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**WHAT MAKES REFORMS LIKELY:  
POLITICAL ECONOMY DETERMINANTS  
OF REFORMS IN LATIN AMERICA**

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The purpose of this paper is to test the main hypotheses of the recent theoretical literature on the political economy of reform for the case of the Latin American countries between 1985 and 1995. The paper first reviews the literature and extracts the main testable hypotheses. Then, a system of indices that measure the extent of reform in five policy areas is presented. These indices are used as the dependent variables in panel regressions where the main explanatory variables are indicators of crisis, political variables and indicators of channels of contagion. We find very strong support for the well-known hypothesis that crises make reform viable and also for the (less theoretically sound) hypotheses that reforms are more likely at the beginning of government periods. None of the hypotheses on the role of political and distributional variables, the importance of compensation schemes or contagion, finds support in our results. Rather disappointingly, however, most of the reforms seem to have responded to a process of convergence.

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**I. Introduction**

From the mid-1980s to the mid-1990s Latin America experienced a

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profound economic revolution as import restrictions were lifted, financial markets liberalized and numerous state enterprises privatized. The economic effects of these types of structural reforms are widely thought to be positive, and a growing body of empirical literature for Latin America gives support to that belief (see, in particular, Fernández-Arias and Montiel, 1997; Easterly, Loayza and Montiel, 1997; and Lora and Barrera, 1997).

The wave of structural reforms in Latin America and elsewhere has also stimulated the development of a wide body of theoretical literature on the political economy of reform, i.e., the study of the political constraints that condition the timing, speed and sequencing of reforms. The leitmotif of this literature is the recognition that what is efficient in economic terms may not be politically viable, and that less than optimal policies may be maintained or adopted not as a result of shortsightedness or ignorance, but due to some form of political constraint (two useful surveys are Rodrik, 1996, and Tommasi and Velasco, 1996).

This literature has consisted mainly of case studies and theoretical models that defy systematic empirical testing. The main reason for this is the difficulty of defining, let alone measuring, the progress of structural reform.<sup>1</sup> The purpose of this paper is to test some of the hypotheses associated with these theoretical models, using a set of structural reform indicators recently compiled by Lora (1997) for about 20 Latin American countries for the period 1985-1995. The rest of this paper is organized as follows. Section II identifies the main hypotheses that can be subjected to empirical scrutiny; section III organizes these hypotheses under several headings; section IV describes the data and sources; section V discusses the econometric results, and section VI offers the somewhat disappointing conclusion that, although we find very strong support for some of the theoretical hypotheses, much of the wave of recent reforms in Latin America cannot be explained without either better theories or better data. The result of the paper, therefore, is to show the chasm between the richness and sophistication of the theories, on the one hand, and the paucity of the data and empirical analyses, on the other.

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<sup>1</sup> In contrast, a vast empirical literature has developed around the political economy of *macroeconomic* reform, especially in developed countries. For a review see Alesina (1994).

## II. What Makes Reform Likely

A vast number of models have been developed to explain what makes reforms likely and what determines their timing, speed and sequence. This paper concentrates largely on the first of these issues, although all are closely related. The purpose of this section is not to provide a survey of the theories of the political economy of reform, but only to identify those theories that lend themselves to empirical testing.<sup>2</sup>

The issue of timing arises because policies that are known to be grossly inefficient, such as trade restrictions or highly distortive tax systems, are kept in place for long periods in most countries, while more efficient policies are resisted. Explanations based on some form of irrationality (such as ignorance, shortsightedness or ideology) do not explain why reforms take place at a certain time and not before or after (although irrationality may be part of the story, as we will see below). The main building block of the theories that have been put forward to explain the timing of reforms is the distributional conflicts that are often aroused by (the prospect of) reform. The outcome of these conflicts is influenced by, among other factors: (a) exogenous changes (crisis), (b) the mix of policy changes proposed to the conflicting parties (compensation), (c) how uncertainty evolves as experience accumulates (contagion), and (d) the order in which the reforms will be implemented (sequencing).

### A. Distribution of Costs and Benefits

The seminal work on this issue is Alesina and Drazen (1991), who have hypothesized that the more unequal the distribution of the costs of reform, and the more polarized the society is, the longer it takes to be adopted (see also Alesina, 1994). Their argument, which was originally developed to explain why stabilizations are delayed, is that the political conflict among heterogeneous groups over how the burden of the stabilization will be allocated leads to rational delays. In this situation, one of the groups concedes only

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<sup>2</sup> Excellent surveys are Rodrik (1996) and Tommasi and Velasco (1996). A compact summary of the latter is provided in IDB (1997), Part 2, Boxes 1.1 to 1.3.

when it realizes that the cost of waiting exceeds that of the reform. For this war of attrition to take place, information must be distributed asymmetrically (each group must know with certainty only its own costs), and stabilization costs must be distributed unequally.

Alesina and Drazen's model suggests that, other things being equal, reforms are adopted later in countries with more political fragmentation, where small groups can use their veto power to block reform legislation. Fragmented party systems are usually considered to be a hurdle for reforms, or at least an important factor in shaping them. "Fragmentation makes coalition rule more likely, increases the difficulty of making compromises and contributes to the instability of governments—all factors that can affect government policy" (Haggard and Webb, 1994; see also Roubini and Sachs, 1989).

The war of attrition model also implies that reforms that are delayed are those for which the costs have to be allocated in the political debate (typically tax reforms), and reforms that imply changes of entitlements (labor, social security), and even privatizations. Reforms not subject to delay, on the other hand, are those for which the distributional effects are less dependent on the political debate (typically financial reform or, arguably, trade liberalization). Note that the existing income distribution, or the distributional effects of the reforms, is not the relevant issue. What is relevant is the conflict over the distribution of the burden.

Rodrik (1994) has taken a different approach to explain the role of distributional conflict in the timing of reforms. In his view, the political cost of a reform is associated with the amount of income redistributed among different groups, while the benefit comes from the efficiency gains it produces. The ratio between costs and benefits reflects the degree of political inefficiency of the reform. Trade reform is politically inefficient because large amounts of income need to be reshuffled among different groups in the economy to obtain a modest efficiency gain (he suggests a ratio of around 5 to 1). Thus, trade liberalization tends to be pursued gradually, unless tied to other reforms that entail substantial efficiency gains and reduce the political cost-benefit ratio, as we will discuss below.

In democratic societies, uncertainty about the distribution of costs at the individual level may also be an obstacle to reforms that would benefit a majority of the population. In the absence of uncertainty the majority would

vote in favor of the reform and it would be adopted. But if the identity of some of the losers were undefined, eventual winners would vote against it just to be safe, thereby blocking its adoption (Fernández and Rodrik, 1991).

The implication that can be drawn from all of these theories, as we discuss below, is that reforms occur during periods of crisis and are facilitated by certain compensation schemes.

### **B. Crisis**

As Drazen and Grilli (1993) have demonstrated, the war of attrition models can be extended to show that exogenous shocks that aggravate economic conditions increase the cost of not adopting reforms and thus prompt a solution to the war. It follows from this type of model that the particular characteristics of each crisis may facilitate some reforms more than others. For instance, trade liberalization tends to occur during periods of severe collapse of domestic demand, which disproportionately affects the import substituting industries that usually oppose liberalization. Similarly, liberalization of the domestic financial market is facilitated by outbursts of inflation that undermine subsidized credit systems and may reduce the inflation tax revenue partly captured by the banks.

From the discussion of Rodrik's (1994) political cost-benefit ratio, it follows that a specific reform that is unpalatable by itself may be politically acceptable if packaged with other reforms that have lower cost-benefit ratios. Macroeconomic stabilization is such a reform: "Unlike trade liberalization, it holds the promise of generating benefits that will be shared by all.... Moreover, the deeper the crisis, the larger the overall net benefits from recovery" (Rodrik, 1994, p. 80). Thus trade and other structural reforms should be expected to occur in periods of crisis, bundled with macroeconomic reforms.

