



Economic and political liberalizations[☆]

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Abstract

This paper studies empirically the effects and the interactions of economic and political liberalizations. Economic liberalizations are measured as reforms that increase the scope of the market. Political liberalizations correspond to the event of becoming a democracy. Using difference-in-difference estimation, we study the effects on economic performance, macroeconomic policy and structural policies. Our main contribution is the analysis of the joint effects of both liberalizations, and the finding that the sequence of reforms matters. Countries that first liberalize the economy and then become democracies do much better than countries that pursue the opposite sequence, in almost all dimensions.

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1. Introduction

A growing consensus among researchers in development and political economics views the quality of government as critical to economic success. Bad economic policy is not the result of random policy mistakes, but follows from systematic government failures in several dimensions. Conversely, countries ruled by “good” governments enact bundles of sound economic policies. The fact that we occasionally do observe comprehensive and rapid policy improvements or deteriorations, suggests that the quality of government is not

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entirely determined by history. But what determines the quality of government? Is it the features of political institutions? Is it the economic environment, such as the distribution of economic resources, or the openness to foreign competition? Is it the interaction between economic and political forces? These questions are of enormous importance, yet we know very little about the answers.

This paper tries to make progress towards understanding these issues by studying the effects and the interactions of economic and political liberalizations. By economic liberalizations we mean comprehensive reforms that extend the scope of the market, and in particular of international markets. By political liberalizations we mean the event of becoming a democracy, as conventionally defined by political scientists. Both refer to large and comprehensive changes in the economic or political environment, likely to be associated with relevant changes in government incentives and constraints. We explicitly focus on the relationships between these two forms of liberalization, trying to understand whether one appears to induce the other and whether there are interaction effects.

More precisely, the paper addresses four separate questions: (i) How do economic and political liberalizations affect economic outcomes, such as growth and investment, macroeconomic policies, such as inflation and the budget surplus, and structural policies, such as indicators of protection of property rights and control of corruption? (ii) Does economic liberalization “induce” political liberalization, is the causality running the other way, or are the two forms of liberalization unrelated? (iii) How do economic and political liberalizations interact, that is are the effects of adopting both forms of liberalization greater than the sum of the individual effects of the two, when adopted in isolation? (iv) Does the sequence matter? That is: if a country that was originally closed and non-democratic decides to open up in both areas, does it make a difference where it starts from?

It is obviously not the first time these issues are addressed. Parts of the first question—the effects of economic and political liberalizations on growth and investment—have been addressed in the literature. Sachs and Werner (1995), and more recently Wacziarg and Welch (2003), have studied the effects of economic liberalization.¹ A large literature, that includes Barro (1996), Przeworski and Limongi (1993, 2000), Roll and Talbott (2003) and Persson (2004) among others, has studied the economic effects of political liberalizations. However, with the exceptions of Persson (2004, 2005), who focuses on the policy effects of different types of democratizations, and Reuveny and Li (2003), who study the effects of openness and democracy on income inequality, economic and political liberalizations have been studied separately, thus missing the possibility that the two might interact. The main contribution of this paper is to study the interaction between the two types of liberalizations, focusing not only on the economic outcomes (growth and investment), but also on their effects on economic policy and on the quality of institutions that accompany or are induced by liberalizations.

We address these questions using data from a sample of about 140 countries, over the period 1960–2000. The variables we look at are the traditional ones considered in the literature on economic and political liberalizations, and are described in Section 2. Our empirical methodology is adapted from the microeconomic literature on the effects of various treatments. Specifically, we estimate the effect of reforms using a difference-in-difference technique: this exploits both the cross country and the time series variation in

¹See also Slaughter (2001), who uses a difference-in-difference estimation technique similar to that of this paper, but on a smaller sample of industrial countries.

the data, but with arguably weaker identifying assumptions than the exclusion restrictions typically used in the macroeconomic literature on this topic. In this respect, our results provide new information even when we consider issues that have been studied before in the literature. The empirical methodology is illustrated in Section 3.

We start, in Section 4, by studying the effects of each liberalization separately. Here we confirm the finding that economic liberalization is good for growth and investment; but this effect cannot be entirely attributed to international trade: economic liberalizations tend to be accompanied or followed by a host of other policy improvements, including an improvement in the budget surplus, better protection of property rights and lower corruption. The main effect of a transition to democracy, on the other hand, is to improve the quality of institutions (protection of property rights and control of corruption), but to deteriorate the macroeconomic environment, with only small positive effects on economic growth.

Studying the effects of each reform separately can be misleading, however, because it conceals possible feedbacks and interactions between the two kinds of reforms. The main results of this paper, presented in Section 5, thus concern the quantitative relevance of these feedback and interaction effects. First, the data suggest that indeed there are positive feedback effects between economic and political reforms. The timing of events indicates that causality is more likely to run from political to economic liberalizations, rather than vice versa: many economic liberalizations are preceded by political liberalizations, while the converse is observed less frequently—although we cannot rule out feedback effects in both directions. Second, the data also suggest that there are interaction effects between the two kinds of reforms: countries that enact both reforms have better economic performance compared to countries that enact only one kind of reform, and the effects are not additive. More importantly, the sequence of reforms matters. Countries that first liberalize and then become democracies do much better than countries that pursue the opposite sequence. This result appears robust to alternative ways of defining the control group used in the difference-in-difference estimation.

Thus, the main practical but tentative lesson of this paper can be summarized as follows. Consider a country that is closed both economically and politically, like China or Russia in the late 1980s. This country can follow two paths to economic and political liberalism. The common path is to do what Russia did: first become a democracy and then try open up the economy. This is what most countries in our sample have done. But the economic payoffs are much higher for countries that do it the other way, namely who open up the economy while still being autocracies, and later become democracies. In some sense, this is what China is trying to do. This route is more uncertain, in the sense that very few autocracies have pursued economic liberalizations; but those who did performed much better than the rest. The comparison between China and Russia, of course, fits this lesson very well.

2. Data

The sample consists of yearly observations for about 140 advanced and developing countries selected on the basis of data availability during the period 1960–2000.

2.1. *Economic and political liberalizations*

Our indicator of economic liberalizations is taken from Wacziarg and Welch (2003), who in turn have updated the earlier indicators compiled by Sachs and Werner (1995).

A country is considered closed to international trade if one of the following conditions is satisfied: (i) average tariffs exceed 40%; (ii) non-tariff barriers cover more than 40% of its imports; (iii) it has a socialist economic system; (iv) the black market premium on the exchange rate exceeds 20%; and (v) much of its exports are controlled by a state monopoly. A country is open if none of these conditions applies. Throughout the paper we refer to an economic *liberalization* as the event of becoming open, given that a country was closed in the previous year. Thus, this measure of economic liberalization seeks to capture discrete and comprehensive policy changes that increase the scope of the market in allocating goods and services.² Freer international trade is an important component, though not the only one, of economic liberalizations as defined here. Since we are less interested in the specific problems raised by transitions away from a socialist economic system, throughout the analysis we control for formerly socialist countries, as described below.³

Sachs and Werner (1995) find that this indicator of openness is positively correlated with economic growth in the period 1970–1989. The effect is very large and robust: economic liberalization increases average yearly growth by as much as 2%. Following Rodriguez and Rodrik (2000),⁴ Wacziarg and Welch (2003) update the Sachs and Werner index of economic liberalizations for the 1990s. The cross-sectional correlations are weaker in the 1990s: they find that an updated dummy for the 1990s is conditionally uncorrelated with economic growth across countries, so that the results in Sachs and Werner (1995) appear to be specific to their chosen time period. However, using the country-specific dates of liberalization—the same we use in this paper—and studying the within-country effects of liberalization, Wacziarg and Welch (2003) confirm that episodes of economic liberalizations are followed by an increased trade volume, faster growth and an acceleration of investment. The effects on trade are significant over the entire sample (1950–1998), though weaker in the most recent period (1990–1998). This last finding suggests that announced trade reforms are not always associated with increases in trade: this will happen if, for instance, tariffs are replaced by other trade barriers, as was the case in India in 2000–2001. Why “liberalizations” as defined by the Wacziarg and Welch (2003) dummy may not be accompanied by increases in trade volumes is one of the facts addressed in this paper.

Following a large literature on the topic, we define a country as a democracy if it has strictly positive values of the indicator *POLITY2* in the *POLITY IV* database.⁵

²Economic reforms don't always happen overnight: sometimes they are the result of a gradual shift towards more market-friendly policies. Our measure, which assumes that such changes happen discretely, could therefore be affected by measurement error. If this was the case, our estimates would be downward biased. The possibility of measurement error thus makes our positive results more robust. Below we show that these results are also robust to comparing performance before and after the years immediately surrounding the date of liberalization.

³In about one third of the cases, an economic liberalization occurs during an IMF program, though many IMF programs do not result in liberalizations as classified in this paper.

⁴Rodriguez and Rodrik (2000) point out that the Sachs and Werner (1995) definition of being closed is dominated by the last two conditions (state monopoly in exports and black market premia). But see the reply in Werner (2003).

⁵*POLITY2* codes transition years by interpolating the variable *POLITY* from the years before to the years at the end of the transition. The variable *POLITY* in turn seeks to measure the quality of democratic institutions, on the basis of freedom of active and passive participation in elections, checks and balances on the executive, freedom of political association and respect of other basic political rights. It has been coded in the *POLITY* project (<http://www.cidcm.umd.edu/inscr/polity/index.htm>) precisely with the purpose of detecting changes in political institutions over time.

Throughout this paper, we refer to a *democratization* as the event of becoming a democracy, given that a country was not a democracy the previous year. The choice of 0 as the dividing line between democratic and non-democratic regimes is suggested by the observation that *POLITY2* tends to jump discretely around zero. The standard deviation of this variable is 0.2 over the entire range (−10, +10 where the mean is 7.6) and 0.5 in the range (−3, +3 where the mean is 1.7). A cursory look at the time series data indicates that indeed crossing 0 is often associated with large and discrete improvements in institutions that take place over one or two years, while subsequent improvements in this indicator tend to be much more gradual. The same definition of democracy was used in previous studies, such as Persson and Tabellini (2003) and in Persson (2004).

