Crises, What Crises?
New Evidence on the Relative Roles of
Political and Economic Crises in Begetting Reforms*

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Abstract: Crises beget reforms is a powerful hypothesis. But, which type of crises – economic or political - are the most important drivers of such structural reforms? To seek an answer to this question, we put forward measures of labor market and trade liberalization as well as of these two types of crises for a panel of about 100 developed and developing countries between 1960 and 2000. Our findings reveal significant differences in the effects of the two types of crises on these reforms across regions over time. Rather consistently, we find that political crises are more important determinants of structural reform than economic crises. This finding is robust to the inclusion of interdependencies between the types of crises, feedbacks between the types of reform, the use of a large number of alternative measures of crises, and whether or not data are pooled across regions.

Keywords: labor market reform, trade liberalisation, economic reform, economic crisis, political crisis

1. Introduction

In the last two decades or so, massive changes in economic policy orientation have been implemented around the world, key elements of which are privatization, trade liberalization and labor market reforms. Usually such changes have been initiated in the interest of either efficiency or equity, but only rarely for both at the same time. Since efficiency-increasing reforms often raise concerns about equity, and do not come with built-in compensation mechanisms, clearly these reforms have to be understood in a political economy context. This is especially true since recent experience has suggested (to some at least) that the efficiency benefits of these structural reforms may have been smaller and more concentrated than initially thought. Not surprisingly, therefore, success in implementing these reforms has varied greatly across space and time. In some countries, reforms have been rapid and comprehensive but in others extremely slow, partial or even non-existent. The aim of this paper is to provide a relatively comprehensive assessment across a large number of countries of both the extent of these reforms and their main determinants.

Although the literature on political economy of reform is large, prominent and fast-growing, it remains largely theoretical. Indeed, two recent book-length authoritative reviews (Drazen, 2000, and Persson and Tabellini, 2000) and an important review article (Acemoglu, Johnson and Robinson, 2006) show that the empirical evidence on such reforms is still scanty. Although one would have expected research to quickly provide the necessary empirical evidence on determinants of reform in developing countries, to date arguably the most comprehensive studies of this type (e.g., International Monetary Fund, 2003) are limited to reforms in industrial countries.

Seminal theoretical papers on the determinants of reform by Drazen and Grilli (1993) demonstrated a potentially beneficial role of crises for reforms.[1] Tommasi and Velasco clearly indicate how influential these results have been: "That economic crises seem either to facilitate

1

or outright cause economic reforms is part of the new conventional wisdom on reform" (1996 p. 197). The intuition is that a crisis increases the cost of waiting for an agreement (or inversely decreases implementation delays of any such agreement) among the different social groups on the distribution of the costs of reform.[2]

Given the aforementioned trade-offs between efficiency and equity in reforms, to us this highlights the need for an essentially political <u>agreement</u> among the different groups on the distribution of the costs of reform. Indeed, it is the lack of such agreement that delays implementation and allows a war of attrition between the various groups in society to endure. Since Drazen and Grilli illustrate their model by showing how hyperinflation (in contrast to indexation) could foster agreement on the implementation of tax reform, most of the recent discussion on the determinants of reforms is focused on economic stabilization. Yet, for this type of reform, agreement among domestic political actors may be less necessary because of the conditionality of foreign loans, or even more fundamentally the near absence of losers.[3]

Following Rodrik's logic (1996), one would think that inter-group agreement could be more crucial to the initiation of *structural* reforms, like trade and labor market liberalization, in which typically there may be more losers, each with more immediate losses. By triggering a re-alignment of the different social groups, political considerations (political crises as well as suitable political institutions) may be able to foster burden-sharing agreements contributing more substantially than economic crises to the successful implementation of structural reforms.[4] Indeed, our principal hypothesis is that political crises are likely to be better at explaining structural reforms than the conventional wisdom - economic crises. Our secondary hypothesis is that because of variations in the relative importance of efficiency and equity considerations from one type of structural reform to another, the effects of political crises may well vary from one kind of reform to another. Below, we present empirical support for these hypotheses from panel data of more than 100 countries over the years 1960-2000.

Existing tests of these various theoretical models have been limited largely to examining the effects of economic crises on macroeconomic stabilization. One early empirical paper of this sort is Bruno and Easterly (1996) which shows that hyperinflation (or at least high inflation) is a more successful driver of macroeconomic stabilization than say indexation mechanisms (see also Bruno, 1996). Drazen and Easterly (2001) provide what is arguably the first direct test of the 'crisis begets reform' hypothesis. Using data for more than 150 countries in the last 30 years or so and five year lags, they find only mixed evidence for the hypothesis. More specifically, although episodes of extremely high inflation or black market premia are indeed followed by periods of more significant reform measures than episodes in which these problems are only moderate, similar results do not obtain for high current account deficits, large budget deficits or negative rates of per capita growth. Pitlik and Wirth (2003) report econometric evidence suggesting that deep economic crises are conducive to structural reforms. Their paper also examines the role of not political crises but at least political factors and goes so far as to suggest that democratic regimes with fractionalized governments would be more likely to play a positive role in reform. From our perspective, the fractionalization of government that these authors observed might have constituted political crises sufficient to trigger reforms. In any case, below we provide evidence supporting the political crisis begets reform hypothesis. .

A recent but important development in the literature on the determinants of macroeconomic stabilization is that by Alesina, Ardagna and Trebbi (2006). Using yearly data on a large sample of developed and developing countries from 1960 to 2003, they find that successful macroeconomic stabilization (in terms of inflation and budget deficits) is more likely to occur, not only following a crisis, but also (a) at the beginning of term of office of a new government, (b) in countries with presidential systems and large majorities, and (c) when the executive faces less binding constraints. We suggest that this could be interpreted as supporting a hypothesis that political crises and institutions can affect economic reform. Note, however,

that, for a sample of Latin American countries since the mid-1980s, Lora (1998, 2001) finds that economic (not political) crises have played an important role in the dynamics (and composition) of structural reform.[5]

Another especially relevant paper is that of Tornell (1998). Although his main contribution is theoretical, Tornell presents empirical evidence on the relationships among: (a) drastic political change, (b) a major economic crisis and (c) trade liberalization. He estimates probit models for the start of trade liberalization in a large panel of annual data beginning in 1970 based on the occurrence of economic and political crises and controlling for a number of other factors. His main finding, based on the use of dummy variables for both economic and political crises in the particular year in which either or both these crises take place, is that the probability of trade liberalization is twice as high when both crises occur together compared to only one occurring. The author recognizes two main risks in this strategy: one due to possible mistakes in identifying the exact year in which each of the events take place,[6] and the other due to the possibility of reform reversals.[7] Our data shows that reform reversals do occur even when 5-year averages are used (which should render them less likely than with annual data).

