 (1.84)	1.45 (1.87)
Latin America	0.15 (1.07)	1.40 (1.44)	4.13*** (1.36)	4.35*** (1.38)
R^2	.52	.48	.57	.59
N	69	50	47	47

Note: Regression results; standard errors in parentheses. OECD = Organization for Economic Cooperation and Development.
*$p < .10$. **$p < .05$. ***$p < .01$.

a greater reallocation of costs across occupations. Once we control for the volatility in the terms of trade, the level of economic openness has no effect on the character of institutions of social protection. The second important conclusion of the analysis is that impact of external risk on the type of institutions of social protection is conditional on the presence of strong state institutions. This finding provides an important qualification to earlier econometric analyses that focus on the relationship between more open or more volatile economies and larger public sectors, without including the appropriate political control variables. The implication of the analysis developed in this article is that in many developing countries that lack the institutional infrastructure to enforce existing legislation, an increase in the external risk will not automatically lead to the introduction of more redistributive social policies. On this point, this article departs from existing studies examining the relationship between external openness and domestic compensation, which have a strong functionalist bent and presume an automatic emergence of social insurance in response to increases in economic risk.

CONCLUSION

This article develops and tests a political model that accounts for the strong empirical correlation between high levels of external insecurity (measured as high volatility in the terms of trade) and more redistributive welfare states. The main theoretical implication advanced by the model is that the introduction or expansion of a social policy in response to increases in the volatility in the terms of trade is a deeply divisive political process in which workers in the high-risk sector support the introduction of redistributive social insurance, whereas workers in the low-risk sector oppose the expansion of these policies. The political strategies of these groups are also influenced by the character of existing state institutions. This article argues that in the presence of an "inefficient" state, the high-risk sector might find state-administered social policies unattractive. Conversely, if the low-risk sector is politically more influential, we should see social policies characterized by narrow coverage and low levels of redistribution of costs across occupations.

In an effort to test this model, I have assembled a new data set measuring cross-national variation in the character of social insurance institutions in a broad cross-section of countries. In contrast to previous studies exploring the relationship between economic openness and social protection (which rely on expenditure- or revenue-based measures alone), this study develops new

measures of the scope and character of social insurance coverage. The findings of the statistical analysis suggest that external risk in interaction with the level of export concentration of the economy plays an important role in explaining cross-national variation in the level of social insurance coverage. A second important result is that the impact of external openness on the nature of social protection is conditional on the strength of existing state institutions and on the ability of governments to enforce existing laws. Qualitative analyses of social policy reforms in less developed countries provide additional evidence supporting the findings of this article: In countries in which governments are unable to enforce existing laws, unions in the high-risk sectors often find redistributive social policies unattractive and, thus, oppose policy proposals aimed at the expansion of social insurance coverage (see Weyland, 1996).

Existing studies of the relationship between economic openness and social protection share a tacit optimism that higher levels of trade liberalization will bring about an expansion of the scope of the activity of governments in both developed and developing countries alike.[7] In contrast, this article suggests that in many less developed countries characterized by weak and ineffective states, an increase in the level of external risk will not necessarily culminate with the expansion of social insurance coverage, despite the increased demand for social insurance of workers in the exposed sectors. Economic models of the relationship between trade liberalization and social protection pay insufficient attention to the insurmountable political difficulties faced by many less developed countries in their efforts to expand the levels of social insurance coverage and overpredict the resulting level of social compensation in response to external dislocation (Rodrik, 1997, 1998). Given these obstacles to far-reaching social policy reforms faced by many less developed countries, redistributive welfare states might remain the luxury of a few countries around the world for many decades to come.

