

Structural Reforms and Election Evidence from a World-Wide New Dataset

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Abstract. We assemble a unique database of reforms in domestic finance, external finance, trade, product markets and labor markets which covers 90 advanced and developing economies from 1973 to 2014. In the 66 democracies which we consider in this paper, we show that these reforms have medium run benefits thus they are electorally more successfully when introduced at the beginning of a new term of office. Liberalizing reforms shortly before elections are costly to incumbents. However, the effect depends on the state of the economy at the time of reform: reforms are sharply penalized during contractions, reforms undertaken in expansions are not punished and sometimes rewarded.

Keywords: Elections; Reform; Regulation; Finance; Capital Account; Current Account; Trade; Product Market; Labor Market; Employment Protection.

JEL Classification Numbers: D72; J65; L43; L51; O43; O47; P16.

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“It ought to be remembered that there is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things. Because the innovator has for enemies all those who have done well under the old conditions, and lukewarm defenders in those who may do well under the new.”

Niccolò Machiavelli, 1505.

I. INTRODUCTION

This paper has three goals. First, and perhaps most importantly, we assemble and describe what is, as far as we know, the most comprehensive data set on economic reforms for 90 countries. These reforms include both domestic ones, like goods and labor market reforms, and international one like trade and external financial liberalization. The reforms which we document can be both liberalizing or may go in the opposite direction. For brevity we label “reform” a move toward liberalization; we make it clear when we distinguish explicitly between liberalizations and moves toward the opposite direction (tightening of regulation). We construct an index which summarizes all the reforms—the arithmetic average of all reform indicators—which we have assembled data for, but we also explore separately various types of reforms. Second, we discuss the economic consequences for economic growth of these reforms which may vary depending upon when they are implemented, in different times of the business cycle. Finally, and the focus of the paper, we examine the political consequences for the government which implement them using a newly counteracted dataset of electoral outcomes for 66 democratic countries.

Our mains results are as follows. First, we document the broad evolution of policy reforms around the world. Since the late 1980s, there has been a broad tendency to liberalization across advanced and developing economies, but the pace of liberalization has declined since the Global Financial Crisis. This has been specially the case in the areas of domestic finance, current and capital account, where there has been a (modest) reversal of reforms in some countries. The pattern of reform progress has been heterogenous across different regions in the world. Liberalizing reforms have been more aggressive in Europe, much less so in the Middle East, Central Asia and in Sub-Saharan Africa. By end of 2014, the level of regulation in these regions remains significantly

tighter than in Europe. We describe the dataset and the reform patterns below and in more detail in the online appendix, Appendix 1 “The IMF Structural Reform Dataset Appendix.”

Our second set of results concerns the economic effects of reforms. We show that liberalizing reforms are followed by an increase in growth but only with a lag of a couple of years. Also, we show that reforms implemented in good times (i.e. in business cycle booms) generate additional growth than reforms implemented in bad times (i.e. in recessions). On the political side, however, sometimes the political push for reform may occur during crisis; or the latter simply does not allow to wait to implement then reforms. Instead reforms which move in the opposite to liberalization have immediate negative consequences for growth. The positive effects of liberalization and the negative effects of tightening are similar in size, but in opposite directions.

The third set of results is that government which implement liberalizing reforms close to their reelection time suffer at polls. Vote shares of the main governing party (or coalition) declines with reforms implemented in the election year. The state of the economy influences the estimated effects of reforms on incumbent vote. We show that when economies are in contractions both liberalizing reforms and those moving in the opposite direction are penalized by the voters. In contrast, reforms undertaken during a growth expansion are not electorally punished and, in some cases, even rewarded. In other words, voters may not be able to distinguish well enough the effects of the business cycle and attribute the current state of the economy to the action taken by the government at that time, without allowing for the delays in effects of the reforms on the economy.

Obviously, the choice of when to implement reforms is endogenous. Note, however that we find that most reforms occur during recessions. This suggest that often they are imposed by a situation of crisis and the timing does not seem optimal, given our results described above. In any event one must consider the endogeneity. For instance, a government may choose to adopt reforms when it knows it can be reelected despite the reform due to its popularity in other dimensions. This endogeneity may make the negative electoral effects of reforms look smaller (in absolute terms). Another possible endogeneity problem is that in some countries the government has (some) discretion on when to call elections.

We investigate endogeneity in various ways. First, we consider reforms-imposed form abroad for instance because of an IMF program. Second, we use an instrument based upon improvement in democracy in neighboring countries (Giuliano et al. 2013). Third, we investigate the sub- sample of countries in which the timing of election is exogenous. In all cases we find that our results when we try to address endogeneity show stronger negative effects of reforms on votes for the incumbent than with OLS. This is consistent with the OLS results being biased downward.

Finally, we investigate whether our results differ across different types of political systems, majoritarian versus proportional systems, with coalition government or single party government, advanced versus developing economies, and new versus established democracies. We find that single party governments are punished more than the party leader of a coalition government for election year reforms. Reforms related to the financial sectors are particularly costly to incumbents. Also, the negative effects of election year reforms are larger in developing countries, although the differences with developed economies is not statistically significant at standard confidence intervals. In contrast, the electoral effects of reforms do not significantly vary between majoritarian versus proportional systems and between new versus established democracies.

The remainder of the paper is organized as follows. Section II reviews the literature on macroeconomic policy and electoral outcomes. Section III presents the structural reform indicators and highlights the salient features of liberalization and major reform episodes over the past 40 years. We also introduce the electoral outcome database. Sections IV shows the evolution of the reform process in the last decades. Section V shows a measurement of the growth effects of reforms. Section VI examines the electoral impact of reforms. Section VII discusses issue of endogeneity of the timing of reforms. Section VIII presents various extensions and the last section concludes.