### **C. Compensation Schemes**

It also follows from the previous theories that to make reform politically feasible in a democratic setting, it is often necessary to devise compensation schemes to ensure that a majority is better off (or at least no worse off). However, the successful compensation schemes typically are not those that include direct

compensation for losing groups, but rather those that include complementary policies to offset the costs associated with reform and have other benefits (Haggard and Webb, 1994, chapter 1). The reason for this is that direct compensation schemes, in the presence of individual uncertainty, may not be credible, since those who fear being hurt know that if reform is passed, a majority will favor its continuation with or without compensation (Fernández and Rodrik, 1991). In the case of trade reform, such an indirect complementary policy may be an exchange rate devaluation, which protects the import-competing sector from external competition and enhances export competitiveness (Rodrik, 1994). Table 1 presents other cases of indirect complementary policies that benefit the potential losers in each area of reform and may be desirable for other reasons, in particular on economic efficiency grounds. The table also includes a tentative list of the macroeconomic circumstances that may weaken the opposition to reform, prompting a solution to the war of attrition.

#### **D. Contagion**

A number of models have been put forward to explore the role of uncertainty in the timing of reforms. As we shall see, most of them may be extended into theories of contagion. As already mentioned, Fernández and Rodrik (1991) have shown that uncertainty about which individuals will lose as a result of reform produces a bias toward maintaining an inefficient status quo and against reform that would benefit the majority.

Milesi-Ferretti (1991) shows that reform may also be delayed if the government is uncertain about its own competence to pursue it at low cost. If the reform is implemented and the government is discovered to be incompetent, the public may choose to elect the opposition. On the other hand, if the government does not attempt the reform, nothing is learned about its incompetence. As Alesina (1994) points out, "This model is particularly relevant for cases in which a policy reform is relatively new." Both the Fernández and Rodrik and the Milesi-Ferretti models clearly suggest that previous experiences may facilitate reform by reducing individuals' uncertainty about the distribution of benefits and costs and government's uncertainty about its ability to implement a certain reform. A more direct treatment of the role of the learning process in the timing of reforms is provided by Perktold and

**Table 1. Major Opponents to Reform and Possible Indirect Compensation**

|                           | Major opponents   | Debilitating factors                        | Possible compensation  |
|---------------------------|---|---|--|
| Trade reform              | Import-competing firms (and their workers)                                | Domestic demand recession                   | Devaluation; trade agreements                                      |
| Domestic financial reform | Big firms, targeted credit users and large (especially state-owned) banks | High inflation; reduced inflation tax       | Reduce marginal income tax rates; better access to external credit |
| Tax reform                | Medium to large firms, middle-class workers                               | Recession; fall in real wages; unemployment | Better access to credit and imported goods                         |
| Privatization             | Workers of state-owned firms  | Fiscal deficits; falling wages              | Access to ownership and credit                                     |
| Labor reform              | Wage earners  | Fall in real wages; unemployment            | Better access to social security; freedom to unionize              |

Tommasi (1994), cited by Tommasi and Velasco (1996). In their view, the choice of economic policies is the result of how much Bayesian learning has taken place about the correct model of the world. Bad policies can remain in place for some time, but there is a gradual and cumulative spillover effect from the policy choices and outcomes of other countries. “The experience of many reforming countries (assuming a modicum of success) will hopefully be imitated by others before having to themselves experience a crisis” (Tommasi and Velasco, 1995, p. 18).

### **E. Sequencing<sup>3</sup>**

The early literature on the sequencing of reforms, which was of a normative nature, concentrated on the order of liberalization of the trade and capital accounts, with some extensions to financial liberalization. In the recent literature on the political economy of reform, the question of order is notoriously absent. What is discussed is the degree of bundling or unbundling of a (loosely defined) set of reforms. If the reforms are complementary, unbundling is a more likely result on political economy grounds. As formally developed by Dewatripont and Roland (1995), the reason is that, at each stage in the process, people are more willing to accept less popular reforms so as not to lose the gains from previous reforms. For this proposition to be testable it is necessary to prove that the reforms are complementary, in the sense that each additional reform increases the payoff of those already undertaken. A related argument developed by Wei (1992) shows that unbundling is a divide-and-conquer strategy: a package of reforms that would have been rejected by majority voting may gain approval if submitted piecemeal, because a growing constituency may develop in those (also growing) sectors favored by the previous reforms. On the other side of the debate, Martinelli and Tommasi (1997) argue that in societies with powerful interest groups, unbundling is time inconsistent: winners of early reforms, who are hurt by later reforms, would have an incentive to derail the process. Knowing that, losers from early reforms will oppose the earlier measures. Only a complete bundling may cut through this Gordian knot. As suggested by Tommasi and Velasco (1996), these models imply a testable proposition: bundling is more likely to occur in countries with deeply ingrained distributive conflicts and powerful interest groups, while unbundling is more likely in countries where the majority rule applies.

### **F. Other Factors**

As we have seen, the theoretical literature on the political economy of reform sheds light on a number of (observable) factors that may influence the

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<sup>3</sup> This subsection draws on IDB (1997), Part 2, Box 1.2.

timing and mix of reforms. Rather surprisingly, however, that literature offers little explanation of the apparent importance of some factors (and facts) that seem to the average citizen to be the simplest reasons for reform: changes of government, international influences (apart from contagion) and capacity of the state. Based on case studies, Haggard and Webb (1994, p. 8) have pointed out that the window of opportunity that opens during periods of crisis can be better exploited by newly elected governments, which “typically enjoy a period in which the costs of adjustment can be traded against political gains” (see also Haggard and Webb, 1993). They have also found that international factors influence the reform process through a number of channels, such as the prospect of trade concessions and agreements, conditionality and ideas (which stem from external advisers, technocrats trained abroad, etc.). We may add to this list of foreign influences the availability of external finance. Haggard and Webb (1993, p. 151), drawing on Callaghy (1989), also point out that “the prospects for policy reform also depend on characteristics of the state itself, particularly the discipline and competence of the bureaucracy.” Although most of these hypotheses are in need of a structured theoretical foundation, we find them worth testing.

### **III. Hypotheses**

We can now summarize the main testable hypotheses that stem from the theoretical literature (and the main authors associated with them) under five headings:

- The role of crisis: (a) crisis accelerates reform (Alesina and Drazen, 1991; Drazen and Grilli, 1993); (b) the characteristics of the crisis affect the composition of reform; in particular, growth deceleration may facilitate trade and tax reforms, high inflation may lead to financial reform, fiscal deficits to tax reform and privatization (Alesina and Drazen, 1991; Drazen and Grilli, 1993).<sup>4</sup>
- Political variables: (a) reform is adopted later in countries with more

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<sup>4</sup> An additional testable hypothesis is that increasing unemployment facilitates tax reforms, privatization and labor reforms. However, it will not be tested here due to lack of comparable indicators of unemployment for a sufficient number of countries.

political fragmentation (Alesina and Drazen, 1991); (b) reforms for which the distributional effects are more subject to political debate (tax, labor and pension reforms as opposed to financial or trade reforms) are adopted later (Alesina and Drazen, 1991); (c) reform is more likely at the beginning of new government periods (Haggard and Webb, 1994); (d) reform is more likely in countries with more efficient state apparatus (Callaghy, 1989).

- Compensation: (a) devaluation facilitates the adoption of trade reform (Rodrik, 1994); (b) trade reform is facilitated by the prospect of trade concessions (Haggard and Webb, 1994); (c) reforms with higher cost-benefit political ratios (trade) tend to be bundled with others with lower ratios (stabilization and maybe financial) (Rodrik, 1994); (d) bundling is likely if one reform offers (indirect) compensation to the losers of other reforms (Fernández and Rodrik, 1991; Haggard and Webb, 1994). In particular, financial reform may be bundled with tax reform and the latter with trade reform (see Table 1).