7. See, for example, Rodrik's (1998) concluding remarks:

> Openness exerts the strongest influence on government consumption in economies that are subject to the greatest amounts of external risk. Governments appear to have sought to mitigate the exposure to risk by increasing the share of domestic output they consume. . . . International trade has expanded significantly during the postwar period. Despite some reversals since the 1980s, so has the scope of government activity in most countries of the world. The findings presented in this paper suggest that this was perhaps no coincidence. (pp. 1028-1029)

APPENDIX A
The Derivation of Comparative Statics Results

In this model, workers in the high-risk sector decide whether to support or oppose the introduction of a new social policy. Their income, if no social policy is introduced, is

$$I_{NO.SI} = \pi\lambda, \tag{A1}$$

just the pretax income from employment. In contrast, the income of the high-risk group, if a social policy is introduced, is

$$I_{SI} = \pi\lambda(1-\tau) + \rho\tau(\pi\lambda + a_l w_l(1-\lambda)\frac{\lambda(1-a_h)}{\lambda(1-a_h)+(1-\lambda)(1-a_l)}. \tag{A2}$$

Recall the assumption that π is a random variable, which implies that the equilibrium level of employment in the risky sector $a_h^* = a_h^*(\pi)$ is also a random variable. In contrast, λ, τ, ρ, a_l, and w_l are known (deterministic variables). Let $u(\bullet)$ denote the utility function of workers in the risky sector. I make the standard microeconomic assumptions that $u(\bullet)$ is increasing and concave, $(u' > 0, u'' < 0)$. To establish whether employees in the high-risk sector will favor the introduction of a social policy, we need to compare the expected utilities derived by the group in two cases in which a social policy is present or absent. In other words, we need to compare the two expected utilities $E[u(I_{NO.SI})]$ and $E[u(I_{SI})]$, respectively.

Comparative statics results do not change if we assume full employment in the sheltered sector, (i.e., $a_l = 1$). With this additional simplifying assumption, Equation A2, denoting the income received by workers in the sheltered sector if a social policy is introduced, becomes,

$$I_{SI} = \pi\lambda(1-\tau) + \rho\tau(\pi\lambda + w_l(1-\lambda).$$

To examine the impact of ρ, the parameter modeling state efficiency on the expected utility derived by the high-risk group from the provision of social insurance benefits, let us consider first the limit case in which $\rho = 0$. In this case I_{SI}, the income received by the high-risk group if a social policy is in place, reduces to $\pi\lambda(1-\tau)$. In this limit case, the high-risk group pays taxes, but none of the income is returned to the group as social policy benefits! In

contrast, $I_{NO.SI} = \pi\lambda$. Because $\pi\lambda(1-\tau) < \pi\lambda$, it follows that in this limit case, a high-risk group will oppose the introduction of a social policy. Consider the opposite case in which $\rho = 1$. In this case,

$$I_{SI} = \pi\lambda(1-\tau) + \tau\pi\lambda + \tau w_l(1-\lambda) > \pi\lambda.$$

It follows that if $\rho = 1$, $E[u(I_{SI})] > E[u(I_{NO.SI})]$.

$\frac{\partial I_{SI}}{\partial \rho} = \pi\lambda + w_l(1-\lambda)) > 0$. Because u is an increasing function, $\frac{\partial}{\partial \rho} u(I_{SI}) > 0$ implies that $\frac{\partial}{\partial \rho} E[u(I_{SI})] > 0$ and increasing in ρ.

Thus for $\rho = 0$, $E[u(I_{SI})] < E[u(I_{NO.SI})]$. $E[u(I_{SI})]$ is increasing in ρ. For $\rho = 1$, the sign of the inequality is reversed: $E[u(I_{SI})] > E[u(I_{NO.SI})]$. It follows that a "switching point" ρ^* exists, such that if $\rho \geq \rho^*$, the high-risk group will favor the introduction of social insurance. However, if $\rho \leq \rho^*$, the high-risk group will oppose the introduction of a new social policy.

I next examine the impact of σ, the volatility of the price level on the demand for social insurance of the high-risk sector. Recall the assumption that π is normally distributed, with mean μ and standard deviation σ. Normalizing π, we obtain

$$\frac{\pi - \mu}{\sigma}.$$

Taking a second-order Taylor approximation around $\mu\lambda$ to $u(\pi\lambda)$ (the utility derived by the high-risk group if no social policy is in place) and taking expectations, we obtain

$$E[u(I_{SI})] \cong u(\mu\lambda) + \frac{1}{2} u''(\mu\lambda)\sigma^2\lambda^2.$$