2.2. Performance measures

We consider three types of indicators of performance: (i) general economic outcomes; (ii) macroeconomic policies; and (iii) governance indicators.

Our first and main question is whether economic and political liberalizations have an effect on general economic outcomes. Perhaps the ultimate indicator of economic performance is real per capita income, but for reasons that we discuss below, it is difficult to draw inferences about the causal effect of reforms on the level of income. Moreover, the time period we consider only lasts 40 years, and many reforms take place in the second half of this period. Hence, rather than studying the effect of reforms on the level of per capita income, we focus on its growth rate, defined as the first difference of the log of GDP per capita (*growth*). In addition, we also consider the investment rate, defined as the ratio of total investment to GDP (*investment*), and in some cases we also look at a measure of the relative size of international trade, defined as import plus exports over GDP (*trade*). The source for all these three variables are the Penn World tables. For most countries, these variables are available for the whole period 1960–2000.

Our second question is whether economic and political liberalizations induce governments to choose (or are accompanied by) better macroeconomic policies. As indicators of macroeconomic policy we consider the yearly rate of inflation, expressed in logs (*inflation*), and the central government surplus as a fraction of GDP (*surplus*). The source for these variables is the IMF. Inflation is available for the whole period for many countries, although for quite a few countries the series contains some non-contiguous years of missing observations. The variable *surplus* is available from the early 1970s onwards only, and for a few countries for a shorter period.

Finally, we ask whether economic and political liberalizations also induce governments to introduce new institutions or improve existing institutions, with the results of enhancing the protection of property rights or the protection from abuse by government. For this purpose, we include among our measures of performance two widely studied indicators of perception of good governance. The first, called *gadp*, summarizes perceptions of structural policies and institutional environments encouraging the production of output rather than its diversion (through theft, corruption, litigation or expropriation). This variable has been compiled by Knack and Keefer (1995) using ICRG data. It is available over the period 1982–1997 and consists of a simple average of five indicators: two relate to the role of the government in protecting property rights against private diversion (law and order, and bureaucratic quality); the other three to the role of the government itself as a source of diversion (corruption, risk of expropriation and government repudiation of

contracts). The variable *gadp* varies from 0 to 10, with higher values indicating better policies (more protection of property rights). As we are particularly interested in the role of regime changes in preventing abuse of power by government officials, we also consider one specific component of *gadp*, namely, perceptions of the control of corruption (*corruption*). This indicator (unlike *gadp*) varies from 0 to 6, again with higher values denoting better policies—i.e. less corruption. This variable too is only available from 1982 to 1997, and its source is the same as for *gadp*.

3. Methodology

3.1. General econometric strategy

How can we estimate the causal effect of economic and political reforms on economic performance? Most existing macroeconomic literature has focused on one of two approaches. The simplest one is to estimate cross country regressions. Economic performance, or economic policies, are regressed on indicators of the political or trade regime.⁶ The obvious problem here is that the estimated correlation could reflect an omitted variable or reverse causation. The typical solution is to find an instrument for the political or trade regime, as in Hall and Jones (1999). But good instruments are not easily available, particularly when it comes to democracy. Moreover, as discussed in Wacziarg and Welch (2003), cross-sectional regressions mask useful information from the time variation in the data; and both regimes vary considerably over time in our sample. The second approach is to estimate panel regressions.⁷ While exploiting also the time variation in the data, this approach too relies on restrictive and untestable identifying assumptions taking the form of exclusion restrictions.

In this paper, we follow the microeconomic approach. We define reforms as a “treatment” administered to some countries but not others, and estimate the causal effect of the treatment through a difference-in-difference estimation. This methodology allows us to exploit both the time series and the cross sectional variation in the data. Specifically, we include in the analysis as many countries as possible: some experienced a reform during the period of observation, and are called “treated”; others had no reform during this period, and are called “controls”. For instance, when studying the effect of economic liberalizations, the control countries are those that were always open or always closed during the relevant time period. We then compare economic performance in the treated countries, before and after the treatment, with the economic performance of the control group over the same time period. The estimation method thus exploits both the within-country variation as well as the comparison between countries.⁸ This has clear advantages relative to the simpler comparisons in isolation: exploiting the within-country variation only, risks confounding the effect of a treatment with that of unobserved variables that move all countries at the same time—a relevant possibility in our context because many

⁶Examples of this approach are Mulligan et al. (2004) on the effects of democracy, Alesina et al. (2003) on the effect of economic liberalization on trade volumes.

⁷Examples of this approach are Sachs and Werner (1995) on economic liberalizations, Barro (1996) or Przeworski and Limongi (1993) on democracy.

⁸In this respect, our methodology differs from both Wacziarg and Welch (2003) and Roll and Talbott (2003), who estimate the effect of economic and political liberalizations, respectively, only from within-country (i.e. before-after) comparisons.

economic and political liberalizations are clustered in the 1990s. Exploiting the cross-sectional comparisons only can be even more misleading, because the omitted variable problem is daunting in this context.

Since reforms do not take place in all countries at the same time, to implement the difference-in-difference approach we estimate the following regressions in the whole sample of treated and control countries, where i subscripts refer to countries and t subscripts refer to years:

$$y_{it} = a_i + b_t + \gamma x_{it} + \delta \text{reform}_{it} + e_{it}, \quad (1)$$

where y_{it} denotes the measure of performance, a and b are country and year fixed effects, respectively, x_{it} is a set of other control variables, reform_{it} is a dummy variable taking a value of 1 in the years after the reform in the treated countries and 0 otherwise (i.e., reform_{it} is 0 in the treated countries before the reform and in the control countries) and e is an unobserved error term. The coefficient δ measures the effect of the reform on the variable of interest y .

3.2. Identification

As explained for instance in Besley and Case (2000) or in Blundell and McCurdy (2000), the crucial identifying assumption in this difference-in-difference estimation is that there is no unobserved variable affecting performance that moves systematically over time in a different way between the treated and control groups. A violation of this assumption is more likely if the treated and control countries are very different from each other, because in this case any omitted time-varying variable, such as technological progress or increased globalization, could affect treated and control countries in very different ways. The identifying assumption could also be violated if reforms are not random and whatever triggers the reform also has a causal effect on performance; for instance, economic liberalizations might be systematically enacted by far sighted political leaders, who also promote sound economic performance in many other ways, as discussed in Jones and Olken (2005) and Glaeser et al. (2004). Alternatively, there could be unobserved heterogeneity, with reforms more likely to be beneficial in some countries than in others; if reforms are non-random and occur more frequently where the chance of success is higher, then our estimate of the average treatment effect is biased.

These identifying assumptions are clearly restrictive, as is always the case in macroeconomics. Nevertheless, there are a number of steps we can take to reduce the likelihood of violation and to check their validity. First, by including in the control groups countries that are always open or always closed economically, or always democratic or non-democratic, we insure that the average control country is not very different from the average treated country. We have checked this more formally, by estimating the probability of treatment (i.e. of undergoing economic or political liberalizations) as a function of time invariant country features such as continental location (being in Africa, Asia and Latin America) and socialist legal origin. Appendix B displays the histograms of the estimated probability of treatment (i.e. of having at least one reform) for different groups of countries: those who had no reforms, those who had only one reform, and those who had both. We find controls and treated countries close to both extremes of the estimated probabilities of treatment (the so called “propensity score”); that is we find a few control countries that were likely to experience some reforms but did not, such as Haiti, as

well as several treated countries that were not very likely to receive treatment, such as Ireland with regard to economic liberalization, or Iran towards the end of the sample with regard to political liberalization. This reassures us that the two groups of countries are not too different from each other. As a further check, we have also assessed the robustness of our main results—those on sequencing—to a different definition of the control group, excluding from the group of control countries those that remained both economically and politically closed throughout our sample and, alternatively, those that remained always open along both dimensions.

Second, we always include in the vector x of additional controls a dummy variable for socialist legal origin interacted with the economic or political reform that we are studying. This makes sure that the estimated effects of reforms do not reflect the very special circumstances of the transition in formerly socialist countries. Moreover, we also always check that the results are robust to including in the vector x of additional controls the interaction between year fixed effects and time invariant variables that classify countries according to their continent (Africa, Latin America and Asia) and to socialist legal origin. Conditioning on this time varying variable makes countries more similar and thus reduces the likelihood of a violation of our identifying assumption—see also Appendix B. Third, we check the estimated residuals of the control group (over the whole period) and of the treated group before the reform; a violation of the assumption that reforms are random is likely to result in systematically different time patterns of the estimated residuals between these two groups of countries. If we do not find clearly different patterns over time, we are reassured about the validity of our identifying assumption.⁹

3.3. Implementation

Implementing this estimation strategy in our context requires addressing a few other problems. First, some reforms take place very close to the end of the sample for which we have available measures of performance. Since we expect that it takes some time for reforms to influence performance, we discard the reforms that took place in the last 3 years of the available sample. Specifically, we set to missing the observations of the dependent variables after a reform, if the reform is not followed by at least three additional years of data on performance. For instance, Burkina Faso liberalized its economy in 1998 and *growth* is only available until 2000. We have thus set *growth* to missing for Burkina Faso from 1998 onwards, and this country is thus considered a control (since it did not experience any liberalization before 1998). Since the pattern of available data differs depending on the measures of performance, this also implies that the groups of control and treated countries vary with our definition of performance. With regard to the beginning of the sample, we only require one available observation of performance before the reform took place, for a country to be classified as treated (since here delayed effects are not a problem).