- Contagion and other external factors: (a) international contagion accelerates reform (Perktold and Tommasi, 1994); (b) external financing facilitates reform.<sup>5</sup>

- Bundling: (a) if reforms are complementary (a hypothesis in itself), they are likely to be unbundled (Dewatripont and Roland, 1995); (b) structural reform is expected to be bundled with stabilization (Rodrik, 1994); (c) bundling is more likely to occur in countries with deeply ingrained distributive conflicts and powerful interest groups, while unbundling is more likely in countries where majority rule applies (Martinelli and Tommasi, 1997; Tommasi and Velasco, 1996).

#### IV. Data

We now describe the data that make these hypotheses testable. A complete list of data sources (including those of the usual economic variables) is presented in the Appendix (Table A.1.).

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<sup>5</sup> Better access to external financing is also a compensation device in the case of domestic financial liberalization.

### A. Structural Reform

The first step in testing our hypotheses is to define and measure structural reform. In Lora (1997), we proposed an index of structural policies that seeks to reflect the degree of neutrality of economic policies in five areas: (i) trade policy, (ii) tax policy, (iii) financial policy, (iv) privatization, and (v) labor legislation. In each area, several policy variables are considered (see Table 2). Each policy variable is rescaled so that the worst observation for the entire

**Table 2. Components of Total Structural Policy Index**

| Policy variable  | Indicators  |
|------------------|---|
| Trade policy     | The two indicators used in this area are: (i) average tariffs (including surcharges) and (ii) tariff dispersion. For lack of information, the index does not consider, as would be desirable, the restrictions placed on international trade through permits and quotas.  |
| Tax policy       | This area combines the following policy indicators: (i) maximum marginal income tax rate on corporations, (ii) maximum marginal income tax rate on individuals, (iii) basic value-added tax rate, and, for countries on which information is available, (iv) productivity of value-added tax (defined as the ratio between the basic rate and actual collection expressed as a percentage of GDP). We have chosen the maximum instead of the average marginal tax rates because the former are those that influence labor and investment decisions. We take into account the productivity rate of the VAT because that indicates how far the real indirect taxation system deviates from the principle of neutrality among economic activities. |
| Financial policy | This area combines four indicators: (i) freedom of interest rates on deposits (on a discrete scale going from 0 to 2), (ii) freedom of interest rates on loans (idem), (iii) real level   |

**Table 2. (Continued) Components of Total Structural Policy Index**

| Policy variable   | Indicators   |
|-------------------|--|
|                   | of reserves of bank deposits, and (iv) quality of banking and finance oversight (on a discrete and subjective scale, from 0 to 2).   |
| Privatization     | In this area the only indicator used is the effort at privatization measured as the sums accumulated from privatization since 1988, including sales and other property transfers, as a proportion of average public investment between 1985 and 1987. We take the cumulative privatization and not the flow, because we are interested in measuring how great is the field opened to private enterprise, just as, for example in the tariff areas it is the levels that are taken, not the changes. The ideal measure would be the percentage of a country's physical assets that are owned and operated by the private sector, but that information is not available. Hence we take privatizations in relation to public investment in previous years, since presumably this variable is related to the capital stock held by the public sector when the process began. |
| Labor legislation | In this area the flexibility of legislation is considered in five respects, each of which is qualified with objective criteria on a discrete 0 to 2 scale: (i) hiring, (ii) costs of dismissal after one year of work, (iii) costs of dismissal after ten years of work, (iv) overtime pay, and (v) social security contributions.   |

panel sample (for countries and year periods) takes the value of 0 and the best takes the value of 1. An index is then constructed for each of the five areas (as a simple average of the relevant policy variables). Finally, a total index is obtained as the simple average of the indices of the five areas.

The index attempts to capture the neutrality of policies under the assumption that the primary objective of structural reform in Latin America has been to improve efficiency and not to redistribute income, protect vulnerable groups or raise public revenues, to name just a few alternative policy objectives. For an average of 19 Latin American countries, the total index shows steady improvement, from 0.35 in 1985 to 0.60 ten years later. The most outstanding advances have been in the areas of trade and financial reform (the corresponding indices approach average values of 0.9 and 0.8, respectively). Progress has been much more limited in other areas. The index of tax policy rose only from 0.40 to 0.58, despite many tax reforms in most countries. The average index of privatization reached an average level of only 0.26, with very large differences among countries. Finally, the index of labor legislation remained practically unchanged at around 0.6. Although all the countries in our sample show increases in their total policy indices, the time and pace of the reforms vary significantly from country to country.

Table 3 contains information by country on the initial and final values of the indices for the period 1985-95 and some macroeconomic outcomes before and after the period of main reform in each country.<sup>6</sup> Bolivia and Peru have the highest policy indices in 1995, and Venezuela and Costa Rica the lowest. The deepest reformers (i.e., those with the biggest changes in the policy indices) are Peru, Nicaragua, Bolivia and Argentina. The median country shows an improvement of 1.3% in its rate of GDP growth in the three-year post-reform period, a reduction of roughly 9 points in the inflation rate and a fiscal improvement of nearly 2% of GDP.

## B. Indicators of Crisis

Growth crisis indicators used in the index are: (i) the gap between real income per capita at the beginning of the period and its previous maximum level (since 1970), and (ii) growth in the years of recession (i.e., the negative observations of that variable). The correlation of our two growth crisis indicators is weak (-0.29, using all observations). Inflation crisis indicators

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<sup>6</sup> For purposes of this table, the period of main reform is defined as the two-year period when the largest change in the total policy index took place.

**Table 3. Structural Reforms and Macroeconomic Performance**

| Countries      | Total structural index |       | Years of major reform | Fiscal deficit (% of GDP) |             | GDP growth (%) |             | Inflation (%) |             |
|----------------|------------------------|-------|-----------------------|---------------------------|-------------|----------------|-------------|---------------|-------------|
|                | 1985                   | 1995  |                       | Pre-reform                | Post-reform | Pre-reform     | Post-reform | Pre-reform    | Post-reform |
| Argentina      | 0.367                  | 0.679 | 1988-90               | -1.56                     | -0.39       | -1.84          | 7.86        | 1,186.09      | 69.06       |
| Bolivia        | 0.343                  | 0.721 | 1993-95               | -2.43                     |             | 3.51           |             | 9.50          |             |
| Brazil         | 0.348                  | 0.584 | 1987-89               | -13.53                    | -3.40       | 3.65           | -1.66       | 349.44        | 1,462.41    |
| Chile          | 0.489                  | 0.628 | 1984-86               | -2.29                     | 0.68        | 1.98           | 7.93        | 30.70         | 17.20       |
| Colombia       | 0.443                  | 0.590 | 1990-92               | 1.53                      | -0.50       | 3.22           | 5.39        | 28.46         | 22.48       |
| Costa Rica     | 0.309                  | 0.512 | 1986-88               | -2.88                     | -2.20       | 3.68           | 3.82        | 14.58         | 21.42       |
| Dominican Rep. | 0.361                  | 0.638 | 1989-91               | 0.22                      | 0.87        | 0.37           | 5.12        | 49.76         | 6.03        |
| Ecuador        | 0.325                  | 0.580 | 1990-92               | 1.73                      | 0.37        | 2.77           | 2.91        | 57.62         | 31.74       |
| El Salvador    | 0.386                  | 0.671 | 1988-90               | -0.85                     | -2.59       | 1.79           | 6.16        | 20.75         | 14.74       |
| Guatemala      | 0.309                  | 0.596 | 1989-91               | -1.92                     | -0.78       | 3.65           | 4.25        | 21.15         | 10.91       |
| Honduras       | 0.402                  | 0.548 | 1990-92               | -2.00                     | 0.70        | 2.56           | 2.80        | 22.39         | 20.65       |
| Jamaica        | 0.426                  | 0.684 | 1985-87               | -2.87                     | -0.07       | -1.50          | 5.05        | 20.39         | 14.85       |