The approach we adopt in this paper differs in a number of ways from those in the literature just reviewed: (1) With respect to measurement, wherever possible we use continuous variables instead of dummies to measure both reforms and crisis measures and most importantly we make use of a number of different measures of both reforms and crises. (2) Instead of focusing on a single "easy" reform, we examine two more difficult structural reforms, trade and labor market liberalization (and the interactions between the two). (3) With respect to the political environment, we consider both democratic governance and a wide variety of political crisis indicators. (4) Our data covers a larger sample of countries for a longer period of time (allowing us to use homogeneity tests which indeed reject the hypothesis that all regions can be pooled).

In this paper, we focus on the following questions: What are the determinants of both labor market and trade liberalization indicators? Are these structural reform indicators related to each other and, if so, how?[8] How do political institutions and conditions affect the two types of policy reform indicators in a given country? Is it economic or political crises that are the most important drivers of structural reforms and do their effects differ between trade and labor market reforms? As noted above, our primary hypothesis is that political crises may be more important determinants of structural reform indicators than economic crises. Our secondary hypothesis is that, since labor market liberalization is likely to appear more threatening to more people than trade reforms, political crises may have weaker effects on labor market reform indicators than on trade reform indicators.

After summarizing the theoretical framework and discussing the construction of our measures and data set, we estimate the determinants of the reform indicators in two ways: first, as if the decisions to implement each type of reform are made independently and, second, allowing for feedback effects between them. An important result from the data section is that homogeneity tests strongly reject pooling across regions. This highlights, what many certainly suspect, that reform efforts differ markedly across regions of the world because of the radically different institutional and political settings in which they are implemented.

With respect to the determinants of the structual reform indicators, our fixed-effects panel estimates support both of the above hypotheses, namely, that political crises have stronger and more positive effects on both types of structural reform indicators than economic crises and that the effects on trade liberalization are more apparent and stronger than those on labor market liberalization. In the results presented in the paper and especially in the WEB Appendix, these findings are also found to be quite robust to the use of a wide variety of indicators of economic and political crises, the presence or absence of feedbacks between the two types of reform, and the use of different lag structures in the effects of both crises and interdependencies between

5

reform types, and different estimation procedures. Where we do find differences in the effects of the crisis and other determinants is between one region and another, both between developed countries and developing countries and between different regions of developing countries.

The paper is organized as follows. Section 2 briefly presents the Drazen-Grilli model and makes the case that political crises may help explain its workings. Section 3 discusses how we measure trade and labor reforms and political and economic crises over time and across a large sample of countries. It also examines the relationship between these reforms and economic performance over time and across regions, presenting basic statistics of the other variables used in our analysis. Section 4 discusses the main determinants of the various components of labor market liberalization and trade reform, including lags in these relationships and robustness tests. Section 5 concludes with suggestions for further research.

2. Conceptual framework

In this section, we provide a brief outline of the theoretical framework developed in Drazen and Grilli (1993) and make the case that political crises would provide a better (or at least, alternative) way to set the model in motion. As noted above, the Drazen and Grilli model develops the normative implications of Alesina and Drazen (1991). While the earlier model is framed in terms of a war-of-attrition in which social groups disagree on the implementation of a tax reform or macroeconomic stabilization that reduces both inflation and accumulation of government debt, the more recent model assumes government debt to be constant (indeed, zero for simplicity).

In Drazen and Grilli, therefore, government expenditures are covered by either monetization of the deficit or (non-distortionary) taxation. The monetization of a fraction γ of the government budget arises because social groups do not agree on which (group) will bear the costs of the tax reform. The delay in agreeing on the burden of reform propels inflation. It can

be shown that, prior to the macroeconomic stabilization, the equilibrium rate of inflation is a function of the fraction of government expenditures financed by seigniorage.

The model assumes that there are two groups which share equally the distortionary burden until stabilization occurs at time *T*. The group that concedes must agree to pay a larger share of the costs than the other (non-conceding) group.[9] The utility functions of the individuals in each of the two groups increase with consumption and decrease with inflation. They differ on the losses each group attaches to inflation. The war-of-attrition is driven by asymmetric information: each group knows its own loss, but for the other group knows only the distribution of the losses that this group could incur. The representative individual chooses a time path of consumption as well as a date on which to bear a larger share of the cost of reform (the optimal time to concede depending on the group-specific loss from inflation). Differentiating expected utility with respect to the optimal concession time, yields the following first-order condition:

$$\left[-\frac{f(\theta)}{F(\theta)}\frac{1}{T'(\theta)}\right](2\alpha-1)\frac{g}{r}=w(\theta,\pi)-\left(\alpha-\frac{1}{2}\right)g \tag{1}$$

where $F(\theta)$ is the cumulative distribution of θ (the loss each group assigns to inflation), $f(\theta)$ is the associated density function, r is the discount rate, g is government expenditures, α is the share of the burden paid by the group that conceded first, and π is inflation.

The term in brackets on the left-hand side is the probability that the other group concedes at time $T(\theta)$ (conditional on its being the first to concede), while the second term is the present (discounted) value of $T(\theta)$. The left-hand side therefore represents the expected benefit the group enjoys from waiting to concede. The right-hand side reflects the associated costs, where the first term is the loss from inflation in the absence of reform and the second term reflects the inflow of taxes generated once the group concedes.

Equation (1) can be rearranged to give an expression for the optimal concession time as a differential equation, which in turn can be solved for the optimal concession time for each

representative agent in each group. The solution supports the war-of-attrition interpretation of delays in adopting a welfare-enhancing change in policies (a "reform"): the group that benefits from reform tries to "wait the other group out" in the expectation that the other group would benefit even more from the reform. Put differently, in this framework one group tries to learn about the costs that the other group suffers (or believes it suffers) from the continuation of the distortions associated with the delay in implementing the reform at hand. The war-of-attrition ends when one of the groups agrees to bear a larger share of the burden of reform.

It is important to stress that one implication from the Drazen and Grilli (1993) model is that the higher the rate of inflation (that is, the greater the distortions in the economy or the larger the scope for reform), the larger will be the losses each group assigns to perpetuation of the *status quo* and the faster one group will concede (by agreeing to pay a larger share of the costs). The comparative statics is straightforward: a deterioration of the *status quo* (a crisis) shortens the implementation delay in the reform. Drazen and Grilli show that crises can be welfare-enhancing because they accelerate agreement among the social groups over the distribution of the cost burden of the reforms, thereby also speeding up the pace of reforms. A crisis fosters reform because it "convinces" one specific group to bear a larger share of the costs. In this light, we suggest that a political crisis, or a realignment of the political power of the different groups in society, would serve the same end of "convincing" one of the groups to bear a disproportionate share of the costs. Although this would hold for any type of reform, such realignment would seem to be especially conducive to the structural reforms under study here. But, because the pressures against reform on account of concerns about equity may be greater in labor market reforms than trade reforms, we suggest that the effects of political crises could be much weaker (or even perverse) in the case of labor market reforms.

3. Measuring Trade Liberalization, Labor Market Deregulation and Crises

In light of existing data availability constraints, to accomplish our objectives we have had to make several limiting choices. A crucial one is to settle for using five year periods since most of the labor market reform data (e.g., Blanchard and Wolfers, 2000, and Forteza and Rama, 2006) is available only for five year periods.