Second, in a few countries we observe episodes of reversals in economic and political liberalizations. Reversals are more frequent for democratizations, particularly in a few African countries that start out as democracies upon becoming independent and then, after

⁹Recent papers by Acemoglu et al. (2004, 2005) indirectly support our assumption of random reforms, since they show that, within countries, there is no systematic evidence that changes in the quality of democracy are correlated with income or education.

a few years, collapse into dictatorships. Some of these episodes of reversals or of democratization are very brief and last only a few years. To cope with this problem, we define treatment in two different ways. First, we only consider *permanent reforms*, that is reforms that are not reversed in the sample up to the year 2000. In this case we ignore temporary reforms that are subsequently reversed. The reason for doing this is that reversed liberalizations are in some sense incomplete reforms that failed in some important yet unobserved dimension. Here we are interested in the effects of the reforms that lasted. Of course, this might create a selection problem for the reforms that happen towards the end of the sample, for which a reversal might take place in the future but cannot be observed. Next, we define the treatment to include all reform episodes that last at least four years, *irrespective of whether they are temporary or permanent*. The restriction to at least four years of reform is imposed in light of the observation that the effects of the reform on performance do not occur suddenly.¹⁰

Finally, some of our measures of performance, such as the rate of investment or corruption, move slowly over time. Despite the inclusion of year dummy variables, the residuals of our regressions for these measures of performance are likely to be serially correlated. Although this does not bias the estimated treatment effect, it could lead us to underestimate the true standard errors (see Bertrand et al., 2004). To cope with this problem, we always report also standard errors estimated with clustered regressions, that allow residuals to be correlated within each country block. In some specifications we also control for lagged per capita income or the lagged dependent variable, or we estimate by averaging the data over longer periods. We discuss these specification and estimation issues more in detail in the next section.

The sample of countries for which we have data on growth and on at least one of the reform indicators (democracy, and being economically open or closed) is reported in Appendix A.

4. The effects of economic and political liberalizations when studied in isolation

First we consider the effects of liberalizations and democratizations in isolation, showing that the data are consistent with the results of prior research. In the next section we study the feedbacks and interactions between the two types of reform.

Table 1 reports the effects of economic and political liberalization on growth and investment. As explained in the previous section, the control group consists of all the countries that did not go through the regime change that is being studied, during 1960–2000. Thus, when we study the effects of economic liberalization, the controls are the countries that remained either always closed or always open throughout the sample—or, more precisely, in the portion of our sample for which the dependent variable exists, here

¹⁰In a few countries, reforms are enacted, then are interrupted for just a few years, and then are enacted again. If the reversal lasts three years or less, we neglect it and when coding all reform years (permanent and temporary) we code the reversal period as if it did not occur. Again, this is suggested by the logic that reforms (and reversals) need to last some time to show their effects. For instance, Albania became a democracy with available data on *growth* in 1992, and remained a democracy until the end, except for a one-year, 1996, during which democracy was interrupted. When we define treatment as a permanent reform, we code the treatment as having started in 1997 (the year of permanent democratization). When we consider all instances of democratization, we neglect the reversal of 1996 that lasted only one year, and we classify Albania as a democracy throughout this period (and hence we consider it a control country).

Table 1
Effects of liberalizations and democratization on growth and investment

Dep. variable	Growth reform = lib		Investment reform = lib		Growth reform = dem		Investment reform = dem					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>Reform</i>	1.32 (0.38)***	0.93 (0.41)**		2.32 (0.31)***	1.98 (0.34)**		0.78 (0.37)**	0.44 (0.45)	0.48 (0.30)	-0.07 (0.37)		
<i>3y_pre_reform</i>			-0.95 (0.49)*			-2.36 (0.42)***						-0.37 (0.51)
<i>3y_post_reform</i>			0.48 (0.46)			-0.55 (0.39)						0.02 (0.47)
<i>4yon_post_reform</i>			0.95 (0.44)**			2.12 (0.38)***						0.34 (0.41)
Treatment	All	Permanent	Permanent	Permanent	Permanent	Permanent	Permanent	Permanent	Permanent	Permanent	Permanent	Permanent
Y*conts	Yes	Yes	No	Yes	Yes	No	Yes	Yes	All	No	Yes	No
Obs.(countries)	4492(134)	4492(134)	4492(134)	4640(135)	4640(135)	4640(135)	4388(138)	4387(138)	4518(150)	4397(138)	4530(150)	4530(150)
Adj. R ² (within)	0.03	0.03	0.01	0.08	0.08	0.04	0.03	0.03	0.06	0.01	0.07	0.01

Standard errors in parentheses (above: OLS; below: clustered); *Significant at 10%; **Significant at 5%; ***Significant at 1%.
reform = 1 after reform (*lib* stands for economic liberalization, *dem* for democratization).

3y_pre_reform = 1 in the 3 years preceding reform.

3y_post_reform = 1 in the year of reform and in the 3 following years.

4yon_post_reform = 1 from the 4th year and onwards after reform.

Y*conts: Y are dummy variables for years; conts are dummy variables for Asia, Africa, Latin America and for socialist legal origin.

Regression always include country and year fixed effects, as well as a dummy variable for socialist legal origin interacted with *reform*.

growth and investment; when we study the effects of political liberalization, the controls are the countries that were either always democratic or always non-democratic in our sample.

Table 1 should be read as follows (the same holds for Tables 2 and 3). The variable *reform* is a dummy variable equal to 1 in the post-liberalization (*reform = lib* columns) and post-democratization (*reform = dem* columns) years for the treated countries only. Its estimated coefficient captures the average effect of the reform. The columns, labelled “all” in the fourth-but-last row, consider all liberalization episodes, including those that were eventually reversed, provided they last longer than 3 years. For each regression we report two standard errors, those from the OLS regression (above) and those for the clustered regressions (below). As explained in the previous section, all regressions include country fixed effects and year dummy variables, as well as the dummy variable for socialist legal origin interacted with the reform dummy variable. When the label “Yes” appears in the third row from the bottom, we also control for year dummy variables interacted with dummy variables for continental location (Africa, Asia and Latina America) and for socialist legal origin. A previous working paper version (Giavazzi and Tabellini, 2004) showed that the results reported in these tables are robust to alternative combinations of these specifications.

Columns 3, 6, 9 and 12 investigate the timing of these effects, by replacing the variable *reform* with a dummy variable equal to 1 in the three years preceding the reform (*3y_pre_reform*), a dummy variable equal to 1 in the year of the reform and in the three following years (*3y_post_reform*), and a dummy variable equal to 1 from year 4 after the reform and onwards (*4yon_post_reform*).

4.1. Effects of reforms on growth and investment

Economic liberalizations speed up growth by about 1% and raise the share of investment by almost 2% of GDP (columns 1, 2, 4 and 5). The effects of permanent and temporary liberalizations are not very different—if anything, temporary liberalizations seem to have a larger effect on growth and investment than those that are not reversed. These estimates are similar to those obtained by Wacziarg and Welch (2003), who only consider treated countries and compare the periods before and after the reform.

Liberalizations seem to be triggered by crisis (columns 3 and 6, for growth and investment, respectively): they occur at the end of a period during which the economy grows less than usual (about 1% below trend growth), and investment is unusually low. Moreover, the positive effects of liberalization take at least 4 years to show up. Note that the estimated coefficient of the variable (*4yon_post_reform*) captures the difference between average economic performance four years after the reform and the default years (i.e. the control countries and the treated countries in the years that precede the reform by more than three years). Thus, after four years or more, not only is the crisis overcome, but economic performance is significantly better than before the crisis.

If reforms are preceded by a crisis, is our identification assumption at risk? Not necessarily, unless one believes that something else happened during or after the crisis (other than the economic reform itself), which in turn is responsible for the observed improvement in economic performance four years or more down the line. On the contrary, this time pattern suggests that the improvement in economic performance certainly did not start before the reform was implemented, and thus if anything it reinforces a causal

interpretation of the estimates. We return to a discussion of the identifying assumptions in Section 4.3 below.

The finding that reforms are preceded by crisis raises yet another concern: could the growth and investment acceleration after the reform simply reflect economic convergence once the crisis is overcome? To answer this question we re-estimated the equation including lagged per-capita income among the regressors. If the growth or investment acceleration four years after the reform was just due to the income loss suffered during the crisis years, it would be captured by this new variable. To avoid the bias due to the inclusion of lagged per-capita income in a panel regression with country fixed effects and short time dimension, we discarded all countries for which less than 21 years of data are available—this left us with 100 countries and an average panel length of about 30 years per country. The estimated effect of liberalization on growth and investment was very similar to that reported in Table 1, for all specifications.

Democratic transitions are associated with small improvements in economic performance (columns 7, 8, 10 and 11 of Table 1). Growth accelerates by about $\frac{1}{2}\%$ after democratizations, but the effect is not always statistically significant, and drops if we restrict attention to permanent reforms only. The effects on investment are never statistically significant. Overall, these estimates are similar to previous results in the literature, which found no robust effect of becoming a democracy on economic performance.¹¹

When we study the timing of these effects (columns 9 and 12 of Table 1), the event of becoming a democracy is preceded by a slowdown in growth and investment, as in the case of economic liberalization, although here the estimated coefficients are not statistically significant.

The results are very similar if we include lagged per-capita income among the regressors (disregarding the countries for which less than 21 years of data are available): the estimated effect of becoming a democracy is positive and about the same order of magnitude as in Table 1, but it is statistically significant only when considering all democratizations.

As a final check against spurious dynamic effects, we also re-estimated the model with a two-step procedure suggested by Bertrand et al. (2004) to cope with serially correlated residuals. First, we estimated the residuals of a panel regression of economic performance (growth or investment) against country and year fixed effects (in some specifications we also included year dummy variables interacted with continental location and socialist legal origin), for the whole sample of countries (treated and controls). Then we retained only the treated countries and computed the average of the residuals before and after the last unreversed reform. To have a long enough time average, we discarded the spells (before or after the reform) that lasted less than 10 years. Under the null hypothesis that economic or political liberalizations have no effect on economic performance, the averaged residuals should be the same before and after the reform. In the case of economic liberalizations we could always reject this null hypothesis, confirming that such liberalizations improve economic performance. In the case of political liberalizations the two-step procedure could

¹¹See for instance Przeworski and Limongi, (2000). These inconclusive results about the average effects of democratizations are consistent with the finding by Persson (2005) that the form of democracy that a country adopts (whether presidential or parliamentary) is associated with differences in economic performance. Papaioannou and Siourounis (2003), using panel data analysis, find more positive results: in their sample democratizations lead to an almost 1% increase in per capita income growth, with the effect appearing three years after the transition to a democracy.

not reject the null that the residuals were the same before and after the reform, indicating that transition to democracy did not affect performance.