**Table 3. (Continued) Structural Reforms and Macroeconomic Performance**

| Countries                | Total structural index |       | Years of major reform | Fiscal deficit (% of GDP) |             | GDP growth (%) |             | Inflation (%) |             |
|--------------------------|------------------------|-------|-----------------------|---------------------------|-------------|----------------|-------------|---------------|-------------|
|                          | 1985                   | 1995  |                       | Pre-reform                | Post-reform | Pre-reform     | Post-reform | Pre-reform    | Post-reform |
| Mexico                   | 0.328                  | 0.563 | 1989-91               | -5.86                     | 0.37        | 3.03           | 2.63        | 53.61         | 10.72       |
| Nicaragua                | 0.216                  | 0.643 | 1991-93               | -40.70                    | -2.72       | 0.08           | 3.76        | 3,415.91      | 9.39        |
| Paraguay                 | 0.336                  | 0.625 | 1988-90               | 1.02                      | 0.60        | 5.50           | 2.79        | 23.61         | 19.22       |
| Peru                     | 0.232                  | 0.712 | 1989-91               | -4.38                     | 0.05        | -8.47          | 6.02        | 3,837.52      | 48.62       |
| Trinidad & Tobago        | 0.425                  | 0.715 | 1988-90               | -5.14                     | -1.40       | -3.12          | -0.13       | 9.95          | 7.01        |
| Uruguay                  | 0.486                  | 0.577 | 1991-93               | 0.63                      | -2.11       | 3.99           | 2.16        | 94.32         | 43.50       |
| Venezuela                | 0.304                  | 0.457 | 1987-89               | -3.78                     | 0.54        | 5.67           | 7.56        | 23.05         | 35.43       |
| Average <sup>a</sup>     | 0.360                  | 0.617 | 1988-91 <sup>b</sup>  | -4.59                     | -0.66       | 1.50           | 4.14        | 514.41        | 103.63      |
| Median <sup>a</sup>      | 0.348                  | 0.625 |                       | -2.14                     | -0.23       | 2.66           | 4.04        | 29.58         | 19.94       |
| Stand. dev. <sup>a</sup> | 0.072                  | 0.069 |                       | 9.41                      | 1.35        | 3.38           | 2.52        | 1,134.89      | 329.94      |

Notes: <sup>a</sup> Does not include Bolivia for macroeconomic performance variables; <sup>b</sup> During these years, 8 countries undertook their major reforms.

are: (i) the log of inflation when it is higher than 30%, (ii) the inflation tax (defined as  $\log(1+\pi) * M1/GDP$ , where  $\pi$  is average inflation, from monthly data) and (iii) the volatility of inflation (measured as the standard deviation in each year of the monthly variations in the CPI). The correlation of our first and third inflation crisis indicators is strong (0.80). The inflation tax is less correlated with the other two indicators (0.42 and 0.36, respectively). Fiscal crisis is defined as the consolidated public sector balance for those years when there are deficits larger than 3% of GDP.

### C. Political Variables

The next step toward applying the hypotheses concerns the definition of political and distributional variables. We use two alternative measures of political fragmentation. One is the effective number of parties in the lower (or single) house of the Congress (weighted by the number of representatives in that house); the other is governing party representation, i.e., the percentage of legislative seats held by the head of government's party in the Congress (the former come from IDB 1997, Part 3; the latter from Inter-Parliamentary Union 1985 to 1996). Electoral years (also from IPU 1985) are used to define presidential term years. The only pair strongly correlated is political fragmentation and governing party representation (-0.61).

As a proxy of the intensity of distributional conflicts we use two alternative indicators: (i) the Gini coefficient of income distribution by households (Londoño and Székely, 1997, based largely on Deininger and Squire, 1996), and (ii) the change in the previous five-year period of the former indicator. We are aware that none of the variables considered is a satisfactory indicator of the concepts used in the theoretical literature.

### D. Contagion

Although contagion usually refers to short-term effects and is tested on high frequency data, here we use the term to assess how other countries' policies influence the timing and speed of reforms on an annual basis. We use two alternative explanatory variables. One is the difference between each country's policy index and the (simple) average policy index of the region.

The other is the same difference, but computed with respect to a weighted average of the policy indices of the other countries, where the weights are each country's share of bilateral trade in total trade with the other Latin American countries (from unpublished IDB data). It is implied that we are considering contagion only at a regional level.<sup>7</sup>

### E. Bundling

For any given period, unbundling reaches a maximum when reform takes place only in one area, and a minimum when it takes place in all areas in equal amounts. A function that behaves in that way (within a range between 0 and 1)<sup>8</sup> is  $\left| \frac{Std(\Delta I_i)}{2 * avg(\Delta I)} \right|$ ,

i.e., the absolute value of the ratio between the standard deviation of the changes of the individual indices of reform by area and twice the average of those changes. To extend this measure of unbundling to a multi-period sample, we obtain a weighted average of this function over the (t) periods of observation, where the weights are the amounts of total reform in each period t:  $w_t = \frac{\Delta I_t}{\sum_t \Delta I_t}$ . Thus, our index of unbundling becomes  $\frac{1}{2} \sum_t [w_t * \left| \frac{std(\Delta I_{it})}{avg(\Delta I_{it})} \right|]$ .

We compute two versions of this index, one including the five areas of reform for the whole sample period (1985-95), a second including the five areas but restricting the periods to the two-year periods of maximum reform in each country. Figure 1 shows the results for both versions.<sup>9</sup> With the first version, the degree of unbundling of the reforms undertaken between 1985 and 1995 goes from 0.5 in Argentina, Peru and Colombia, to between 0.8 and 0.9 in Paraguay, El Salvador, Uruguay and Bolivia. With the second version, which refers only to the two-year period of maximum reform, the degree of

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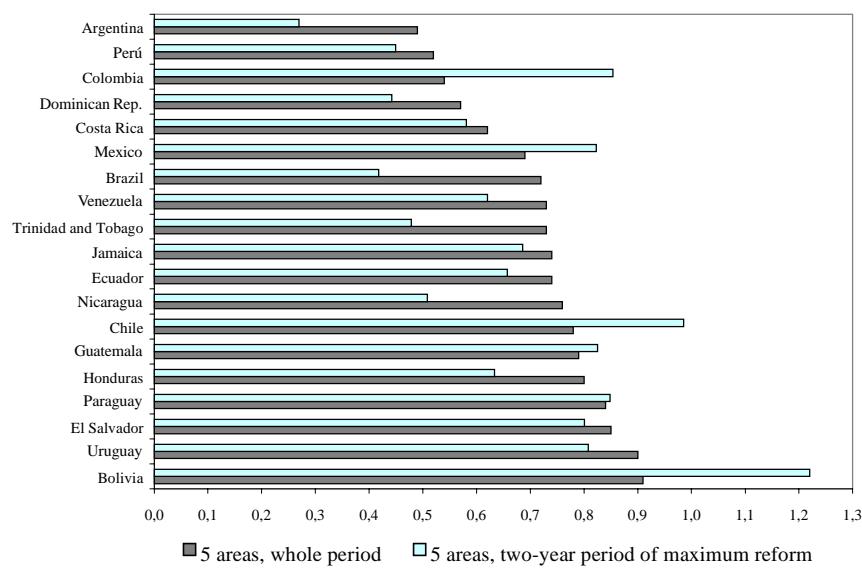
<sup>7</sup> We report only regressions that use the second measure, but results are similar with the first.