Since stabilization reforms have already been analyzed rather extensively and are perhaps the easiest to accomplish, we focus on two key structural reforms: labor market and trade liberalizations.[10] In the case of trade liberalization, being unaware of any single data set that contains the required information for all periods and countries of interest, we use several different data sets to further extend the Sachs and Warner (1995), (henceforth S-W) measure of trade openness (0 for "closed" and 1 for "open")[11] that was already corrected and extended from 1970-1989 to 1990-99 by Wacziarg and Welch (2003). As is well-known, this measure of openness has the distinct advantage of being an "input" oriented reform index in that it is exclusively based on policies, as opposed to the share of imports and exports in GDP the more commonly used "output" oriented index In extending the time coverage backward before 1970, we took advantage of the temporary liberalization periods, many of which dated back to the 1950s, of Appendix 2-B of Warcziarg and Welch (2003) and pushed forward in time from their Appendices 3-A and 4. In a few other cases, we found additional raw data allowing us to apply the S-W criteria to additional time periods. In a few cases however, when the raw data on some of the components was incomplete, we also extended the time and country coverage on the basis of similar indexes from the *Economic Freedom of the World* surveys published by the Fraser Institute (Gwartney, Lawson and Damira, 2000) and the classifications "Free" for "open" and "Repressed" for "closed" for relevant years in the Trade openness component of the Index of Economic Freedom reports.[12]

Since Rodriguez and Rodrik (2000) and Rodriguez (2006) provide a powerful critique of

the efforts of (S-W) to relate their "open" measure to cross-country growth rates, we have incorporated their views to improve the measurement of this reform. One of their major objections was that the S-W cross-sectional evidence on growth rates relied on only two of the five S-W criteria, namely, export marketing boards (XMB) and black market premium (BMP). In effect, this suggests that the S-W index of openness, even when extended by Warcziarg and Welch, has in fact little to do with trade restrictions in the form of tariffs and non-tariff barriers. Rodriguez (2006) also had some specific quarrels with the way XMBs were treated in their classifications of certain countries and agreed with Warcziarg and Welch (2003) in the use of a lower tariff rate threshold (20% instead of the 40% in S-W) to distinguish "open" from "closed".[13] Since most countries in the world had fallen below the 40% threshold by the mid-1990s, this change has the effect of giving more weight to tariff barriers in the classification.

Therefore, we construct an alternative measure that takes advantage of more recent information on XMBs (from World Bank and other sources) so as to distinguish between those marketing boards that in practice discriminate against producers for export markets and those which do not, as well as these other suggestions. Given the importance that Rodriguez and Rodrik (2000) attributed also to BMP, our preferred measure of trade liberalization, "Open Rodriguez" encompasses the lower threshold data for tariffs, new data for BMP, and the other original components, all aggregated in the same way as before). The dataset constructed for this paper is available on-line and from the authors upon request and, as the sample of countries is not dissimilar to other cross-country analyses, details are provided in the next section below.

With respect to labor market liberalization, we again want an "input" oriented index and for this reason focus on the labor laws themselves as opposed to an "outward" oriented one such as the number or percentages of workers covered by different rules and degrees of formality. Since we find no single series that covers a large number of countries and goes sufficiently back in time, we make use of several different but closely related measures of labor market

regulations and rigidities. Although they may in principle capture somewhat different aspects, we make use of different indexes for different regions, in each case choosing the one that we feel is the most satisfactory for that region: Blanchard and Wolfers (2000) for the OECD, Heckman and Pages (2004) for Latin America,[14] and Botero, Djankov, La Porta, Lopez-de-Silanes and Shleifer (2003) and extended by World Bank (2004) for the remaining regions. An important shortcoming of the latter source (that provides a Rigidity of Employment Laws Index) is that its time coverage is restricted to the years after 1995. For comparability with the OECD and Latin America for labor reforms and with all other countries for trade liberalization, it is desirable to extend the World Bank index backwards. One way to accomplish this is through the use of backdating techniques developed in the context of business cycles analysis (Angelini et al., 2004). Therefore, based on the following regression equation we extend this index to other countries and time periods:

$$
\begin{aligned}
\text{Rigidity of Employment laws} = & \; \text{French}*10.34878 + \text{Socialist}*19.21761 - \text{English}*6.9012 + \text{German}*6.09 + \\
& \quad (5.6717) \qquad\qquad (9.114) \qquad\qquad (5.85) \qquad\qquad (5.89) \\
& + \text{chldlb}*.1917 - \text{abolfl}*1.648489 - \text{eqlrem}*-2.66 + \text{discrm}*4.74 + \\
& \quad\; (2.57) \qquad\qquad (2.27) \qquad\qquad (3.28) \qquad\qquad (3.14) \\
& - \text{loggdp}*2.34 + \text{agrratio}*40.01 + - \text{agratsq}*42.21 + 60.09 \qquad\qquad (2) \\
& \quad\; (1.97) \qquad\qquad (16.79) \qquad\qquad (16.89) \quad (21.56)
\end{aligned}
$$

R-squared=0.5312, Adj R-squared =0.4680, Root MSE   =   10.04

where *French, Socialist, English* and *German* are dummy variables for the respective legal traditions as defined in La Porta et al. (1998), *chldlb, abolfl, eqlrem*, and *discrm* are time-varying dummy variables for whether or not the country has signed ILO conventions on child labor, forced labor, equal remuneration by gender and discrimination in the period under review (from the data base of Forteza and Rama (2006), and *agrratio* is the time-varying share of agriculture in total employment, and agratsq is its square. The relevance for the legal tradition and per capita income determinants was demonstrated in Botero et al. (2004). The share of agriculture in total employment and its square are included because labor regulations in this sector tend to be especially light.

Regarding political crises, of which innumerable definitions might be constructed, in the results presented in the paper we limit attention to the following three indicators. The first is a principal components index of social and political instability formed from the number of revolutions, coups *d'Etat*, and political assassinations (per million people) during each five year period.[15] The data source is Banks (2005). The second is an inverse measure taken from Polity IV reflecting the absence of crisis, specifically the duration of the political regime, measured in years (Regime Durability). The third reflects the importance of what is sometimes referred to as an obstacle to reaching a political agreement on reform, the Party Fractionalization index. We regard this as a good measure of political crisis (because it reflects a huge challenge to being able to put together a governing coalition and hence stay in power for any significant period of time). But instead of constituting an obstacle to reform, for two reasons we believe that party fractionalization could help reform. First, it could well provide the incentive for exploring new coalitions and bases for agreement on burden-sharing and thus more ways out of the impasse over reform. Second, taking into consideration the difference between fractionalization and polarization (Montalvo and Reynal-Querol 2005), greater fractionalization, indicated by the presence of many small parties, may have a much more positive effect on reform (via a constructive search for alternative ways of constructing a governing coalition) than polarization represented by relatively equal distribution of votes or representatives among only two or three large party blocs, Only in the latter relatively slightly fractionalized case, does each major party have an incentive to veto the threatened actions of the other(s).