4.2. Effects on *gadp* and corruption

Table 2 documents the effect of economic and political liberalization on *gadp* and control of corruption. These results are new: with the exception of Persson (2005), who focused on the effects of adopting alternative democratic constitutions, there are no comparable empirical studies of the effects of reforms on these indicators of structural policies

Both types of reform are associated with small improvements in the quality of structural policies. The estimated effect is generally significant, but it is small and never exceeds 0.6.¹² Again, we find that the effects are delayed by at least 3 years. But since the dependent variables measure *perceptions* of good policies, these delayed effects cannot be interpreted as causal. Rather, a more natural interpretation is that reforms are simultaneously accompanied by improvement in structural policies, and the perceptions improve a few years after new and better structural policies are in place. These episodes of economic reforms probably correspond to the implementation of a cluster of good policies, of which opening up to international trade is but one aspect. Note that the effect of democratizations on the control of corruption tends to be stronger than on *gadp*.

4.3. Effects on macroeconomic policies

Table 3 looks at the effects of economic and political liberalizations on macro policies, namely the budget surplus (in percent of GDP) and inflation (expressed in logs). The interpretation suggested above—that episodes of economic reforms correspond to the implementation of a cluster of good policies—is confirmed by the estimates in Table 3: following an economic liberalization the budget surplus improves by some 1.5% of GDP and inflation drops—although the drop in inflation is not robust to alternative specifications and happens at the end of a period during which inflation was unusually high. Here too, the effects of economic reforms are delayed.¹³

Democratizations are associated with ambiguous effects on macroeconomic policy: inflation rises, but so does the budget surplus, at least when all democratizations are lumped together. The timing of these effects, illustrated in columns 9 and 12, is puzzling however: both inflation and the budget surplus are already higher up to three years before democratization, relative to the default observations. This suggests that the identifying

¹²Remember that *gadp* is an index ranging between 0 and 10, while control of corruption ranges between 0 and 6.

¹³In regressions not reported here, we have also split the liberalization episodes between those that occurred during an IMF program and those that did not. Liberalizations that occurred during an IMF program have a stronger positive effect on subsequent growth and on *gadp* and a stronger negative effect on inflation, but a weaker effect on investment and the budget surplus, compared to the other liberalizations. This might be due to the fact that IMF involvement is more likely in times of crisis (i.e. IMF programs are not random). Whatever the interpretation, this finding further reinforces the idea that episodes of economic liberalizations correspond to clusters of policy reforms. This result is interesting in itself: by comparing economic liberalizations that occurred during an IMF program with those that did not, it goes a step beyond traditional analysis of the effectiveness of such programs (see e.g. Nsouli et al., 2004).

Table 2
Effects of liberalization and democratizations on gapd and corruption

Dep. variable	GADP reform = lib		Corruption reform = lib		GADP reform = dem		Corruption reform = dem					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>Reform</i>	0.15 (0.08)* (0.14)	0.16 (0.08)* (0.14)		0.15 (0.07)** (0.16)	0.15 (0.07)** (0.16)		-0.03 (0.08) (0.18)	0.20 (0.09)** (0.20)		0.19 (0.07)** (0.20)	0.30 (0.08)*** (0.21)	
<i>3y_pre_reform</i>			-0.24 (0.09)*** (0.14)			0.03 (0.08) (0.14)			-0.19 (0.11)* (0.17)			-0.09 (0.08) (0.16)
<i>3y_post_reform</i>			-0.03 (0.09) (0.21)			0.10 (0.08) (0.18)			0.04 (0.11) (0.23)			0.17 (0.09)* (0.22)
<i>4yon_post_reform</i>			0.59 (0.10)*** (0.26)**			0.45 (0.09)*** (0.22)**			0.49 (0.12)*** (0.30)			0.50 (0.10)*** (0.27)*
Treatment	All	Permanent	Permanent	All	Permanent	Permanent	All	Permanent	Permanent	All	Permanent	Permanent
Y*conts	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No
Obs.(countries)	1561(106)	1559(106)	1559(106)	1595(106)	1593(106)	1593(106)	1791(122)	1790(122)	1790(122)	1825(122)	1828(122)	1828(122)
Adj. R ² (within)	0.47	0.47	0.47	0.02	0.02	0.00	0.46	0.47	0.45	-0.00	0.00	-0.01

Standard errors in parentheses (above: OLS; below: clustered); *Significant at 10%; **Significant at 5%; ***Significant at 1%.
reform = 1 after reform (*lib* stands for economic liberalization, *dem* for democratization).

3y_pre_reform = 1 in the 3 years preceding reform.

3y_post_reform = 1 in the year of reform and in the 3 following years.

4yon_post_reform = 1 from the 4th year and onwards after reform.

Y*conts: Y are dummy variables for years; conts are dummy variables for Asia, Africa, Latin America and for socialist legal origin.
 Regression always include country and year fixed effects, as well as a dummy variable for socialist legal origin interacted with *reform*.

Table 3
Effects of liberalizations and democratization on inflation and surplus

Dep. Variable	Inflation reform = lib		Surplus reform = lib		Inflation reform = dem		Surplus reform = dem					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>Reform</i>	-0.17 (0.06)*** (0.16)	-0.15 (0.07)** (0.19)	1.16 (0.08)*** (0.18)***	1.53 (0.48)*** (1.65)	2.01 (0.48)*** (1.57)	-0.79 (0.50) (0.77)	0.18 (0.06)*** (0.13)	0.17 (0.07)** (0.21)	0.31 (0.11)*** (0.21)	0.99 (0.52)* (1.28)	0.04 (0.62) (1.00)	2.06 (0.69)*** (0.94)**
<i>3y_pre_reform</i>			0.71 (0.08)*** (0.17)***			1.34 (0.49)*** (1.07)			0.53 (0.10)*** (0.23)**			1.97 (0.66)*** (1.15)*
<i>3y_post_reform</i>												
<i>4yon_post_reform</i>			0.22 (0.08)*** (0.23)			1.90 (0.53)*** (1.22)			0.43 (0.09)*** (0.22)*			1.21 (0.67)* (1.24)
Treatment	All	Permanent	Permanent	All	Permanent	Permanent	All	Permanent	Permanent	All	Permanent	Permanent
Y*conts	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No
Obs.(countries)	3594(131)	3594(131)	3594(131)	1907(103)	1907(103)	1907(103)	3740(141)	3739(141)	3739(141)	1995(110)	1996(110)	1996(110)
Adj. R ² (within)	0.33	0.33	0.26	0.06	0.04	0.04	0.32	0.32	0.21	-0.01	-0.01	-0.00

Standard errors in parentheses (above: OLS; below: clustered); *Significant at 10%; **Significant at 5%; ***Significant at 1%.
reform = 1 after reform.

3y_pre_reform = 1 in the 3 years preceding reform (lib stands for economic liberalization, dem for democratization).

3y_post_reform = 1 in the year of reform and in the 3 following years.

4yon_post_reform = 1 from the 4th year and onwards after reform.

Y*conts: Y are dummy variables for years; conts are dummy variables for Asia, Africa, Latin America and for socialist legal origin. Regression always include country and year fixed effects, as well as a dummy variable for socialist legal origin interacted with reform.

assumption might be violated, since the policy changes might precede the political reform. This issue is further discussed below.¹⁴

How do these results compare with earlier findings in the literature? There is no comparable study that we are aware of on the association between economic liberalizations and macroeconomic policies. The few papers that have investigated the correlation between the political regime and macroeconomic stability have also reached ambiguous conclusions.¹⁵

4.4. Discussion

The results up to this point can be summarized as follows. Economic liberalization is good along all dimensions: it is accompanied by better structural policies and better macroeconomic policies, and it is followed by improved economic performance. This timing suggests a causal interpretation, at least with regard to economic outcomes. Political liberalization, on the contrary, do not have strong and robust effects on growth and investment, though they appear to improve structural policies and they yield mixed results on macroeconomic policies. These findings confirm with a new methodology previous results in the literature about the effects of economic and political liberalizations on growth and investment, and add new insights on the other policy variables.

As anticipated in Section 3, the identifying assumption behind these estimates is that there is no unobserved time varying variable that affects performance in the treated and control groups differently. To check that this assumption is not clearly inconsistent with the data, we have plotted the average estimated residuals in each year, for the control and for the treated groups before the corresponding reform.¹⁶ Under the identifying assumption, the residuals for these two groups of countries—the treated and the controls—ought to be similar, up until the time of the reform. This is what we find for growth and investment, not for the other variables. The differences are more pronounced towards the end of the sample, when the number of treated countries becomes very small because more and more countries have taken the treatment.

The presence of a pattern in some of the residuals suggests two possible sources of bias in these ‘single treatment’ regressions. The ‘treatment’, that is economic or political liberalization, did not happen randomly, but at the end of a period during which a country that eventually opened up, along one or the other dimension, behaved in a systematically different way from the control group—for instance was investing more, or less, than the controls. If the reform is not random, then there could be a selection bias—for instance we could find larger investment after economic liberalizations simply because the countries

¹⁴In Tables 2 and 3 we generally do not have a long enough time period to estimate dynamic equations with lagged dependent variables or with the two-step procedure suggested by Bertrand et al. (2004). The only exception is inflation, for which we have 91 countries with 21 years of data or more. Including a lagged dependent variable or estimating with the two step procedure discussed above reinforces the inference that inflation falls after economic liberalization and rises after democratizations.