<sup>8</sup> Provided there are no reform reversals. Indices greater than 1 may obtain when policy changes in different areas take place in opposite directions.

<sup>9</sup> The coefficients of correlation of the two measures is 0.19. There is a third measure of bundling for the whole sample period, but excluding privatizations and labor legislation,

unbundling goes from a minimum of 0.27 in the case of Argentina (1988-90) to values above 0.8 in the cases of Mexico (1989-91), Colombia (1990-92), Chile (1984-86) and Bolivia (1993-95).<sup>10</sup>

**Figure 1. Degree of Unbundling of the Structural Reforms between 1985 and 1995**



## F. Trade Agreements

The only additional variable that is not self-explanatory is trade agreements, which has been computed in the following way: in the year when a trade agreement between country *i* and country *j* is signed, the variable for country *i* takes the value of the ratio between total trade of country *i* with country *j* and total external trade of country *i*. Trade agreement years were taken from *Latin Trade*, June 1997, and trade values from IDB, unpublished data.

which we do not report here (it has correlations of 0.70 and 0.64 with the two measures shown in Figure 1).

<sup>10</sup> In the case of Bolivia the index of unbundling takes a value higher than 1, since policy improvements were concentrated in one area (privatizations), while there was slippage in another area (tax reform).

## V. Econometric Results

A summary of regression results appears in Tables 4 through 7. The estimations are panel regressions for 19 countries and a sample period from 1985 to 1995. In general, we use annual data. However, since the original data used for the construction of the trade index referred only to the years 1986, 1988, 1990, 1992, 1994 and 1995, the regressions for trade reform are restricted to these periods (henceforth bi-annual sample period). Since the trade index is part of the total index, we have run the regressions for the latter with both the annual and the bi-annual period samples. In all regressions the dependent variable is the absolute change in the corresponding structural policy index (thus losing the first observation for each country). The independent variables include the lagged level of the structural policy index, which is required by the fact that the indices are bounded variables (with values between 0 and 1). The corresponding coefficient (which, in most instances, will have a negative sign) can be interpreted as the speed of (conditional) convergence of structural policy among countries.

The method of estimation chosen in most regressions is fixed effects. In some of the regressions, we prefer to report the FE estimations even though the individual effects do not seem to be correlated to the explanatory variables (see the Hausman tests reported at the bottom of Tables 4, 6 and 7). In those cases, according to the Hausman test results, we might gain some efficiency without losing consistency running RE estimations. However, we prefer to report the FE estimations, because the Hausman test has relatively low power in our regressions due to the few degrees of freedom. In other regressions, we used the random effects methodology because some of the explanatory variables are time invariant for each country (e.g., state efficiency) or show most of their variation across countries (e.g., the number of effective parties or the variable governing party representation) rather than across time. Finally, time heterogeneity is also included in the estimation.

### A. Crisis

Consistently, Table 4 shows that crisis appears as a significant explanatory variable of total structural reform and its components. For the total index, the

**Table 4. Crisis as Determinants of Reforms**

| Variables                                    | All reforms           |                       | Trade                 | Financial             | Tax                   | Privatization      | Labor                |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|--------------------|----------------------|
|  | Annual                | Bi-annual             | Bi-annual             | Annual                | Annual                | Annual             | Annual               |
| Lagged policy index<br>(in level)            | -0.473<br>(-5.78) *** | -0.609<br>(-4.19) *** | -0.500<br>(-4.16) *** | -0.479<br>(-6.29) *** | -0.390<br>(-5.59) *** | -0.107<br>(-1.64)  | -0.135<br>(-2.58) ** |
| Income per-capita gap<br>(maximum-observed)  | 0.323<br>(3.84) ***   | 0.466<br>(2.60) ***   | 0.559<br>(2.15) **    | 0.239<br>(1.07)       | 0.002<br>(0.03)       | 0.367<br>(2.57) ** | 0.112<br>(2.28) **   |
| GDP growth (in recession)                    | 0.222<br>(1.20)       | 0.812<br>(1.95)*      | -0.790<br>(-1.11)     | 0.767<br>(1.31)       | 0.491<br>(2.33) **    | 0.455<br>(1.44)    | 0.123<br>(1.21)      |
| Inflation (higher than 30%,<br>only), lagged |                       |                       |                       |                       | 0,020<br>(3.10) **    |                    |                      |
| Inflation tax                                | -0.001<br>(-0.39)     | 0.013<br>(1.80)       | 0.020<br>(1.67)*      | -0.01<br>(1.47)       | -0.009<br>(-3.17) *** | 0<br>(-0.09)       | 0<br>(-0.30)         |
| Volatility of inflation,<br>lagged           | 0.123<br>(1.60)       | 0.261<br>(1.64)       | 0.203<br>(0.80)       | 0.372<br>(1.47)       |                       | -0.058<br>(-0.43)  | 0.262<br>(5.67) ***  |
| Fiscal Deficit<br>(higher than 3%, only)     | -0.001<br>(-0.02)     | 0.147<br>(2.47) **    | 0.044<br>(0.47)       | -0.153<br>(-1.19)     | -0.014<br>(-0.08)     | 0.069<br>(1.00)    | 0.019<br>(0.88)      |

**Table 4. (Continued) Crisis as Determinants of Reforms**

| Variables              | All reforms |           | Trade<br>Bi-annual | Financial<br>Annual | Tax<br>Annual | Privatization<br>Annual | Labor<br>Annual |
|------------------------|-------------|-----------|--------------------|---------------------|---------------|-------------------------|-----------------|
|                        | Annual      | Bi-annual |                    |                     |               |                         |                 |
| Hausman test $\chi^2$  | 0.86        | 0.52      | 0.07               | 7.13                | 1.15          | 2.67                    | 4.31            |
| Probability $> \chi^2$ | 1           | 1         | 1                  | 0.90                | 1             | 0.99                    | 0.99            |
| Method of estimation   | FE          | FE        | FE                 | FE                  | FE            | FE                      | FE              |
| R <sup>2</sup>         | 0.386       | 0.601     | 0.639              | 0.362               | 0.408         | 0.285                   | 0.411           |
| Number of observations | 149         | 74        | 74                 | 158                 | 154           | 158                     | 158             |

Notes: t statistics in parentheses. \* Significant at the 10% level. \*\* Significant at the 5% level. \*\*\* Significant at the 1% level. FE = Fixed effects. Country and time dummies are included in each regression but not reported. More detailed regressions, with the effect of individual explanatory variables, as well as that of alternative definitions of the crisis indicators, are available from the authors. Annual regressions are for the 1985-1995 period, while bi-annual regressions are for 1986, 1988, 1990, 1992, 1994 and 1995.