For economic crises we include several different measures,[16] namely, the largest single year GDP fall in percentage points that occurred in each five-year period (Max fall GDP), the current account balance (CAB)[17], the number of years in debt and currency crises within each five year period (Currency Crisis and Debt Crisis).[18]

As noted below and in the results reported in our WEB Appendix, we also make use of five additional indicators of both political and economic crises, using each as an alternative to one of the indicators identified above.

In the discussion above, it should be clear that we should control for each country's levels of political and economic development. This accounts for our inclusion of both per capita GDP and the level of democracy in all the results presented below. The measure of democracy used is that in the Polity IV dataset coded on a 1-10 scale, with 10 indicating a high level of democracy. The stronger is democracy, the more the median voter might be expected to exercise influence. Since the median voter is more likely to be a consumer than a member of a more specialized interest group, we would expect Democracy to have a positive influence on trade reform but perhaps not on labor market liberalization.

As indicated above, while the trade liberalization measures do reflect liberalization, in original form the labor market measures are instead indices of job security or labor market rigidity. To transform both measures into indices of strengthening the markets and onto a common scale, we use a formula suggested by Lora (1998), which involves subtracting each value from the series maximum and dividing this by the series range (maximum minus minimum value). Once all the variables are collected, they are aggregated and transformed using the following aggregation of reform indexes proposed by Lora (1998) into a 0 to 1 scale (with 1 indicating further reform):

$$I_{it} = \frac{1}{m_i}\frac{1}{n_i}\sum_{j=1}^{m_i}\sum_{t=1}^{n_i}\left[\frac{(V_{j\max}-V_{jit})}{V_{j\max}-V_{j\min}}\right]$$

(3)

where V_{ijt} is a value of jth variable in ith country in time t, and t= 1, 2...n, V_{jmax} and V_{jmin} are the maximum and minimum values of the jth variable, and m is the number of variables. As a result, both reform indicators are measures of liberalization, with higher values of both indices reflecting greater liberalization.

In general, the indexes of trade and labor market deregulation per region shown in the

Appendix reflect greater progress in trade liberalization than in labor market deregulation, with some interesting differences across regions.

Appendix Table 1 presents the correlation matrix among the variables used in the analysis. It reveals that most of the pair-wise correlations are fairly low, mitigating concerns with multicollinearity, with a couple of exceptions which we try to avoid by rerunning the regressions without one of the more highly correlated variables in other appendix tables.

4. Empirical results

In this section, we discuss our main empirical results with respect to the effects of the two types of crises on both trade and labor market liberalization indicators in our large sample of both developed and developing countries. Our principal hypothesis is that in the appropriate context of over-time changes political crises (by realigning political forces) may cause one group to accept a larger portion of the costs of reform more readily than would economic crises. Our secondary hypothesis is that because labor market liberalization would be more likely to generate concerns for equity, the impact of political crises on labor reforms would be less uniform, hence its coefficient could be less significant (or even negative) than for trade reforms.

We first estimate fixed-effects panel data models in which we specify our indexes of labor and trade reform to be separate functions of both economic and political crises (as well as the other standard controls identified above.) A crucial result in dictating our estimation strategy is derived from parameter homogeneity or poolability tests (e.g., Hsiao and Sun, 2000, Hsiao, 2003.) These tests strongly reject the hypothesis that data can be pooled across all regions. This is an important result in itself, indicating that reform efforts differ markedly across regions (as we show, in large part because of the different institutional and political settings in which reform efforts operate). In this light, while we report results for all countries pooled together,

more weight should be given to the separate results for the following different regions: Developed, Africa, Asia, Latin America and the Caribbean (LAC), MENA and Transition.

We also check the robustness of our inference through two types of sensitivity analysis: (1) using alternative measures of economic and political crises, and (2) using alternative estimation procedures so as to account for feedbacks between the two reform equations. In no case do we find the main results concerning the relative importance of the two types of crises to be sensitive to these differences.

We begin by using the fixed-effects panel estimator to investigate the relative roles of political and economic crises in explaining the dynamics of trade liberalization and labor market deregulation. Our econometric model takes the form:

$$R_{itc} = \alpha + \beta_1 P_{tc} + \beta_2 E_{tc} + X_{tc1} + \varepsilon \tag{4}$$

where R_{itc} is reform i at time period t in country c, P_{tc} reflects the intensity of political crises at time period t in country c, E_{tc} reflects the intensity of economic crises at time period t in country c, and X_{tc} is a vector of key control variables (that is, levels of political and economic development). As noted, we examine two reforms so i can refer to labor market deregulation or to trade liberalization. The subscript t refers to a 5-year period, where the measure is the average over the period, and the periods included are: 1960-1964, 1965-1969, 1970-1974, 1975-1979, 1980-1984, 1985-1989, 1990-1994 and 1995-2000.[19]

Tables 1 and 2 provide our baseline estimates regarding Trade Liberalization and Labor Market Reform, respectively. We begin with the effects of the economic crisis variables, followed by those of the political crisis variables and finally by those of the remaining variables.

In order to confirm the 'crisis begets reform' hypothesis in the case of economic crises, we would need to find positive effects for the first two economic crisis measures (Max fall GDP, Currency Crises) and negative ones for the third (the inverse measure CAB) in the two tables. Yet, the only cases for which any such result is obtained is the negative and significant

effects of Current Account Balance in the small Transition Economy Region in both Tables 1 and 2. In quite a few of the region specific columns of Table 1 (6 of the 7 for Currency Crises and 2 of 7 for Current Account Balance), the effects of these crisis measures are actually opposite to those suggested by the conventional wisdom of the economic crises begetting reform thesis. In Table 2, significant perverse effects can be seen in 3 of the 7 columns for both Maximum fall of GDP and Current Account Balance. [20]

Next, we turn to the results for our three measures of political crises, the inverse measure Regime Durability (the length in years of the life of the regime), Party Fractionalization and the Political Instability index described above. For these, confirmation of the 'political crisis begets reform' hypothesis requires a negative coefficient in the case of Regime Durability and positive ones for both Party Fractionalization and Political Instability. For reasons given above, this effect could be expected to be weaker or even reversed for labor market regulation. For Trade Liberalization in Table 1, the coefficients are generally of the expected sign and statistically significant. This is especially true for all three of these political crisis measures for "All" countries, 2 of the 3 for Developed countries, and for 1 of 3 in all the remaining regions except the LAC region. The only significant effects going against our political crises beget reform hypothesis are those for Regime Durability in the Developed country sample of the second column and Political Instability in the Africa sample.[21]