¹⁵Exploiting only cross sectional evidence, Satyanath and Subramanian (2004) argue that democracy is associated with macroeconomic stability; but Mulligan et al. (2004) find no significant difference between democracies and non-democracies. Desai et al. (2003) use cross-national time-series data, and conclude that the relationship between inflation and democracy depends on the degree of income inequality: if inequality is low, democracy is associated with low inflation, while the reverse happens if inequality is high.

¹⁶These figures are available in the working paper version of this article, Giavazzi and Tabellini (2004).

that opened up were already investing more than the group of control countries. Alternatively, the bias could be the result of having omitted one or more variables correlated with both performance and treatment. This second problem is particularly relevant if both reforms tend to be undertaken simultaneously, or if one type of reform induces the other. If so, omitting one of the two treatment variables biases the estimated effect of the included one—for instance we may attribute an improvement in *gdp* to economic liberalization, while it is really the effect of the transition to a democratic regime which accompanies economic liberalization.

Motivated by these concerns, we now consider the feedback effects between economic and political liberalizations, as well as possible interactions in their effects on the performance indicators.

5. Interactions between economic and political liberalizations

We start by studying the feedback effects between economic and political liberalizations. That is, we first ask whether one reform appears to ‘cause’ the other. Then, we study the joint effects of both reforms on the measures of performance discussed in the previous sections, paying particular attention to the sequence of reforms. These last questions have not been systematically addressed in the literature, and this section contains the main novel results of this paper.

5.1. *Is an economic liberalization more likely after a political liberalization, or vice versa?*

A priori, these effects could go in both directions and reinforce each other. Trade tends to benefit many, and hurt a few: it thus seems more likely that a democratic regime shifts the balance in favour of freer trade. This is the finding, among others, of [Fidrmuc \(2003\)](#) and [de Haan and Sturm \(2003\)](#). It is also possible, however, that a liberalized economic regime fosters a transition towards democracy, for instance because it increases the economic well being and the economic power of the middle classes (see for instance [Lopez-Cordova and Meissner, 2004](#); [Papaioannou and Siourounis, 2004](#); [Acemoglu and Robinson, 2004](#); [Rajan and Zingales, 2003](#)).

The results are displayed in [Table 4](#). Here the dependent variables are, respectively, the continuous variable *POLITY2*, that varies from -10 to $+10$ and measures the democratic quality of the political regime (higher values being better democracies), and the 0–1 index of economic liberalization. In the regression in which the dependent variable is the quality of democracy, the treatment is defined as the economic reform and the control group includes all the countries that never changed their economic regime. Vice versa, when the dependent variable is being economically open, the treatment is democratization and the control groups consists of all countries that never changed their political regime.¹⁷

Contemporaneous feedback effects are generally weak. The timing of these feedback effects, reported in columns 2 and 5 suggests however that causality is more likely to run from political to economic liberalizations rather than vice versa. Economic liberalizations (the left-hand-side panel of [Table 4](#)) do not appear to lead the transition to a democracy: as

¹⁷In columns 4 and 5, where we consider the effects of permanent democratizations, the dependent variable is defined as being permanently open; in column 6, where we consider the effect all democratizations (permanent and temporary), the dependent variable is being open (irrespective of whether or not there has been a reversal).

Table 4
Effects of liberalizations on democracy and viceversa

Dep. variable	Becoming economically open					
	POLITY2			Forever (in the sample)		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Lib</i>	−0.16 (0.25) (0.82)		−0.16 (0.23) (0.74)			
<i>Dem</i>				0.12 (0.02)*** (0.07)*		0.02 (0.01) (0.05)
<i>5y_pre_reform</i>		2.13 (0.35)*** (0.60)***				
<i>3y_pre_reform</i>		3.05 (0.30)*** (0.75)***			0.05 (0.02)** (0.05)	
<i>3y_post_reform</i>		2.34 (0.28)*** (0.89)***			0.15 (0.02)*** (0.06)**	
<i>4yon_post_reform</i>		2.15 (0.28)*** (1.01)**			0.32 (0.02)*** (0.07)***	
Treatment	Permanent	Permanent	All	Permanent	Permanent	All
Y*conts	Yes	No	Yes	YES	No	Yes
Obs.(countries)	4573(132)	4573(132)	4573(132)	4593(132)	4593(132)	4581(132)
Adj. R ² (within)	0.29	0.25	0.29	0.50	0.41	0.50

Standard errors in parentheses (above: OLS; below: clustered); *Significant at 10%; **Significant at 5%; ***Significant at 1%.

lib (*dem*) = 1 after liberalization (democratization).

ny_pre_reform = 1 in the n years preceding reform (liberalizations or democratizations).

3y_post_reform = 1 in the 3 years following reform (liberalizations or democratizations).

4yon_post_reform = 1 from the 4th year and onwards after treatment (liberalizations or democratizations).

Y*conts: Y are dummy variables for years; conts are dummy variables for Asia, Africa, Latin America and for socialist legal origin.

Regressions always include country and year fixed effects, as well as a dummy variable for *socialist legal origin* interacted with *lib* (columns 1–3) and with *dem* (columns 4–6).

shown in column 2, the quality of democracy is higher *both before and after* the date of economic liberalization. In particular, there is no evidence that *POLITY2* is higher in the years following economic liberalization, compared to the five preceding years.

Democratizations, on the contrary, appear to lead economic liberalization (see the right-hand-side panel of Table 4). The index of economic liberalization rises over time in the years following the transition to a democratic regime, thus suggesting that political liberalization precedes economic liberalizations much more than the other way around. Since the dependent variable here is either 0 or 1, the coefficients in the right hand panel of

Table 4 can be interpreted as effects on probabilities—that is, for instance, the coefficient 0.32 in column 5 means that over 4 years after the transition to a democracy the probability that a country will open up has increased by 32%—a large effect indeed.

A cursory look at the data in Appendix A also suggests that the direction of causality is more likely to go from political to economic liberalizations rather than vice versa. As shown in panel C of the Table in the Appendix, among the countries that undertook both reforms in the period 1960–2000, as many as 22 countries first became democracies and then opened up the economy, while the opposite sequence is observed in only nine countries. Moreover, countries that first became democracies opened up the economy after about 4 years on average, while for the opposite sequence the average distance between the two reforms exceeds 9 years, suggesting that these two reforms are less closely related in this second group of countries.¹⁸

Despite these remarks, other features of the data suggest that the feedback effects could go in both directions. We have again plotted the estimated residuals for the control countries and for the treated countries before the reform (these Figures are available in the working paper version). If the direction of causality ran exclusively from democracy to economic liberalization, the residuals for the control countries and the treated countries before the political reform should display similar patterns. But this is not what we find. In particular, when the dependent variable is economic liberalization, the residuals from the treated group before political reform display a positive trend towards the end of the 1990s. This suggests that this group of countries was more likely to open up the economy in the 1990s, quite independently of the prior transition to a democracy. Indeed, most cases of economic liberalization that are preceded by political liberalization happen in the 1990s; when we exclude this decade from the sample, the estimated coefficients in the right hand panel of Table 4 drop and become negative or statistically insignificant, and the evidence that democratizations precede liberalizations disappears.

Overall, we are thus led to conclude that the positive feedback between economic and political liberalizations could run in both directions, and that it is difficult to ascertain a precise direction of causality between economic and political reforms. This suggests that we ought to study the effects of the two liberalizations jointly; this is what we do in the next section.

5.2. *Interactions between political and economic liberalizations: does the sequence matter?*

The question of whether there are complementarities or other interactions between different types of reforms is of independent interest, beyond addressing the identification problem discussed in the previous section. We would like to know if the *joint* adoption of both reforms enhances the sum of the individual effects, and if the sequence of reforms matters.

The control group now consists of all countries that have never changed either political or economic regime, and we allow for multiple treatments: only economic liberalization, only democratization, or both.

There is also a more technical reason for allowing the estimated coefficients to differ depending on the number and sequence of reforms. If we imposed a priori the same coefficients on the reform dummy variables for all countries irrespective of the number and

¹⁸Paraguay is the only country where the two reforms happened simultaneously.

sequence of reforms—while the true effects are heterogeneous—the error term would pick up part of the heterogeneous treatment effect; with multiple treatments (and hence multiple dummy variables for economic reform in the same country), this would create a correlation between the error term and the reform dummy variables in the countries that experienced both treatments, leading to biased estimates.

For these reasons, in this subsection we partition the countries in mutually exclusive groups and we estimate a specification that includes the following dummy variables for reforms:

- two dummy variables equal to one after political (economic) liberalization in the countries that only changed their political (economic) regime, leaving the other unchanged throughout the sample. These variables are labelled *dem_1t*, for democratization-1-treatment-only, (*lib_1t*, for liberalization -1-treatment-only).
- two dummy variables equal to one after political (economic) liberalization in the countries that enacted both reforms, that is liberalized the economy and also introduced democratic institutions. These variable are labelled *dem_2t*, for democratization-2-treatments, (*lib_2t*, for liberalization -2-treatments).
- two dummy variables equal to one after the *second* reform only, depending on the sequence of the reform. The variable *lib_after_dem* is equal to one after the second reform only, and only for countries that first became a democracy and then liberalized the economy; it is zero in all other cases. Likewise, the variable *dem_after_lib*, is equal to one after the second reform for countries that first liberalized the economy and then became a democracy, otherwise it is zero. If the estimated coefficients of both variables are zero, then it means that there are no interaction effects (i.e. the effects of reforms, as captured by the dummy variables *dem_2t* and *lib_2t*, are additive), and the sequence does not matter.¹⁹

Thus, the effect of reforms in countries that undertook both reforms should be read as follows. Consider a country like Mexico that first opened up the economy and then became a democracy. When it liberalizes the economy, the effect on economic performance is given by the estimated coefficient of the variable *lib_2t*. When it then becomes a democracy, the effect is captured by the algebraic sum of the coefficients of *dem_2t* and *dem_after_lib*. Conversely, consider a country like Argentina that followed the opposite sequence: first it became a democracy and then it opened up the economy. The effect of the first (political) reform is captured by the estimated coefficient of the variable *dem_2t*. The effect of the second (economic) reform, instead, is captured by the algebraic sum of the coefficients of *lib_2t* and *lib_after_dem*.