In contrast, the second-order Taylor approximation around $\mu\lambda$ of the utility of the high-risk group in the presence of a social policy is

$$E[u(I_{SI})] = E[u(\pi\lambda(1-\tau+\rho\tau) + \rho\tau w_\lambda(1-\lambda)] \cong u(\mu\lambda(1-\tau+\rho\tau) + \rho\tau w_l(1-\lambda))$$
$$+ \frac{1}{2} u''(1-\tau+\rho\tau) + \rho\tau w_l(1-\lambda))\sigma^2\lambda^2(1-\tau+\rho\tau)^2.$$

To show that an increase in the volatility of prices σ leads to an increase in demand for social insurance, we need to show that $E[u(I_{SI})] - E[u(I_{NO.SI})]$ is increasing in σ. The first-order condition of this expression with respect to σ^2 is

$$\frac{\partial}{\partial \sigma^2} E[u(I_{SI}) - u(I_{NO.SI})] =$$

$$\lambda^2(1-\tau+\rho\tau)^2 u''(\mu\lambda(1-\tau+\rho\tau)+\rho\tau w_l(1-\lambda)) - \lambda^2 u''(\mu\lambda).$$

A sufficient condition for this expression to be positive is the additional assumption of "prudence" (i.e., $u''' > 0$) (see Rodrik, 1998, p. 1013, for a similar assumption).

APPENDIX B
The Social Policy Coverage Index

The coverage index is constructed by coding social policy legislation in 130 countries. I code the four major pillars of social insurance: (a) old-age insurance, (b) sickness insurance, (c) disability (work-injury) insurance, and (d) unemployment insurance, based on the Social Security Administration (1998).

The index measures both the scope of social policy coverage and the degree of redistribution of a social policy (i.e., the deviation from actual "actuarial criteria" in the calculation of social policy benefits). Thus assume we have two social policies with the same coverage: in one policy contribution, rates are linked to the actual incidence of a risk; in the second case, the level of insurance contributions are determined without taking into account the incidence of a risk facing the particular occupation. Thus in the case of the second policy, the insurance rates are not based on actuarial criteria. My coding of the different policies distinguishes among these cases. I assign a higher score to the second policy, given that the vertical redistribution (redistribution of costs across occupations) is higher for this policy.

In coding the social insurance coverage of various contributory insurance policies, I examine whether the following "occupational groups" have access to social policy benefits: (a) agricultural workers, (b) the self-employed, and (c) small firms. The social policy protection score decreases by 1 if one of these occupational groups is excluded.

I assign values from 0 to 10 to all existing social policies, based on the following criteria:

10—Universalistic social policies. All residents of a country are automatically entitled to social policy benefits.

9—Compulsory contributory insurance. Policy covers all employed persons and **no** major occupational group is excluded from coverage. There is a **state subsidy** in the financing of the policy. There is no risk-based differentiation in the determination of the policy benefits (there can be income-based differentiation).

8.5—Same as 9, but **no state subsidy** in the financing of the policy.

8—Compulsory contributory insurance. Policy covers all employed persons and **one** important occupational group (self-employed, agriculture, etc.) is excluded. There is a **state subsidy** in the financing of the policy. There is no risk-based differentiation in the determination of the policy benefits.

7.5—Same as 8, but no state subsidy.

7—Compulsory social insurance. Policy covers all employed persons, but **two or more** occupational groups are excluded. There is a **state subsidy** in the financing of the policy. There is no risk-based differentiation in the determination of the policy benefits.

6.5—Same as 7 but no state subsidy.

6—Contributory social insurance. Policy covers employed persons, with two or more occupational groups excluded from coverage. There is **risk-based differentiation** in the determination of the policy benefits.

5.5—Same as 6 with no state subsidy.

5—**Private social policy**, covering at least 50% of the economically active population. No state subsidies.

4—Provident fund with or without guaranteed return.

3—Employer liability.

2—Means-tested social assistance.

1—Purely voluntary private insurance. (Possible tax incentives.) Or special system only for one narrow occupational category.

0—No social policy.

Note: Sometimes, policy is a dual system between universalistic/compulsory insurance or employer liability/compulsory insurance. In this case, social policy score averages the two indices. In the coding of systems of sickness insurance, I code only provision of cash benefits and medical care. I leave out any information about maternity benefits (should be coded separately). Thus policy is coded as 0 if only maternity benefits are offered. The index does not code information about second-tier occupational pensions.

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