As noted above and suggested by Robinson (2006) in the context of democracy, the hypothesis about crises and reforms should better be measured with panel data and estimated with fixed effects as we have done in Tables 1 and 2 for the two liberalization indicators. To sharpen the distinction between results obtained with panel data and fixed effects and those obtained in the earlier international cross-section studies, in Tables A2.1 and A2.2 of the WEB Appendix we present for comparison purposes the corresponding results obtained when the over-time variations in the variables are suppressed by using only the average values over all

the years for each country and variable. In each case there is again but one region (Africa in the case of Table A2.1), and Asia in Table A2.2) and one economic crisis measure (the inverse measure Current Account Balance) where the economic crisis measure has a positive and significant effect on the reform indicator as suggested in the standard crisis begets reform literature. In the case of Trade Liberalization (Table A2.1) none of the political crises has the hypothesized positive and significant effects on the reform indicator. In Table A2.2 for Labor Market Reform, however, all three of the political crisis variables have the conventional negative and significant effects in the full sample (the "All" column) and also in some region-specific samples. This suggests that much of the empirical basis for the conventional negative effect of political crises on reform may have been due to the cross–country differences, not the more relevant over time effects captured in our Tables 1 and 2 of the paper itself. Consistent with our secondary hypothesis, for Labor Market Deregulation, the coefficients of the political crisis measures are less positive and indeed even negative and significant in several region-variable cases of Table 2. In particular, Regime Durability has positive and significant effects on the Labor Market reform indicator in four of the 7 regions, and Party Fractionalization a negative and significant effect in the Asia region and Political Instability negative and significant effects in the full sample and the Africa sample. It would seem that labor market reforms take place primarily only under favorable economic and political conditions in which sitting governments are in a stronger position to push such reforms and concerns about their equity effects are likely to be weaker.

Further, note that both Log GDP per capita and the Democracy index have positive and significant effects on trade liberalization in most regions (Table 1). The Log GDP per capita term has a negative and significant effect in the Developed Country sample and Democracy a positive and significant one on labor market deregulation in the Transition Country sample in Table 2.

Naturally, these results showing the much greater impact of political crisis variables than economic crisis variables on trade reform but to a far lesser extent on labor market reform are limited to the particular indicators of economic and political crises used.[22] Yet, in Tables A3.1a-A3.1e of the WEB Appendix we present alternative estimates of the results for each region for trade liberalization when alternative measures of economic crises (such as an inflation (or CPI) crisis, a debt crisis, the number of years of declining GDP per capita within any 5 year period, an economic crisis that requires a loan program with the IMF or other international agency, or an exchange rate crisis represented by the Black Market Premium (BMP)) are used and in Tables A3.2a –A3.2e when different measures of political crises (e.g., number of executive changes, cabinet changes, purges, strikes, or guerilla warfare) are used. But with only very minor exceptions, the results summarized above based on Table 1 are unaffected. Similar robustness checks are performed with these same sets of alternative crisis measures in Tables A3.3a-A3.3e and A3.4a-A3.4e for Labor Market Liberalization. Once again, these changes result in only minor differences in these results relative to those presented in our Table 2.

The one notable change is for the new political crisis variable, Civil War Intensity. For this variable the effect on trade liberalization is negative and significant for "All" countries, Africa, Asia and LAC. Its effects on labor market deregulation are also generally negative but not significant. This finding suggests that the nature and intensity of political crises vary not only between reforms but also from one measure to another (i.e., between Civil War Intensity on the one hand, and Regime Durability and Political Instability on the other.) Whereas the latter measures of political crises seem to stimulate trade but not labor market reform, the former more severe form seems to hinder both reforms.[23]

A related potential explanation that we have investigated is that political and economic crises do not need to be independent over time or, more strongly put, that the chain of events should not be from either political or economic crises directly to reform. Consider the case in

which the occurrence of a severe economic crisis de-stabilizes the government (thereby generating a political crisis) which responds to the new pressures by implementing economic reform packages. This possibility led us to investigate the temporal relationship among our various types and examples of crises. Of all possible combinations, we only found evidence of a relationship between (one-period lagged) currency crises and political instability. For a large number of other types of economic and political crises, we were not able to uncover any such signs of similar relationships. This suggests that the effects of political crises on reforms dominate those from economic crises and, equally importantly, that they are not indirect. That is, it does not seem the case that economic crises trigger political crises and the latter trigger reforms. Admittedly, this could well be a consequence of our use of 5-year periods. Yet the investigation of this issue is left for future work once annual data should become available on labor market reforms.

As another important sensitivity check, in Tables 3 and 4 we allow for (lagged) feedbacks from one reform to the other. This implies the addition of an $R_{j,t-1,c}$ term on the right hand side of our estimating equation (3) above. Otherwise we use the same specifications as in Tables 1 and 2, respectively. One important conclusion from Table 3 is that, even allowing for the lagged response, there is no evidence of a positive feedback going from labor market deregulation to trade liberalization. Indeed, in one region (MENA) the effects are negative and statistically significant, suggesting that in this region lagged labor market deregulation seems to hinder trade reform. A second important implication of Table 3 is further confirmation of the lack of empirical support for the 'economic crisis begets reform' hypothesis. Once again, our data seems to support the opposite: *absence* of currency crises fosters economic reform. A third finding is that, once we take into account the lagged effect of labour reform, the effects of regime durability and political instability remain strong: political instability is *positively* (and regime durability is *negatively*) associated with the implementation of trade reform.

Finally, the results allowing for the lagged effect of trade reform on labor market deregulation in Table 4 reveal *positive* and significant effects of lagged trade reform on labor market deregulation for "All" countries (the pooled sample), and for countries in the African and Asian samples but a *negative* and significant effect for the Developed country sample. Note also that with the single exception of Currency Crises in Asia, economic crises again have no positive effects on labor reform and in several cases perverse (i.e., negative effects).

The results of Tables 3 and 4 support the notion that the sequence in which the governments choose to implement these reforms matters. In particular, for most regions a preceding labor market deregulation deters trade reform in Table 3(though significantly only in the MENA sample), in three of the samples in Table 4, a preceding trade reform has a positive and significant effect on labor market liberalization. Note also that with a few exceptions, economic crises again have little effect on labor reform.

Tables A5.1 and A5.2 of the WEB Appendix present the results of still another robustness check, namely, when the two reform equations are jointly estimated using two-stage panel estimators. This implies adding (and endogenizing) the current period value of reform j (R_{jtc}) to the right hand side of equation (3). Note that because we have so far specified the two reform equations with an identical set of explanatory variables, to achieve identification this requires some changes in specification. Hence, in the trade liberalization equation, we exclude the Max fall GDP (but include labor market liberalization), while in the labor market deregulation equation we exclude Currency Crises and CAB (and include trade liberalization).[24] Once again, all the previous results are left largely in tact.

In sum, by re-estimating our baseline specifications from Tables 1 and 2 after subjecting them to sensitivity analysis with respect to the use of lagged feedbacks between reforms in Tables 3 and 4, different measures of economic and political crises, different measures of the reform indicators, , and simultaneous feedbacks instead of lagged ones in the various Tables of

the WEB Appendix the initial results are generally sustained. In particular, political conditions (political crises as well as political institutions) seem to be significantly more important determinants of structural reforms, especially of trade reforms, than economic crises.