As in the previous subsections, we always include a dummy variable for socialist legal origin interacted with a dummy variable for political liberalization and with a dummy variable for economic liberalization, to isolate the effects that are due to the special case of transition economies. Given that here we seek to extract more information from the data and since there are fewer countries in each group, we pay more attention to the other conditioning variables; in particular, we always include year dummy variables interacted with dummy variables for continental location and socialist legal origin. To save space here

¹⁹One country, Paraguay, undertook both reforms in the same year: we thus set both variables, *lib_after_dem* and *dem_after_lib*, equal to 1 after both reforms for Paraguay.

we mainly confine attention to all reforms, lumping together temporary and permanent reforms, but consider alternative specifications and estimation methods. The working paper version devotes more attention to permanent reforms only, and shows that the results are robust.²⁰

Consider Table 5 first, where the dependent variables are growth and the investment rate. The first column of each panel (columns 1 and 4) report our basic estimates. Columns 2 and 5 add lagged income, to control for possible convergence dynamics; to reduce the impact of the lagged dependent variable bias in fixed effects estimation, here we discard all countries with less than 21 years of data. Since serial correlation in the residuals is less likely to be a problem in these regressions, we only report standard errors estimated by OLS.

In the first two rows we report the estimated coefficients of the variables *dem_1t* and *lib_1t*, referring to the countries that opened up in only one dimension. Here we see that becoming a democracy has no effect on economic performance. Economic liberalization instead has a positive effect on economic performance. These estimates thus confirm the findings already discussed in the previous subsections, when considering each reform in isolation, although the effects here are slightly weaker.

In rows three and four we report the estimated coefficients of the variables *dem_2t* and *lib_2t*, referring to the countries that undertook both reforms. As explained above, these coefficients capture the effect of the reform that came first (democracy or economic liberalization, depending on the sequence). Once more, economic liberalization has strong positive effects on growth and investment. Becoming a democracy has no effects on investment, but leads to growth accelerations. Compared to the countries that opened up in only one dimension, the effects here are generally stronger, particularly for democracy. Compared to the results described in the previous section, where we considered each reform in isolation, we confirm that economic liberalizations induce economic improvements, but we now find stronger positive effects from becoming a democracy.

Finally, rows six and seven report the estimated coefficients of the variables *lib_after_dem* and *dem_after_lib*. As explained above, these variables capture possible interaction effects between the two reforms and discriminate among countries on the basis of the sequence. These estimated coefficients are generally different from zero, suggesting the presence of interaction effects, although with opposite signs on growth and investment.

The overall effect of the last reform (democracy or economic liberalization, depending on the sequence) can be obtained by the algebraic sum of the estimated coefficient of *dem_2t* and *dem_after_lib* (if the sequence was first economic liberalization and then democracy), or by the sum of *lib_2t* and *lib_after_dem* (under the reverse sequence). These algebraic sums indicate that, when the second reform is enacted, investment accelerates

²⁰Although the number of countries that had both reforms is not very large (22 countries had democratization first, 9 had liberalization first, one had both at the same time), the groups with opposite sequence contain countries that are similar in many respects, such as geographic location or level of development –cf. Appendix A. This reassures us that we are estimating a causal effect of the sequence, and not a selection bias. Moreover, the residuals of growth and investment for the controls display similar patterns as the treated countries before the first reform. The same holds if we split the treated countries in two separate groups, depending on the number and sequence of reforms. This suggests that, when performance is measured by growth and investment, the identification assumptions are consistent with the data. The residuals of the remaining variables, however, display different patterns in the treated and control groups. This means that our identification assumptions could be problematic with regard to the effects of reforms on macroeconomic policy and structural policies.

Table 5

Effects of democratizations and liberalizations on growth and investment

Dep. variable	Growth			Investment		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>dem_1t</i>	0.47 (0.61) (1.06)	0.86 (0.60)	-0.78 (0.52)	0.70 (0.50) (1.45)	0.55 (0.53)	-0.56 (1.02)
<i>lib_1t</i>	0.86 (0.49)* (0.46)*	1.05 (0.47)**	-0.00 (0.25)	1.42 (0.40)*** (1.05)	1.45 (0.40)***	0.49 (0.49)
<i>dem_2t</i>	1.53 (0.52)*** (0.39)***	1.00 (0.51)**	0.59 (0.54)	0.31 (0.42) (1.11)	0.49 (0.43)	1.16 (1.06)
<i>lib_2t</i>	2.20 (0.66)*** (0.71)***	1.71 (0.64)***	1.00 (0.48)**	2.64 (0.54)*** (1.63)	2.79 (0.55)***	-1.11 (0.95)
<i>dem_after_lib</i>	-1.02 (0.93) (0.87)	0.99 (0.92)	-0.46 (0.71)	1.49 (0.76)* (2.22)	1.41 (0.78)*	3.67 (1.40)***
<i>lib_after_dem</i>	-1.88 (0.86)** (0.91)**	-2.07 (0.85)**	-1.89 (0.67)***	-0.35 (0.71) (1.95)	-0.40 (0.72)	-0.14 (1.33)
Lagged income	No	Yes	No	No	Yes	No
Estimation	OLS, FE	OLS, FE	2 step	OLS, FE	OLS, FE	2 step
Treatment	All	All	Permanent	All	All	Permanent
Obs.(countries)	4229(130)	4065(107)	110	4230(130)	4030(106)	113
Adj. R ² within	0.04	0.07	0.05	0.10	0.11	0.08

Standard errors in parentheses (above: OLS; below: clustered); *Significant at 10%; **Significant at 5%; ***Significant at 1%.

dem_1t (*dem_2t*) = 1 after democratizations for countries that did not (did) liberalize.

lib_1t (*lib_2t*) = 1 after liberalizations for countries that did not (did) democratise.

dem_after_lib (*lib_after_dem*) = 1 after the second reform for countries that liberalized first (became dem. first)
 Controls always included: country and year fixed effects, dummy variables for years interacted with dummy variables for Asia, Africa, Latin America and socialist legal origin; dummy variable for socialist legal origin interacted with lib and dem.

further while growth is not affected or might even fall. But here the effects are stronger for democracy than for economic liberalization. When the second reform is democracy, growth is not affected but investment accelerates by about 2% of GDP. When instead the second reform is liberalization, growth remains unaffected and investment rises but by less.

Thus, the central new lesson from Table 5 is that the sequence of reforms matters a lot. Opening up the economy first and then becoming a democracy gives better results than the opposite sequence. This can be seen directly by comparing the estimated coefficients of *lib_after_dem* and *dem_after_lib*. In the growth regressions, the estimated coefficient of *lib_after_dem* is always negative and significant, while the estimated coefficient of *dem_after_lib*, is not significantly different from zero (and when lagged income is included it is even positive). In the investment regressions, the estimated coefficient of *dem_after_lib*

is always positive and statistically significant, while the estimated coefficient of *lib_after_dem* is negative although not significant. Thus, although the sign of the interaction effects is different on growth, compared with investment, both regressions imply that countries that open up the economy first perform better compared to countries that enact the opposite sequence. Opening up the economy first gives two boosts to economic performance: the first one at the time of economic liberalization; and then a second one, on investment, when the country becomes a democracy. Becoming a democracy first, instead, gives more disappointing results: there is some acceleration of growth (but not of investment) at the time of democratization; but later on, when the economy is liberalized, the positive effects of liberalizations tend to vanish or are smaller compared to the countries that enacted the two reforms in reverse order.

As a robustness check, columns 3 and 6 of [Table 5](#) report the two step estimates obtained with the procedure suggested by [Bertrand et al. \(2004\)](#) and described above. First we estimate the residuals of a panel regression of economic performance (growth or investment) against country and years fixed effects and the year dummy variables interacted with continental location and socialist legal origin, for the whole sample of countries (treated and controls). Then we retain only the treated countries and compute the country average of the residuals under three sub-periods: before any reform, after the first reform and before the second reform, and after the second reform (whenever it took place). To have a long enough time average, we discard the sub-periods lasting less than 10 years; we are left with 110 observations corresponding to an unbalanced panel of at most three periods for the treated countries. We then regress these remaining averaged estimated residuals on the same set of dummy variables used on yearly data and described above. As shown in columns 3 and 6, the resulting estimates confirm the importance of the sequence of reforms.²¹

As a final sensitivity analysis, we have re-estimated the growth regressions in column 1 and 2 of [Table 5](#) using different control groups. Remember that in the regressions just described the control group contained all countries that never underwent a reform—either economic or political. To assess robustness, we have first excluded from the control group those countries that remained both economically and politically closed throughout our sample: dropping these “basket cases” from the control group should reduce the chances of finding a positive effect on growth from the adoption of reforms. Next we have excluded from the control group those countries that remained both economically and politically open throughout our sample: this should instead raise the chances of finding a positive effect on growth from the adoption of reforms. The results obtained when using either control group are almost identical to those reported in columns 1 and 2 of [Table 5](#).

[Table 6](#) reports the same set of estimates for two other dependent variables: international trade (defined as the volume of trade in percent of GDP) and the rate of inflation. The structure of [Table 6](#) and the estimation procedures are identical to those of [Table 5](#), except that in columns 2 and 5 we now include the lagged dependent variable (rather than lagged per-capita income); thus, the estimated coefficients in these columns capture the short run effects of the reforms.

The left hand panel of [Table 6](#), on international trade, helps to understand why the sequence might be important. Under the “good” sequence, economic liberalization gives a

²¹These estimates refer to permanent (i.e. unreversed) reforms. As for the yearly data, in the last step we also control for socialist legal origin interacted with political and economic reforms.