**Table 5. Influence of Political Variables on Reforms**

| Variables                                    | All reforms          |                      | Trade                | Financial            | Tax                  | Privatization      | Labor             |
|--|----------------------|----------------------|----------------------|----------------------|----------------------|--------------------|-------------------|
|  | Anual                | Bi-annual            | Bi-annual            | Annual               | Annual               | Annual             | Annual            |
| Lagged policy index<br>(in level)            | -0.175<br>(-3.32)*** | -0.295<br>(-2.75)*** | -0.456<br>(-5.42)*** | -0.234<br>(-4.01)*** | -0.207<br>(-4.44)*** | 0.092<br>(2.68)*** | 0.017<br>(1.27)   |
| Constant                                     | 0.096<br>(2.71)***   | 0.151<br>(2.62)***   | -0.072<br>(-0.36)    | 0.157<br>(2.11)**    | 0.095<br>(3.05)***   | -0.011<br>(-0.46)  | -0.006<br>(-0.45) |
| Income per-capita gap<br>(maximum observed)  | 0.053<br>(1.80)*     | 0.088<br>(1.52)      | 0.781<br>(1.94)**    |                      |                      | 0.101<br>(3.05)*** | 0.004<br>(0.24)   |
| Inflation (higher than<br>30%, only), lagged |                      |                      |                      |                      | 0.006<br>(0.99)      |                    |                   |
| Inflation tax                                |                      |                      |                      | -0.006<br>(-1.23)    | -0.005<br>(-2.05)**  |                    |                   |
| Volatility of inflation,<br>lagged           |                      |                      |                      |                      |                      | 0.266<br>(6.86)*** |                   |
| Fiscal deficit (higher than 3%,<br>only)     | 0.093<br>(1.70)*     |                      |                      |                      |                      |                    |                   |
| Effective number of<br>parties               | -0.001<br>(-0.62)    | -0.002<br>(-0.35)    | -0.002<br>(-0.25)    |                      | 0.001<br>(0.34)      | -0.002<br>(-0.57)  |                   |

**Table 5. (Continued) Influence of Political Variables on Reforms**

| Variables                        | All reforms     |                 | Trade           | Financial         | Tax              | Privatization    | Labor             |
|----------------------------------|-----------------|-----------------|-----------------|-------------------|------------------|------------------|-------------------|
|                                  | Anual           | Bi-annual       | Bi-annual       | Annual            | Annual           | Annual           | Annual            |
| Governing party representation   |                 |                 |                 | -0.127<br>(-1.58) |                  |                  | -0.017<br>(-1.23) |
| Second year of presidential term | 0.016<br>(1.20) | 0.014<br>(0.52) | 0.048<br>(1.11) | 0.054<br>(1.39)   | 0.027<br>(1.90)* | 0<br>(0.03)      | 0.004<br>(0.78)   |
| State efficiency                 | 0.033<br>(1.12) | 0.038<br>(0.71) | 0.046<br>(0.53) | 0.105<br>(1.08)   | 0.003<br>(0.11)  | 0.041<br>(1.79)* | 0.007<br>(0.58)   |
| Method of estimation             | RE              | RE              | RE              | RE                | RE               | RE               | RE                |
| R <sup>2</sup>                   | 0.233           | 0.486           | 0.550           | 0.151             | 0.321            | 0.285            | 0.329             |
| Number of observations           | 121             | 53              | 62              | 120               | 116              | 150              | 150               |

Notes: t statistics in parentheses. \* Significant at the 10% level. \*\* Significant at the 5% level. \*\*\* Significant at the 1% level. RE = Random effects. More detailed regressions, with the effect of individual explanatory variables, as well as that of alternative definitions of the political variables, are available from the authors. Annual regressions are for the 1985-1995 period, while bi-annual regressions are for 1986,1988,1990,1992,1994 and 1995.

**Table 6. Influence of External Conditions on Reforms**

| Variables                                    | All reforms           |                       | Trade                 | Financial             | Tax                   | Privatization       | Labor           |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------------------|-----------------|
|  | Annual                | Bi-annual             | Bi-annual             | Annual                | Annual                | Annual              | Annual          |
| Lagged policy index<br>(in level)            | -0.501<br>(-6.14) *** | -0.539<br>(-3.72) *** | -0.536<br>(-4.84) *** | -0.455<br>(-6.94) *** | -0.309<br>(-4.80) *** | -0.063<br>(-1.53)   | 0.004<br>(0.29) |
| Income per-capita gap<br>(maximum observed)  | 0.307<br>(3.84) ***   | 0.383<br>(2.21) **    | 0.582<br>(2.44) **    |                       |                       | 0.136<br>(2.33) **  | 0.022<br>(1.07) |
| Inflation (higher than 30%,<br>only), lagged |                       |                       |                       |                       | 0.007<br>(1.21)       |                     |                 |
| Inflation tax                                |                       |                       |                       | -0.011<br>(-1.92) *   | 0.007<br>(1.08)       |                     |                 |
| Volatility of inflation,<br>lagged           |                       |                       |                       |                       |                       | 0.236<br>(7.84) *** |                 |
| Fiscal deficit (higher than 3%,<br>only)     |                       | 0.099<br>(1.76) *     |                       |                       |                       |                     |                 |
| Contagion                                    | -0.470<br>(-1.45)     | 0.063<br>(0.10)       | 0.376<br>(0.75)       | -0.660<br>(-2.29) **  | -0.117<br>(-0.66)     | 0.129<br>(1.13)     | 0.055<br>(1.33) |
| Capital flows to<br>Latin America            | 5,637<br>(1.07)       | 2,677<br>(0.66)       | -1,15<br>(-0.14)      | 13,714<br>(0.96)      | -1,38<br>(-0.26)      | 2,345<br>(2.08) **  |                 |

**Table 6. (Continued) Influence of External Conditions on Reforms**

| Variables                           | All reforms     |                   | Trade             | Financial       | Tax             | Privatization      | Labor  |
|-------------------------------------|-----------------|-------------------|-------------------|-----------------|-----------------|--------------------|--------|
|                                     | Annual          | Bi-annual         | Bi-annual         | Annual          | Annual          | Annual             | Annual |
| Capital flows by country,<br>lagged | 0,062<br>(0.68) | -0,142<br>(-0.78) | -0,217<br>(-0.87) | 0,316<br>(1.23) | 0,027<br>(0.22) | 0,161<br>(2.35) ** |        |
| Financial index (change)            |                 |                   | 0,120<br>(1.78) * |                 |                 |                    |        |
| Terms of trade change (%)           |                 |                   | 0,334<br>(0.57)   |                 |                 |                    |        |
| Hausman test $\chi^2$               | 0.92            | 0.36              | 5.99              | 0.25            | 0.37            | 6.61               | 1.77   |
| Probability $> \chi^2$              | 1               | 0.99              | 0.81              | 1               | 1               | 0.88               | 0.99   |
| Method of estimation                | FE              | FE                | FE                | FE              | FE              | FE                 | FE     |
| R <sup>2</sup>                      | 0.359           | 0.511             | 0.581             | 0.361           | 0.262           | 0.254              | 0.318  |
| Number of obs.                      | 140             | 68                | 70                | 179             | 169             | 254                | 260    |

Notes: t statistics in parentheses. \* Significant at the 10% level. \*\* Significant at the 5% level. \*\*\* Significant at the 1% level. FE = Fixed effects. Country dummies are included in each regression but not reported. Time dummies are also included except when the variable “capital flows to Latin America” is included. More detailed regressions, with the effect of individual explanatory variables are available from the authors. Annual regressions are for the 1985-1995 period, while bi-annual regressions are for 1986,1988,1990,1992,1994 and 1995.

**Table 7. Influence of Compensation Schemes on Reforms**

| Variables  | Trade<br>Bi-annual    | Financial<br>Annual   | Tax<br>Annual         |
|--|-----------------------|-----------------------|-----------------------|
| Lagged policy index (in level)                         | -0.647<br>(-7.48) *** | -0.527<br>(-7.37) *** | -0.342<br>(-5.34) *** |
| Income per-capita gap<br>(maximum observed)            | 0.766<br>(3.21) ***   |                       |                       |
| Inflation (higher than 30%,<br>only), lagged           |                       |                       | 0.008<br>(1.48)       |
| Inflation tax  |                       | -0.013<br>(-1.74)*    | -0.006<br>(-2.56) **  |
| Real devaluation<br>(positive values)                  | -0.405<br>(-2.73) *** |                       |                       |
| Trade pacts  | -0.079<br>(-0.38)     |                       |                       |
| Stabilization (reduction<br>of inflation, lagged, log) | -0.005<br>(-0.10)     |                       |                       |
| Trade index (level)                                    |                       |                       | 0.053<br>(1.28)       |
| Trade index (change)                                   |                       | 0.119<br>(0.82)       |                       |
| Tax index (change)                                     |                       | -0.123<br>(-0.58)     |                       |
| Hausman test $\chi^2$                                  | 2.02                  | 1.58                  | 2.84                  |
| Probability $> \chi^2$                                 | 0.99                  | 0.99                  | 0.99                  |
| Method of estimation                                   | FE                    | FE                    | FE                    |
| R <sup>2</sup>   | 0.682                 | 0.370                 | 0.350                 |
| Number of observations                                 | 91                    | 164                   | 168                   |