5. Conclusions

This paper contributes to the debate on the effectiveness of reform programs across the world by attempting to measure and explain (to the best of our knowledge for the first time) two important structural reforms (trade liberalization and labor market deregulation) over several decades across developing, transition and developed countries alike. To that end we construct indicators of both labor market deregulation and trade liberalization and measures of potentially relevant determinants of these reforms (including eight different indicators of political crises, eight different measures economic crises, andcontrol variables for the level of economic as well as political developments) for more than 100 countries (in 5-year averages)

We try to explain the two reform indexes separately and find that our measures of political crisis seem to have more important effects than those of economic crises. Indeed, with a couple of minor exceptions of specific measures in one region or another, the effects of economic crises on the two structural reforms are either weak and non-significant or more frequently perverse, i.e., they inhibit rather than trigger reform. In the case of political crises, these effects on reform vary between reforms and between indicators. They are often strong and positive in the case of trade reforms but frequently negative and significant in the case of the very difficult labor market reforms. Similarly, in most regions the levels of economic and political development (the latter represented by democracy) have positive influences on trade reform indicators but rarely on labor market reform indicators. With a few minor exceptions, the results are rather robust to a number of sensitivity checks, including the use of alternative measures of economic and political crises and institutional constraints, estimations methods and

the use of lagged as well as simultaneous feedback effects.

One important finding is that there is considerable heterogeneity in the results across regions, suggesting that the common procedure of pooling across countries in different regions may not be justified. Especially in the case of political crises and institutions, the effects are found to vary considerably between trade and labor market reforms and from one type of political crisis to another. Yet, despite these differences, the results rather strongly support our conjecture that political considerations (political crises as well as political institutions) may be a more important trigger of reforms than economic crises, especially in the case of trade reforms.

On the basis of these and the other more detailed findings of the previous section, we put forward the following suggestions for future research. (1) Since the current analysis has been conducted in such a way as to determine the level of trade and labor market liberalization attained in each country and time period, it would be desirable to supplement this by analyzing the determinants of their implementation speeds, i.e., the extent to which each general type of policy has changed in each individual year of a five year period.[25] (2) Given the differences in the effects of political crises on reforms from one region to another, it would be useful to undertake detailed case studies of political, institutional and other developments in individual countries in the attempt to explain such differences. (3) Although trade and labor market liberalization are important structural reforms, there are certainly others (e.g., privatization, agricultural and financial reforms) which also merit investigation, specially once the necessary data become available. (4) Similarly, once reliable annual data on the crisis and reform measures studied here, more formal attempts to establish the direction of causality and to quantitatively decompose the contribution of the different types of crises could attempted.[26] (5) Finally, if appropriate instruments for the crises examined in this paper could be identified, the effects of the reforms studies here on growth and other performance indicators might be more reliably assessed than in existing studies.

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	All	Developed	Africa	Asia	LAC	MENA	Transition
Table 1							
The Effects of Political and Economic Crises on Trade Liberalization							
Panel fixed-effects estimates							
Log real per capita GDP	0.154***	0.00539	0.348***	0.0877*	0.282***	0.138	-0.527
	[0.023]	[0.048]	[0.055]	[0.050]	[0.059]	[0.087]	[0.37]
Democracy	0.0166**	-0.00903	0.0355**	0.00971	0.0391**	0.0728	0.0482
	[0.0074]	[0.0097]	[0.016]	[0.017]	[0.019]	[0.045]	[0.028]
Maximum yearly fall of GDP	0.0000176	0.0000547	-2.77E-06	2.86E-06	0.000166	3.55E-06	0.0000686
	[0.000012]	[0.000047]	[0.00014]	[0.000012]	[0.00011]	[0.00030]	[0.000054]
Currency crises	-0.0444***	-0.0428**	-0.0382*	-0.0137	-0.0702**	-0.130*	-0.104*
	[0.013]	[0.019]	[0.023]	[0.027]	[0.029]	[0.075]	[0.047]
Current account balance	0.00498*	-0.00854	0.00685*	-0.0026	0.00604	0.00282	-0.0431**
	[0.0028]	[0.0064]	[0.0035]	[0.0071]	[0.0082]	[0.015]	[0.016]
Regime durability	-0.00311**	0.00566*	-0.0113***	-0.00188	0.00233	0.00242	0.00682
	[0.0015]	[0.0031]	[0.0028]	[0.0048]	[0.0035]	[0.0075]	[0.0096]
Party fractionalization	0.0218***	0.025	0.0154	0.0366**	-0.0205	0.0235	0.0874*
	[0.0077]	[0.020]	[0.014]	[0.018]	[0.020]	[0.023]	[0.047]
Political instability	0.107***	0.114*	-0.150*	0.0584	0.113**	0.498***	-0.0595
	[0.034]	[0.068]	[0.090]	[0.090]	[0.055]	[0.16]	[0.50]
Constant	-0.764***	0.517***	-1.950***	-0.302	-1.841***	-0.908	4.207
	[0.15]	[0.19]	[0.36]	[0.29]	[0.39]	[0.63]	[3.12]
Observations	707	171	182	98	156	60	40
No. countries	131	22	36	18	21	12	22
R-squared	0.23	0.18	0.42	0.28	0.34	0.38	0.9
Note: Robust standard errors in brackets. * significant at 10%; ** significant at 5% ; *** significant at 1% levels.							

	All	Developed	Africa	Asia	LAC	MENA	Transition
Log real per capita GDP	0.00146	-0.0584***	-0.00231	-0.000701	-0.00223	-0.00277	-0.00335
	[0.0034]	[0.018]	[0.0078]	[0.0076]	[0.0072]	[0.0056]	[0.077]
Democracy	0.000379	0.00105	0.000939	-0.000084	0.000128	0.0027	0.0117*
	[0.0011]	[0.0037]	[0.0022]	[0.0024]	[0.0024]	[0.0029]	[0.0059]
Maximum yearly fall of GDP	-0.0000033*	0.0000011	0.0000211	-0.000004*	0.00000352	0.0000257	-0.00004***
	[0.0000019]	[0.000018]	[0.000019]	[0.0000019]	[0.000014]	[0.000019]	[0.000011]
Currency crises	0.00146	-0.00387	0.00165	0.00541	0.000608	-0.00504	0.00164
	[0.0019]	[0.0072]	[0.0032]	[0.0043]	[0.0036]	[0.0048]	[0.0099]
Current account balance	0.00130***	0.00413*	0.00145***	0.000235	0.000494	0.000157	-0.00767**
	[0.00034]	[0.0024]	[0.00037]	[0.0011]	[0.0010]	[0.00094]	[0.0034]
Regime durability	0.0008***	0.00226*	0.000252	0.00270***	-0.000214	0.00112**	-0.00125
	[0.00023]	[0.0012]	[0.00040]	[0.00074]	[0.00044]	[0.00048]	[0.0020]
Party fractionalization	-0.000699	0.0016	-0.00106	-0.0105***	-0.000225	0.00218	-0.0161
	[0.0011]	[0.0076]	[0.0019]	[0.0027]	[0.0025]	[0.0015]	[0.0098]
Political instability	-0.0103**	0.00221	-0.0289**	-0.00146	-0.00295	0.000825	0.277**
	[0.0050]	[0.026]	[0.013]	[0.014]	[0.0069]	[0.011]	[0.11]
Constant	0.233***	0.764***	0.303***	0.321***	0.680***	0.185***	0.198
	[0.022]	[0.072]	[0.051]	[0.045]	[0.048]	[0.041]	[0.66]
Observations	732	171	193	106	162	60	40
No. countries	138	22	41	20	21	12	22
R-squared	0.08	0.23	0.17	0.43	0.01	0.32	0.7

Table 2
The Effects of Political and Economic Crises on Labor Market Deregulation
Panel fixed-effects estimates

Note: Robust standard errors in brackets. * significant at 10%; ** significant at 5% ; *** significant at 1% levels.