Table 6

Effects of democratizations and liberalizations on inflation and international trade

Dep. variable	Trade			Inflation		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>dem_1t</i>	-5.22 (1.45)*** (3.53)	-1.09 (0.81)	0.16 (3.17)	0.16 (0.10) (0.22)	-0.03 (0.09)	0.22 (0.19)
<i>lib_1t</i>	0.23 (1.15) (2.88)	0.01 (0.64)	0.04 (1.53)	-0.01 (0.08) (0.21)	0.01 (0.06)	-0.03 (0.10)
<i>dem_2t</i>	-1.56 (1.22) (2.28)	0.32 (0.67)	-4.31 (3.30)	0.11 (0.09) (0.20)	0.11 (0.07)	-0.32 (0.20)
<i>lib_2t</i>	8.45 (1.56)*** (4.42)*	2.28 (0.86)***	1.14 (2.95)	-0.84 (0.12)*** (0.36)**	-0.43 (0.10)***	-0.11 (0.18)
<i>dem_after_lib</i>	10.52 (2.21)*** (9.21)	1.23 (1.21)	4.72 (4.35)	-0.16 (0.16) (0.40)	-0.07 (0.13)	-0.24 (0.27)
<i>lib_after_dem</i>	-7.22 (2.05)*** (6.14)	-2.45 (1.13)**	2.94 (4.13)	0.64 (0.14)*** (0.52)	0.16 (0.12)	0.78 (0.26)***
Lagged dep var	No	Yes	No	No	Yes	No
Estimation	OLS, FE	OLS, FE	2 step	OLS, FE	OLS, FE	2 step
Treatment	All	All	Permanent	All	All	Permanent
Obs.(countries)	4229(130)	3946(106)	110	3371(126)	2876(88)	81
Adj. <i>R</i> ² within	0.30	0.80	-0.04	0.34	0.58	0.11

Standard errors in parentheses (above: OLS; below: clustered); *Significant at 10%; **Significant at 5%; ***Significant at 1%.

dem_1t (*dem_2t*) = 1 after democratizations for countries that did not (did) liberalize.

lib_1t (*lib_2t*) = 1 after liberalizations for countries that did not (did) democratise.

dem_after_lib (*lib_after_dem*) = 1 after the second reform for countries that liberalized first (became dem. first).

Controls always included: country and year fixed effects, dummy variables for years interacted with dummy variables for Asia, Africa, Latin America and socialist legal origin; dummy variable for socialist legal origin interacted with *lib* and *dem*.

big boost to trade (the estimated coefficient of *lib_2t* is always positive and generally highly significant), with a second smaller boost once the country becomes a democracy (the algebraic sum of *dem_2t* and *dem_after_lib* is positive and significant in the first column). Under the “bad” sequence, becoming a democracy reduces, if anything, trade volumes (the estimated coefficient of *dem_2t* is negative or insignificant), and economic liberalization has negligible effects on trade (the algebraic sum of *lib_2t* and *lib_after_dem* is close to zero). The right hand panel of Table 6, on inflation, suggests a second way in which the sequence seems to matter. Repeating the same steps, we see that economic liberalizations induce a fall in inflation in the countries that open up the economy first, but this does not happen if economic liberalizations follow democratizations. Table 6 thus suggest that there

are two types of economic liberalizations: those that are associated with improvements in trade and better macroeconomic policy, and those that are not. Economic liberalizations that are enacted after a country has become a democracy are less effective at boosting trade volumes and are accompanied by worse macroeconomic policies. This might be one channel through which the sequence of reforms matters.

Table 7 repeats the analysis for the budget surplus and structural policies (*gdp* and corruption). Since a shorter time series is available for these dependent variables, here we do not attempt to also control for a lagged dependent variable or to estimate via the two-step procedure. Thus, we only report the usual set of estimates on yearly data, on permanent and all reforms. The estimates on the budget surplus provide yet more evidence that the sequence matters: economic liberalizations enacted after becoming a democracy

Table 7
Effects of democratizations and liberalizations on surplus, *gdp* and corruption

<i>Dep. variable</i>	Surplus		GADP		Corruption	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>lib_1t</i>	-1.92 (0.85)** (0.92)**	2.55 (0.61)*** (2.06)	-0.03 (0.12) (0.32)	-0.11 (0.11) (0.22)	-0.06 (0.11) (0.35)	0.06 (0.10) (0.25)
<i>dem_1t</i>	2.04 (0.58)*** (1.92)	1.24 (0.57)** (2.05)	0.02 (0.09) (0.16)	0.06 (0.10) (0.17)	0.10 (0.08) (0.15)	0.14 (0.08)* (0.13)
<i>dem_2t</i>	1.40 (0.86) (2.29)	-0.73 (0.81) (1.99)	0.35 (0.18)* (0.17)**	-0.06 (0.14) (0.29)	0.60 (0.14)*** (0.34)*	0.30 (0.12)** (0.36)
<i>lib_2t</i>	3.58 (1.13)*** (2.45)	4.04 (1.10)*** (2.40)*	0.34 (0.22) (0.16)**	0.14 (0.14) (0.21)	0.28 (0.19) (0.20)	0.27 (0.12)** (0.28)
<i>dem_after_lib</i>	-0.29 (1.23) (2.38)	-0.42 (1.01) (1.98)	-0.13 (0.25) (0.30)	0.06 (0.15) (0.35)	-0.21 (0.21) (0.43)	0.06 (0.13) (0.33)
<i>lib_after_dem</i>	-2.95 (1.30)** (2.15)	-1.83 (1.12) (1.65)	-0.10 (0.24) (0.24)	0.12 (0.12) (0.19)	-0.31 (0.21) (0.21)	-0.16 (0.10) (0.15)
<i>Treatment</i>	Permanent	All	Permanent	All	Permanent	All
<i>Obs. (countries)</i>	1861(101)	1802(100)	1535(104)	1500(103)	1569(104)	1534(103)
<i>Adj. R2 within</i>	0.07	0.07	0.49	0.51	0.04	0.05

Standard errors in parentheses (above: OLS; below: clustered); *Significant at 10%; **Significant at 5%; ***Significant at 1%.

dem_1t (*dem_2t*) = 1 after democratizations for countries that did not (did) liberalize.

lib_1t (*lib_2t*) = 1 after liberalizations for countries that did not (did) democratize

dem_after_lib (*lib_after_dem*) = 1 after the second reform for countries that liberalized first (became dem. first)
Controls always included: country and year fixed effects, dummy variables for years interacted with dummy variables for Asia, Africa, Latin America and socialist legal origin; dummy variable for socialist legal origin interacted with *lib* and *dem*.

No lagged dependent variable included; estimation by OLS.

are associated with smaller improvements in the budget surplus, compared to economic liberalizations that come first. The results on *gadp* and control of corruption, instead, suggest that economic and political reforms seem to have additive effects, confirming the results obtained when considering each reform in isolation. Here the sequence seems unimportant, although the countries that enact both reforms do better than the countries that enact only one of them.

Finally, we address one last question. Consider countries that had only one reform in our sample period, 1960–2000. Some of them were closed in the other (non-reformed) dimension, others were open. If the sequence of reforms matters, could the effect of the observed reform differ depending on whether the country was open or closed in the other dimension? To answer this question, we split the dummy variables *lib_1t* and *dem_1t* into a finer partition, allowing the effect of *lib_1t* to differ between democracies and non-democracies, and the effect of *dem_1t* to differ between countries that were economically open or closed. Here the comparison did not yield conclusive results. One reason could simply be lack of data: among the countries experiencing only one reform, only three countries (Central African Republic, Iran and Malawi) became democracies in closed economic environments, and relatively few opened up the economy while remaining dictatorships throughout. In most other cases, the reform took place in countries that were already open in the other dimension. A second possibility is that the distance in time between the two reforms in this group of countries was so large to make them incomparable to the countries undertaking both reforms in a closer sequence. Whatever the reason, the inference that the sequence of reforms matters is only supported by the sample of countries that undertook both reforms during the observed sample period.

6. Concluding remarks

The main lesson we learn from the joint study of economic and political liberalizations is that the sequence matters. Countries that first liberalize the economy, and then make the transition to a democracy, do better, in terms of growth, investment, trade volume and macro policies, than those that adopt the two reforms in the reverse order. This finding can be interpreted in two alternative and non-mutually exclusive ways.

One possibility is that economic liberalizations enacted first are more effective. This interpretation is suggested by the findings on trade volume and inflation: economic liberalization first is associated with a sharp increase in trade volumes, both at the time of economic liberalizations and then again later on, when the country becomes a democracy. Instead, economic liberalizations that are preceded by transitions to democracy have much smaller effects on trade. Similarly, the reduction in inflation is only observed after an economic liberalization if it comes first. The type of economic liberalization a country adopts thus seems different depending on whether the country in which it happens is, or is not, a democracy. Democracies do tend to liberalize the economy, but trade does not expand, suggesting that although the economy is formally open, protection remains pervasive, or new non-tariff barriers are introduced to replace formal tariffs. This is not the case when the liberalization takes place in a dictatorship. “Dictators” are less likely to open up the economy, as suggested by the fewer cases of economic liberalizations under dictatorships. But those who do—for instance Chile in 1976, or Guyana in 1988, or Mexico in 1986—if they decide to open up, it is because they are able to crush the interest groups

that oppose free trade and a market system. Hence liberalization is more pervasive and effective, and less bogged down by compromises.²²

The other possibility is that democratizations, when enacted in an open economic environment, produce “better” democracies. There are several reasons why this might be the case. One reason is that liberalization speeds up growth and introduces a more competitive environment. Eventually, when the country gets rid of the dictator and becomes a democracy, it is in some sense, a better democracy. First, because it is now open to trade and competition; second because, having grown faster for some time, it now has the resources for the redistribution that a democracy requires. A young democracy in a closed economic environment, instead, is more likely to be bogged down in redistributive conflicts and be more unrestrained in the pursuit of populist and inefficient policies.²³ A second reason might be that the sequence economic liberalization followed by political liberalization might indicate the presence of a controlled and pre-planned liberalization enacted by a far sighted leader—as suggested in Glaeser et al. (2004) and Jones and Olken (2005). Instead, when democratization comes first, it is more likely to be unexpected and result from violent struggles or collapses of state authority. As such, it is more likely to be associated with economic disruptions and redistributive struggles. The data lend some support to this interpretation as well. Democratizations that follow liberalizations seem to give an additional boost to investment and trade volumes, perhaps because they give more confidence that the open economic environment will last over time. This does not happen when democratization comes first. Moreover, when democratization comes second, we tend to observe a more gradual improvement in the quality of democracy (as measured by the variable *POLITY*) in between the two liberalization episodes—a sign of a more controlled reform process.