Notes: t statistics in parentheses. \* Significant at the 10% level. \*\* Significant at the 5% level. \*\*\* Significant at the 1% level. FE = Fixed effects. Country and time dummies are included in each regression but not reported. More detailed regressions, with the effect of individual explanatory variables are available from the authors. Annual regressions are for the 1985-1995 period, while bi-annual regressions are for 1986, 1988, 1990, 1992, 1994 and 1995.

best measure of crisis is the gap in income per capita (with respect to its previous peak). The coefficient, which is robust to the inclusion of all other explanatory variables, indicates that a gap of 10 percent in income per capita leads to an annual increase in the total index of 0.032 (or a bi-annual increase of 0.046). Although highly significant in statistical terms, this is a very small effect indeed (remember that the average increase in the total index between 1985 and 1995 was 0.25). Additionally, large fiscal deficits sustained for more than one year (in percent of GDP) also trigger the reforms: the variable is significant for the bi-annual estimation. For trade reform the best measure of crisis is also the gap in income per capita (with respect to its previous peak). The effect is larger than for the total reform index: a gap of 10% in income leads to a bi-annual increase in the trade index of around 0.06. Additionally, the income gap also explains privatization and labor reforms, with estimated effects of around 0.04 for the former and 0.01 for the latter.

Inflation crisis indicators have explanatory power for tax and labor reforms. Financial reforms are associated with the inflation tax in a negative way: the lower the inflation tax, the larger the changes in the reform index. Tax reforms seem to be part of the aftermath of inflationary periods. When inflation is higher than 30% there is a greater chance of improving tax policies: inflation of 100% is associated with an (annual) improvement of 0.02 points of the tax index. Although this is a very small effect, the level of inflation is not the only reason why inflationary periods are good for tax reforms. Inflation tax revenues are also associated with tax reforms. Labor reforms are also explained by inflation-type indicators of crisis: the higher the volatility of inflation, the more likely labor reform will be achieved.

In synthesis, trade, privatization and labor reforms are clearly associated with the income gap, while tax and labor reforms are associated with inflation indicators of crisis. In the total index, which combines the five types of reforms, the effect that prevails is that of income (and, to a lesser extent, growth).<sup>11</sup>

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<sup>11</sup> An alternative approach would be to create a composite index that summarizes all the dimensions of crisis, using principal components methodology or another type of tools (see, for instance, Lubotsky and Wittenberg, 2003). However, given the theoretical background, in this paper we intended to identify how different types of crisis can affect each area of reform.

The causality tests reported in the Appendix (Table A.2) show that, although causality runs both ways, the causality from alternative measures of growth and income to reform is much stronger than causality from reform to these same variables (obviously, with opposite signs, since falls in income cause increases in the policy index, while these increases accelerate income). There is also a similar two-way causality between inflation and reform, but not between fiscal deficits and reform.

### **B. Political Variables**

The timing and composition of reforms do not appear to be strongly influenced by the political variables highlighted in the theoretical literature (see Table 5). Neither the number of effective parties, nor governing party representation, which are measures of political fragmentation, has explanatory power in the regressions.<sup>12</sup> Although less discussed in the literature, changes of government may be more important than the previous political variables: for tax reform, the index increases three percentage points in the second year of a presidential term.<sup>13</sup> Finally, there is some support for the claims that more efficient state apparatus eases the reform in the case of privatizations.

### **C. Contagion and Capital Flows**

Although these two channels of influence are strongly correlated, our estimates give some support to the hypothesis that capital flows to Latin America (as opposed to country-specific capital flows) have been an engine

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<sup>12</sup> The only exception occurs for the labor market index, when the individual effect of these variables is considered: a lower number of effective parties eases the reform, as theoretically expected; on the other hand, lower governing party representation facilitates the reform, contradicting the theoretical prediction. Note that given that these two variables are measures of fragmentation and are highly correlated, in the regression that include all the political variables the number of effective parties and the seats of government's party were not included together. Just the one with higher explanatory power by itself was used.

<sup>13</sup> Although not reported in the tables, first, and third years of presidential terms were also used as independent variables with similar results.

for privatization, even after controlling for other type of missing time effects. Our estimates in Table 6 give some support to the hypothesis that capital flows to Latin America and country-specific capital flows (both of which are strongly correlated) have been an engine for privatization, even after controlling for other type of missing time effects. An increase of capital flows by 1% of the region's GDP appears to be associated with an improvement of around 2% in the privatization index of each country. Interestingly, (lagged) country-specific capital flows do not show a significant influence on reforms, except in the case of privatizations. The causality tests reported in the Appendix suggest, however, that when an appropriate number of lags are considered, the reforms have caused capital flows to the region (although, surprisingly, not to the individual countries).

#### **D. Compensation**

The evidence in Table 7 on the importance of compensating the opponents of reform is somewhat mixed. If anything, real devaluations retard rather than facilitate trade reforms. The prospect of trade pacts does not have any significant influence on the timing of trade reforms, nor do tax or trade reforms have any influence on financial reforms.

#### **E. Exogenous Changes**

The convergence term (lagged policy index) in Table 4 through 7 is highly significant (except for some cases of the privatization and labor indices) and presents large coefficients in some instances (especially in the regressions for the total and the trade and financial indices).

Although extremely scanty, this evidence favors the hypothesis according to which those areas of reform where the distributional conflicts are more subject to political debate are adopted later. In a more robust way, however, it also implies that, after controlling for the main factors suggested by theory, a large proportion of the changes observed in the structural policies are either trends towards convergence, or simply country-specific unexplained variations

(captured by the fixed effects). The low R-squared values of the regressions point in the same direction. Only in the case of trade reforms do we get R-squared values around 0.6; in the rest of the fixed effect estimations they are usually below 0.4 in spite of the inclusion of both year and country dummies. In other words, although we do find evidence to support some of the hypotheses put forward by the theoretical literature on the political economy of reform, only a small fraction of the timing and speed of the reforms undertaken in Latin America in the last decade is explained by them.

#### **F. Bundling**

The regressions that attempt to explain the degree of bundling of reforms are reported in Table 8. Unlike the previous regressions, these are cross-section regressions, as the time dimension of the reforms is embedded in the alternative measures of bundling. We have been unable to find any evidence in support of the hypotheses that either the distributional conflicts or the political variables influence the degree of bundling of the reforms. In the regressions that use the second version of unbundling, i.e., those for the two-year period of maximum reform, the initial level of the total policy index is consistently significant, while the rest of explanatory variables are not.<sup>14</sup> This suggests that the degree of bundling (during a relatively short period) is influenced not so much by political or distributional variables as by the status of the structural policies. Thus, the conclusions of the previous paragraph apply equally well to the question of bundling. We must stress, however, that our indicators of distributional conflict are extremely rudimentary and do not do justice to the theoretical models, and that the degrees of freedom in this last set of regressions are rather small.

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<sup>14</sup> The initial level of the policy index is not significant in the definition of bundling which take the whole ten-year period.