		Table 3 The Effects of Political and Economic Crises on Trade Liberalization Panel fixed-effects estimates					
	All	Developed	Africa	Asia	LAC	MENA	Transition
Lagged Trade Liberalization	0.474***	0.310***	0.513***	0.565***	0.488***	0.480***	0.0838
	[0.037]	[0.055]	[0.10]	[0.11]	[0.076]	[0.12]	[0.20]
Lagged Labor Market	-0.145	-0.223	-0.258	-0.287	-1.318	-5.246**	-0.0194
Deregulation	[0.18]	[0.19]	[0.32]	[0.50]	[0.86]	[2.09]	[1.08]
Log real per capita GDP	0.0813***	-0.0665	0.225***	-0.00956	0.239***	0.093	-0.135
	[0.022]	[0.046]	[0.062]	[0.048]	[0.051]	[0.071]	[0.46]
Democracy	0.0129*	-0.00477	0.0235	0.0189	0.0274	0.0534	0.0189
	[0.0067]	[0.0091]	[0.015]	[0.015]	[0.017]	[0.037]	[0.064]
Maximum yearly fall of GDP	0.00000788	0.0000554	0.0000711	0.00000193	0.000141	0.0000618	0.0000835
	[0.000011]	[0.000043]	[0.00013]	[0.000010]	[0.000100]	[0.00024]	[0.00014]
Currency crises	-0.0238**	-0.0432**	-0.0115	0.00509	-0.0287	-0.106*	-0.0231
	[0.012]	[0.017]	[0.022]	[0.024]	[0.028]	[0.061]	[0.054]
Current account balance	0.00213	-0.00484	0.00313	0.00181	-0.00116	0.00109	0.00291
	[0.0026]	[0.0059]	[0.0037]	[0.0061]	[0.0071]	[0.012]	[0.024]
Regime durability	-0.00297**	0.00567*	-0.00662**	-0.00128	0.00241	0.00904	0.0018
	[0.0014]	[0.0029]	[0.0029]	[0.0041]	[0.0030]	[0.0064]	[0.0089]
Party fractionalization	0.0860***	0.085	-0.0836	0.145*	0.0861*	0.336**	0.67
	[0.031]	[0.061]	[0.085]	[0.080]	[0.051]	[0.14]	[0.94]
Political instability	0.0226***	0.0291	0.0223*	0.0279*	-0.0136	0.0369*	0.132
	[0.0069]	[0.018]	[0.013]	[0.016]	[0.017]	[0.019]	[0.086]
Constant	-0.358**	0.921***	-1.212***	0.216	-0.819	0.0361	0.825
	[0.14]	[0.23]	[0.40]	[0.29]	[0.65]	[0.60]	[4.03]
Observations	686	169	175	97	152	60	33
No. countries	130	22	36	18	21	12	21
R-squared	0.41	0.33	0.5	0.48	0.53	0.62	0.99
Note: Robust standard errors in brackets. * significant at 10%; ** significant at 5% ; *** significant at 1% levels.							

	All	Developed	Africa	Asia	LAC	MENA	Transition
Lagged Labor Market	-0.0324	0.408***	-0.00562	-0.073	-0.0863	0.229	0.241
Deregulation	[0.030]	[0.073]	[0.048]	[0.096]	[0.13]	[0.16]	[0.63]
Lagged Trade Liberalization	0.0158**	-0.0429**	0.0398**	0.0406*	0.0153	0.01	0.0863
	[0.0064]	[0.021]	[0.016]	[0.020]	[0.012]	[0.0094]	[0.12]
Log real per capita GDP	0.000549	-0.0342*	-0.0108	-0.0062	-0.00451	-0.00298	-0.209
	[0.0037]	[0.018]	[0.0094]	[0.0092]	[0.0078]	[0.0056]	[0.27]
Democracy	-0.0000746	0.0000622	0.00000824	-0.000311	-0.000883	0.00191	0.0131
	[0.0011]	[0.0035]	[0.0023]	[0.0029]	[0.0025]	[0.0029]	[0.037]
Maximum yearly fall of GDP	-0.0000035*	0.00000427	0.000018	-0.0000038*	0.00000199	0.0000245	-0.0000784
	[0.0000019]	[0.000016]	[0.000020]	[0.0000020]	[0.000015]	[0.000019]	[0.000081]
Currency crises	0.00325	-0.00543	0.00432	0.00769*	0.00044	-0.00438	-0.011
	[0.0020]	[0.0066]	[0.0034]	[0.0045]	[0.0042]	[0.0048]	[0.031]
Current account balance	0.000804*	0.00305	0.000942*	0.000565	0.000115	-0.00000935	-0.0211
	[0.00045]	[0.0023]	[0.00056]	[0.0012]	[0.0011]	[0.00093]	[0.014]
Regime durability	0.00081***	0.00179	0.000644	0.00272***	-0.00024	0.000926*	-0.00238
	[0.00023]	[0.0011]	[0.00044]	[0.00079]	[0.00046]	[0.00050]	[0.0052]
Party fractionalization	-0.0125**	0.00569	-0.0270**	0.00369	-0.00348	-0.00279	0.153
	[0.0052]	[0.023]	[0.013]	[0.015]	[0.0077]	[0.011]	[0.54]
Political instability	-0.000413	0.00421	-0.000212	-0.0107***	0.000287	0.00159	-0.0319
	[0.0012]	[0.0070]	[0.0020]	[0.0030]	[0.0026]	[0.0015]	[0.050]
Constant	0.241***	0.449***	0.347***	0.373***	0.752***	0.154***	1.973
	[0.024]	[0.087]	[0.060]	[0.055]	[0.099]	[0.047]	[2.33]
Observations	686	169	175	97	152	60	33
No. countries	130	22	36	18	21	12	21
R-squared	0.08	0.38	0.15	0.47	0.03	0.37	0.76

Table 4
The Effects of Political and Economic Crises on Labor Market Deregulation
Panel fixed-effects estimates

Note: Robust standard errors in brackets. * significant at 10%; ** significant at 5% ; *** significant at 1% levels.

ENDNOTES

[1] Drazen and Grilli (1993) develops the normative implications of the Alesina and Drazen (1991) war-of-attrition model. See also Labán and Sturzenegger (1994), Acemoglu and Robinson (2001), Acemoglu et al. (2003), Persson (2002) and Giavazzi and Tabellini (2005).