What does all of this imply for a country that is closed economically and politically and that is contemplating economic and political reforms, such as China, or for a new-born country e.g. like Iraq? If reforms could be administered like medical treatments, then the answer would be clear cut. Economic liberalization should come first and receive the strongest priority. Only afterwards should the country worry about political reform. But reforms are not ordered by a doctor and the data do suggest that autocrats are less likely to open up the economy. Indeed, most economic liberalizations tend to be preceded by political reforms, perhaps imposed by a struggling population on an unwilling leader. In this case, the sequence of reforms cannot be chosen ex-ante and the path to reform might be less effective from an economic point of view.

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²²Waldner (1999) reaches a similar conclusion comparing reforms in Taiwan and Korea, on one side, and in Turkey and Syria on the other. He points out that democratization—which he calls “the incorporation of a broader citizenry”—makes it difficult to switch from an import-substitution to an export-led development strategy. The reason is that “popular incorporation requires side-payments to channel and contain mass participation.” And such side-payments, by increasing factor prices, are a hindrance to trade and dilute the positive effects of economic liberalizations.

²³Krusell and Rios-Rull (2002) show how the success of a transition depends on the policies adopted by the new democratic government, in particular on whether or not it will interfere with the adoption of new technologies.

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Appendix A. Countries and years of permanent democratizations and liberalizations

We report here the sample of countries for which we have data on growth and on at least one of the reform indicators: democracy, and being economically open or closed. The table is split in three panels: panel A lists the control countries (those that were always open or always closed during the period in which data on growth are available); panel B lists the treated countries that had only one reform during the period in which data on growth are available—either political or economic liberalization; panel C lists all treated countries that experienced both reforms during the relevant time period. In each panel, the second and third columns report the date of their last liberalization and of their last democratization (i.e. a permanent liberalization or democratization as defined above). A missing date means that no change in the relevant dimension was observed during this period.²⁴ About 85 countries had at least one episode of trade liberalization during 1960–2000 that was not subsequently reversed, while there are about 50 countries that have become democratic and had not reverted to autocracy by the year 2000. 32 countries experienced both reforms.

A.1. Countries that received no treatments (controls)

In this table some countries are defined as controls even if a liberalization or democratization year appears: it means that the dependent variable was not available in the year of permanent liberalization or democratization, or that the reform took place so late in the sample that the last few observations of the dependent variable were discarded.

Country	Year of perm. liberalization	Year of perm. democratization
Algeria	—	—
Angola	—	—
Austria	1960	—
Azerbaijan	1995	—
Belarus	—	—
Belgium	—	—
Bulgaria	1991	1990
Burkina Faso	1998	—
Burundi	1999	—

²⁴For a few countries only, a missing observation means that the economic or political regime could not be classified based on available data.

Canada	—	—
Chad	—	—
China	—	—
Comoros	—	—
Congo	—	—
Croatia	—	1999
Cuba	—	—
Czech Republic	1991	—
Denmark	—	—
Eq. Guinea	—	—
Estonia	—	—
Finland	1960	—
France	—	—
Gabon	—	—
Georgia	1996	—
Germany	—	—
Haiti	—	—
Hong Kong	—	—
Iceland	—	—
India	—	—
Italy	—	—
Kazakhstan	—	—
Kyrgyzstan	1994	—
Lesotho	—	—
Lithuania	1993	—
Luxembourg	—	—
Malta	—	—
Moldova	1994	—
Namibia	—	—
Netherlands	—	—
Nigeria	—	1999
Norway	—	—
Pakistan	—	—
Papua New G.	—	—
Russia	—	—
Rwanda	—	—
Senegal	—	2000
Sierra Leone	—	—
Slovak Rep.	1991	—
Slovenia	1991	—
Swaziland	—	—
Sweden	1960	—
Switzerland	—	—
Syria	—	—
Tajikistan	1996	—
Togo	—	—
Ukraine	—	—

United Kingd.	—	—
United States	—	—
Uzbekistan	—	—
Vietnam	—	—
Yemen	—	—
Zaire	—	—
Zimbabwe	—	—

A.2. Countries that received one treatment only: Democratization (treatment refers to growth regressions)

In this table, as in the previous one, some countries are defined as having received only one treatment even if a year appears for both liberalization and democratization: it means that the dependent variable was not available in one of those years, or that the reform took place so late in the sample that the last few observations of the dependent variable were discarded. The same applies for the following table. A * (†) next to the country name denotes an economic liberalization (democratization) taking place during an IMF program.

Country	Year of perm. liberalization	Year of perm. democratization
Albania	1992	1997
Cambodia	—	1998
Central African Rep.	—	1993
Cyprus	1960	1968
Fiji	—	1990
Greece	—	1974
Iran	—	1997
Malawi [†]	—	1994
Portugal	—	1975
Spain	—	1976
Thailand	—	1992
<i>Countries that received one treatment only: liberalization</i>		
Armenia*	1995	1998
Australia	1964	—
Barbados	1966	—
Botswana	1979	—
Cameroon	1993	—
Cape Verde	1991	—
Colombia	1986	—
Costa Rica	1986	—
Egypt*	1995	—
Gambia	1985	—
Guinea*	1986	—
Guinea-Bissau	1987	1999

Indonesia*	1970	1999
Ireland	1966	—
Israel	1985	—
Ivory Coast	1994	2000
Jamaica*	1989	—
Japan*	1964	—
Jordan	1965	—
Kenya	1993	—
Latvia*	1993	—
Macedonia	1994	—
Malaysia	1963	—
Mauritania*	1995	—
Mauritius	1968	—
Morocco*	1984	—
New Zealand	1986	—
Niger*	1994	1999
Singapore	1965	—
South Africa	1991	—
Sri Lanka*	1991	—
Tanzania	1995	—
Trin. & Tobago	1992	—
Tunisia*	1989	—
Uganda	1988	—
Venezuela	1996	—

A.3. Countries that received 2 treatments

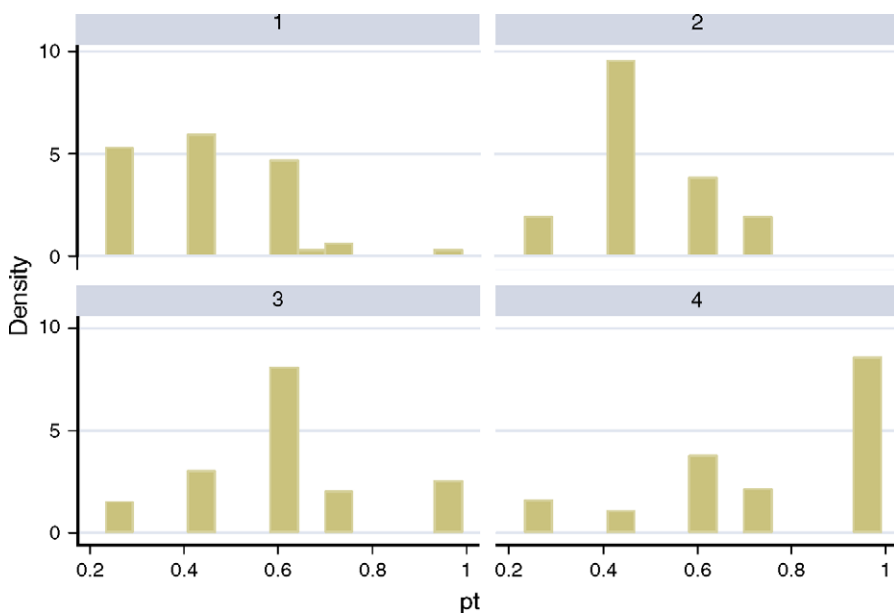
Country	Year of perm. liberalization	Year of perm. democratization
<i>Democratization first</i>		
Argentina* [†]	1991	1983
Panama*	1996	1989
Paraguay	1989	1989
Uruguay [†]	1990	1985
Bolivia	1985	1982
Brazil [†]	1991	1985
Dominican Rep.*	1992	1978
Ecuador*	1991	1979
El Salvador	1989	1982
Nicaragua	1991	1990
Guatemala	1988	1986
Honduras*	1991	1980
Poland*	1990	1989
Romania*	1992	1990
Hungary	1990	1989
Turkey [†]	1989	1983

Nepal [†]	1991	1990
Bangladesh [†]	1996	1991
Philippines* [†]	1988	1986
Zambia	1993	1991
Ethiopia [†]	1996	1993
Mozambique* [†]	1995	1994
Madagascar [†]	1996	1991

Liberalization first

Chile [†]	1976	1989
Guyana [†]	1988	1992
Peru [†]	1991	1993
Mexico	1986	1994
Ghana*	1985	1996
Benin* [†]	1990	1991
Mali*	1988	1992
South Korea*	1968	1987
Taiwan	1963	1992

Appendix B. Probability of having at least one reform (either political or economic liberalization)



The horizontal axis measures the estimated probability of treatment—i.e. of having at least one reform (either economic or political liberalization)—conditional upon being in Africa, Asia, Latin America and on having a socialist legal origin. The vertical

axis measures the number of countries having this estimated probability, by group of countries:

- countries in Panel 1 are those that had no reform at all (i.e. they are the control countries),
- countries in Panel 2 are those that had political liberalization only,
- countries in Panel 3 are those that had economic liberalization only, and
- countries in Panel 4 are those that had both economic and political liberalization.

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