**Table 8. Bundling in Cross Section of Countries**

| Variables                      | Full period     |                    |                     |                    | Change in two years of maximum reform |                    |                    |                   |
|--------------------------------|-----------------|--------------------|---------------------|--------------------|---------------------------------------|--------------------|--------------------|-------------------|
| Constant                       | 0.365<br>(0.54) | 0.75<br>(7.06) *** | 0.914<br>(4.34) *** | 0.62<br>(4.35) *** | -0.464<br>(-0.89)                     | -0.0493<br>(-0.10) | -0.213<br>(-0.58)  | -0.341<br>(-0.86) |
| Initial index of reform        |                 |                    |                     |                    | 2.017<br>(3.29) ***                   | 1.392<br>(1.56)    | 1.785<br>(2.73) ** | 1.81<br>(2.73) ** |
| GINI85                         | 0.008<br>(0.60) |                    |                     |                    | 0.002<br>(0.27)                       |                    |                    |                   |
| Change in GINI 1985-1989       |                 | -0.014<br>(-0.52)  |                     |                    |                                       | -0.001<br>(-0.07)  |                    |                   |
| Governing party representation |                 |                    | -0.304<br>(-0.72)   |                    |                                       |                    | -0.142<br>(-0.44)  |                   |
| Effective number of parties    |                 |                    |                     | 0.045<br>(1.14)    |                                       |                    |                    | 0.014<br>(0.44)   |
| Method of estimation           | OLS             | OLS                | OLS                 | OLS                | OLS                                   | OLS                | OLS                | OLS               |
| R <sup>2</sup>                 | -0.05           | -0.07              | -0.02               | 0.01               | 0.42                                  | 0.04               | 0.23               | 0.23              |
| Number of observations         | 13              | 11                 | 19                  | 19                 | 13                                    | 11                 | 19                 | 19                |

Notes: t statistics in parentheses. \* Significant at the 10% level. \*\* Significant at the 5% level. \*\*\* Significant at the 1% level.

## VI. Conclusion

The theories on the political economy of reform have put forward an array of hypotheses that are, at least partially, subject to empirical scrutiny. We have found very strong support for the well-known hypothesis that crises make reform viable. More specifically, we have found that crises that are characterized by falls in real incomes and by negative rates of growth facilitate the adoption of trade reforms (and maybe labor reforms), while inflationary crises tend to be associated with financial reforms. Nothing can be said on the influence of fiscal crises, or on the type of crises that could prompt the adoption of tax reforms or the advance of privatization programs.

We have also found support for the (less theoretically sound) hypothesis that reforms (especially fiscal ones) are more likely at the beginning of government periods. None of the other hypotheses on the role of political and distributional variables, the importance of compensation schemes or contagion, finds support in our results. At most, there is some evidence suggesting that tax reforms are more likely in countries with open trade regimes and, perhaps, that reforms where the distributional costs are subject to political debate tend to be adopted later. But, rather disappointingly, most of the important reforms that have turned around the structural policies of Latin America seem to have responded to a process of convergence.

## Appendix

**Table A.1. Data Sources**

| Variable         | Source   |
|------------------|--|
| Bundling indices | Computed with indices of structural policy (Lora, 1997), using definitions in text.  |
| Capital flows    | Data from the Economic and Social Data Base (ESDB) of the IDB, based on IMF.   |
| Contagion        | Computed using definition in text, with structural policy indices (Lora, 1997) and trade values furnished by IDB (unpublished data). |
| Effective number | Defined as $1/\sum S_j^2$ , where $S_j$ is the proportion of   |

**Table A.1. (Continued) Data Sources**

| Variable                       | Source   |
|--------------------------------|--|
| of parties                     | representatives that party $j$ has in the lower/single house, taken from IDB (1997), Part 3.   |
| Fiscal deficits                | ESDB, based on IMF and national data. See IBD (1997), Part 4.  |
| GDP growth                     | ESDB, based on national data.  |
| Gini coefficients              | Londoño and Székely (1997), based largely on Deininger and Squire (1996).  |
| Governing party representation | The percentage of legislative seats held by the head of government's party in the lower/single house, computed with data from IPU (1985 to 1996).                  |
| Index of structural policies   | Lora (1997), reported also in IDB (1997), Part 2.  |
| Inflation                      | Defined as $\text{Log}(1+\pi)$ , where $\pi$ is average inflation (from monthly data) based on ESDB.   |
| Inflation tax                  | Defined as $\text{Log}(1+\pi) * M1/GDP$ , where $\pi$ is average inflation (from monthly data) and $M1/GDP$ is the standard liquidity ratio computed by ESDB.      |
| Per capita income gap          | Log difference between real income per capita of the previous year and the highest value of this same variable observed between 1970 and that year. Based on ESDB. |
| Real devaluation               | Change in the real exchange rate index computed by ESDB (1990 = 100) using a trade-weighted basket of currencies for each country.                                 |
| State efficiency               | Simple average of indices, on a scale from 0 to 1, which measure corruption, bureaucratic procedures and efficiency of the judiciary, taken from Mauro (1995).     |
| Terms of trade change          | Change in indices of terms of trade (1990 = 100) by ESDB, based mainly on ECLAC.   |
| Trade pacts                    | The pacts and their years of subscription come from Latin Trade, June 1997.  |
| Volatility of inflation        | Average of variance of monthly inflation rates, computed from IMF electronic database.   |

**Table A.2. Granger Causality Test between Macrovariables and Structural Reforms (2 Lags)**

|  | Macrovariables to reform |             | Reform to macrovariables |             |
|--|--------------------------|-------------|--------------------------|-------------|
|  | Coefficient              | Sign. level | Coefficient              | Sign. level |
| GDP Growth   |                          |             |                          |             |
| and level of index                                   | -0.33971                 | 0.11%       | 0.06730                  | 2.42%       |
| and change of index                                  | -0.37979                 | 0.07%       | 0.11822                  | 54.42%      |
| GDP gap with respect to long term trend <sup>1</sup> |                          |             |                          |             |
| and level of index                                   | 0.60917                  | 0.07%       | -0.05150                 | 0.13%       |
| and change of index                                  | 0.77387                  | 0.01%       | -0.02582                 | 72.31%      |
| Income per-cap. gap <sup>2</sup>                     |                          |             |                          |             |
| and level of index                                   | 0.04945                  | 0.22%       | -0.03317                 | 24.41%      |
| and change of index                                  | 0.05254                  | 0.21%       | 0.05911                  | 79.38%      |
| Inflation (log)                                      |                          |             |                          |             |
| and level of index                                   | 0.01104                  | 3.95%       | -1.11025                 | 0.46%       |
| and change of index                                  | 0.01780                  | 0.07%       | -2.74820                 | 18.82%      |
| Inflation <sup>3</sup>                               |                          |             |                          |             |
| and level of index                                   | 0.01048                  | 4.20%       | -1.11134                 | 0.84%       |
| and change of index                                  | 0.01681                  | 0.08%       | -2.89183                 | 18.48%      |
| Fiscal deficit                                       |                          |             |                          |             |
| and level of index                                   | 0.00237                  | 78.23%      | 0.01464                  | 54.42%      |
| and change of index                                  | -0.15101                 | 49.39%      | -0.00971                 | 85.90%      |
| Fiscal deficit <sup>4</sup>                          |                          |             |                          |             |
| and level of index                                   | -0.04368                 | 74.17%      | 0.02123                  | 38.80%      |
| and change of index                                  | -0.20076                 | 25.92%      | 0.05450                  | 58.52%      |
| Capital flows to Latin America                       |                          |             |                          |             |
| and level of index                                   | 0.06055                  | 46.31%      | 0.03759                  | 0.08%       |
| and change of index                                  | -0.39250                 | 7.32%       | 0.03690                  | 45.96%      |
| Capital flows to country                             |                          |             |                          |             |
| and level of index                                   | -0.01042                 | 8.11%       | -0.03594                 | 32.54%      |
| and change of index                                  | -0.05668                 | 3.34%       | 0.08777                  | 38.01%      |

Notes: <sup>1</sup> Trend-observed when positive. <sup>2</sup> Maximum-observed. <sup>3</sup> Higher than 30%. <sup>4</sup> Higher than 3%

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