[2] In their words, "crises and emergencies may be welfare-enhancing and hence desirable. When ongoing social conflict implies that an economy has settled in a Pareto-inferior equilibrium, radical changes are often needed to break the stalemate and put the economy on a welfare-superior path. The necessary introduction of drastic measures (…) is usually unpopular and forcibly resisted because of distributional concerns… The extreme welfare loss that each agent suffers in a crisis dwarfs the loss he may associate with an unfavorable distribution of the burden of a major policy change" (Drazen and Grilli, 1993, p. 598.)

[3] Drazen notes that "it is useful to distinguish those reforms which are expected to be of general benefit (for example, macroeconomic stabilization) from those for which there are clearly defined losers ex ante (for instance, breaking up a monopoly). (…) The former, associated with the launching of reform programs, have more immediate payoffs and widely distributed political costs; from an economic and political point of view, they are easier to implement. The latter are associated with the consolidation of a reform program and generally concern deeper structural reforms. Their benefits accrue only over the longer term and require the elimination of advantages of some special interests; from both a technical and a political point of view, they are more difficult" (2000, p. 405).

[4] Another advantage of this hypothesis is that it somewhat mitigates Rodrik's critique that the relationship is tautological: "There is a strong element of tautology in the association of reform with crisis. Reform naturally becomes an issue only when current policies are perceived to be not working. A crisis is just an extreme instance of policy failure. That policy reform should follow crisis, then, is no more surprising than smoke following fire" (Rodrik, 1996, p. 26-27).

[5] There is also an emerging literature on the broader economic effects of democratic transitions examining, inter alia, whether or not changes in the political regime (from dictatorship to democracy) generate economic crises. Notably, Rodrik and Wacziarg (2005) provide evidence suggesting that democratic transitions do not produce such crises. This is an important result for our argument as it suggests that the possibility of endogeneity of economic crises vis-à-vis political crises is remote, a proposition that we tested with our data and find little supporting evidence.

[6] In other words, the year attributed to the trade liberalization may not correspond to the year of maximum severity of crisis or maximum implementation of the reform in question.

[7] Tornell's treatment does not allow for the facts that : (1) trade liberalization takes time to be fully implemented, (2) governments often adopt only partial reforms, and (3) governments may decide to reverse the reforms.

[8] Huang and Temple (2005) is one of the first papers to look at this issue empirically, while Giavazzi and Tabellini (2005) is one of the first to study the relationship between political reforms and economic liberalization (the latter proxied by an index of trade liberalization similar to ours).

 to economic (not political) crises.

[10] Loayza and Soto (2004) provide a thorough discussion of the issues underlying the measurement of economic reforms.

[11] More specifically, these authors defined a country as closed (i.e., open =0) if it had any one of the following: (1) an average tariff rate of 40 per cent or more, (2) non-tariff barriers covering 40 per cent or more of trade, (3) a black market exchange rate that is depreciated by 20 percent or more relative to the official exchange rate, (4) a state marketing agency or board for major exports, and (5) a socialist economic system (as defined by Kornai 1992).

[12] Specifically, previously non-classified Bahrain, Iceland, Lebanon, Oman, Qatar and UAE are

classified as "open" for some years based on scores of 1 ("Free") or at most 2 ("Mostly Free"), while Cambodia, Laos, Libya, Sudan and Suriname were classified as "closed" based on scores of 5 (Repressed) on the same Trade openness component of the index for some years.

[13] This was used to show something that Warcziarg and Welch (2003) had already shown, namely that the positive relation between growth and open found by Sachs and Warner (1995) and others disappears when the lower threshold is used or when the period studied is that after 1990.

[14] This index reflects the costs of job security regulation and is computed as the expected discounted cost at the time a worker is hired of dismissing the worker at some time in the future based on existing labor law (but excluding the costs of court actions). It makes use of a common discount rate of 8 percent, an assumed turnover rate of 12 percent and cost (inclusive of those related to seniority) of dismissing a worker for either justified or unjustified reasons).

[15] This is an up-date version of the index used in Alesina and Perotti (1996), Campos and Nugent (2003) and Campos, Nugent and Robinson (2001).

[16] For a review, see Furman and Stiglitz (1998) and Ishihara (2005).

[17] CAB is, of course, an inverse measure of crisis.

[18] The "Currency Crisis Indicator" is constructed from data on nominal official exchange rates against the U.S. dollar as follows: first, moving averages and standard deviations on a basis of five years are calculated. Then standardized scores are calculated using these moving averages and standard deviations, where the standardized score is equal to the value of the nominal exchange rate in a given year minus the average over the last five years (up to the given year) divided by the standard deviation over the same period. The next step is that a threshold value for the crisis is chosen arbitrarily (2.0 by the IMF, 2003). Finally, a dummy variable is constructed taking the value of 1 when the standardized score exceeds the threshold and zero otherwise.

[19] It is important to keep in mind that the main reason for this somewhat limiting choice is that most of the labor market reform data (e.g., Blanchard and Wolfers, 2000, and Forteza and Rama, 2006) is available only averaged over five year periods.

[20] Lora (2001) finds support for the role of economic crises on various reform indicators using annual data for a sample of Latin American countries between 1985 and 2000. We re-estimated his specifications using our data with and without enlarging them with our measures of political crises. Although we do find some effect of economic crises on our reform indicators for Latin American countries using our data, these effects vanish once we introduce our measures of political crises (with the resulting coefficients on the latter highly statistically significant).

[21] We have also studied whether the effects of differences in levels of political development (democracy) would be better captured by accounting for interactions between democracy and each of our three key political variables (political instability, fractionalization and durability). Our findings are qualitatively the same once these interaction terms are introduced. These are available from the authors upon request.

[22] In light of the Rodrik and Rodriguez (2001) critique of the available empirical measures of trade liberalization, we constructed and tested a number of variants of our main index above. Notably, we collected additional primary data on the exchange rate black market premium and, following Rodrik and Rodriguez's suggestions, checked whether using this as our measure of trade liberalization would change our results. We find it does not. We also investigate whether a categorical version of the black market premium series would be more successful. Again, we find it does not (our results are robust to these changes). Finally, we followed Rodrik and Rodriguez's suggestion and computed a trade reform index based solely on black market premium and existence of a marketing board (the two variables they claim to be the only components of openness with positive effects on growth). We find that our conclusions are

qualitatively the same as those reported in this paper.

[23] Because of the much smaller number of observations (which for instance does not allow us to estimate comparable results for the transition economies) and because the main results are almost identical, again in the interest and also for the sake of space, these results are not reported here (but are available from the authors upon request). The results also seem to suggest that future research would benefit from additional data of the type that would provide a more comprehensive understanding of the effects of the intensity of political crises.

[24] In addition to these being the less frequently statistically significant explanatory variables, another basis for such an exclusion is that one expects that international policy variables reflected in the trade reform index would seem more likely to be affected by the international dimension of crises while labor reform indicators would seem more likely to be affected by domestic macroeconomic variables (mostly related to unemployment).

[25] Godoy and Stiglitz (2006) discuss this issue in the specific context of transition economies.

[26] For some applications to year by year changes in financial reform indicators and institutional factors see Calderon and Liu (2003) and Chong and Calderon (2000).