II. REVIEW OF THE LITERATURE

For surveys, on the existing literature policy reforms in general including economic and political aspects of them we refer to Prati, Onorato, and Papageorgiou (2013) Haggard and Webb (1994), Sturzenegger and Tommasi (1998) Giuliano et al. (2013). Our paper touches upon various branches of the political economy literature.

A. The economic effects of reforms

Prati, Onorato, and Papageorgiou (2013) suggest that on average, both trade and financial sector reforms are positively associated with higher growth. Quinn and Toyoda (2008) provide detailed de jure measures of capital account and financial current account openness and document that capital account liberalization is positively associated with growth. Finally, recent empirical work provides evidence that structural reforms improve economic performance in advanced economies. Duval and Furceri (2018) use an original data set on reforms in product and labor markets in twenty-six OECD countries and show these reforms raise growth but with significant lags. Similar evidence on the impact of these kinds of structural reforms in emerging and developing economies does not exist.

B. Voting on the economy

Economic conditions. Starting with Kramer (1977) Fair (1978) and Tufte (1978), for the US, many studies show that voters are more likely to support incumbents and their parties during good economic times, and to vote for the opposition when economic conditions deteriorate (see Lewis-Beck and Tien 2008 for a review of this literature). Quinn and Woolley (2001) show that increasing economic volatility reduces the vote shares of incumbent candidates and parties in a comparative, cross-national setting. Increased international economic exposure, which follows from reforms in trade and capital account, also appears to affect incumbent electoral outcomes. Margalit (2011), Feigenbaum and Hall (2015), Autor et al. (2016), and Che et al. (2016) find that trade exposure in import-competing industries has electoral effects; politicians who advocate free trade receive fewer votes in constituencies with high manufacturing trade exposure, especially to Chinese imports. Jensen, Quinn, and Weymouth (2017) show a strong electoral effect from both the winners and losers of trade exposure: high-skilled tradable service industry employment and low-skilled tradable manufacturing employment is associated with increasing and decreasing incumbent vote shares, respectively.

Political Budget Cycles. A related literature studies whether policy actions taken to eliminate structural deficits (and reduce inflation) are electorally costly. The literature on this point is vast but a few recent pieces of work well summarize the findings. In an

influential study, Brender and Drazen (2008) find that voters are likely to punish rather than reward persistent budget deficit over the leader's term in office, especially in developed economies. Alesina et al (2019b) show that on average government which drastically reduce budget deficits are not systematically punished at the polls. Alesina et al. (2019a) find evidence that tax based fiscal adjustments are punished by voters, but expenditure-based ones are not.

The Direct Electoral Costs of Reforms. While there has been theoretical work rationalizing the electoral outcomes of enacting reforms, empirical evidence is typically scant, based on a limited set of countries and with mixed results. Pacek (1994) finds that almost all post-communist reform governments were penalized at the polls. Weyland (1998) finds mixed electoral fates for reforming governments in Latin America. Buti et al. (2010), examine the effects of a de facto measure of structural reforms—indices of types of “market rigidities” for 21 OECD countries, and they report that changes in the overall market rigidity indicator have no electoral effect on incumbents.

Imposed or chosen reforms. Dreher (2004) explicitly tests whether IMF program participation affects incumbents' re-election prospects and shows that governments avoided participation in advance of elections. When crises are severe, entering a Fund program increases the likelihood of reelection; in better economic times, entering a Fund program decreased the likelihood of reelection. These results, however, only hold in less democratic countries (those with a POLITY score less than seven). A second more subtle way in which reforms may not be chosen is when “a crisis: imposes action”. Drazen and Grilli (1993) and Tommasi and Velasco (1996) provides some evidence on this point. Abiad and Mody (2005) suggest that financial reforms are spurred by balance of payments crises. Duval et al. (2018) find that weak economic conditions and high levels of unemployment foster product and labor market reforms in advanced economies.

III. DATA

A. Policy Reforms

We develop the most comprehensive dataset to date of structural reform regulation for a large sample of 90 developing and developed countries.¹ This dataset is unique not only in terms of country-time coverage, but also in the breadth of the sectoral areas covered. The indicators of regulation constructed cover both financial and real sector reforms. The former includes domestic finance, financial current account and capital account. Real sector reforms are trade (tariff), product and labor market. All indicators are scaled to vary between zero and one, with higher values representing greater liberalization. Differences in the values of each indicator across countries and over time indicate the variation in the absolute degree of economic reform within each sector. The dataset also identifies, documents, and provides the implementation date of major reforms and reversals in the policy areas covered in this paper. To the best of our knowledge, it is the first database to provide information on dates and magnitudes of policy changes for a large set of economies and structural areas.

We do not treat reform as a 0-1 variable. Both logic and description of actual episodes of reforms suggest that reforms are best described as a continuum than as dichotomic events of similar intensity. Treating a continuous variable as discrete introduces measurement errors because a small error in inaccuracy in evaluating an observation can cause a large change in the value assigned to it.

The dataset was compiled by the Research Department of the IMF through a systematic reading and coding of policy actions documented in various sources, including national laws and regulations, as well as IMF staff reports.² To address potential concerns

¹ The analysis on the electoral effects of reform is restricted to cover an unbalanced sample of democratic elections from 1973 (or the first year in which the country is characterized as a democratic regime) to 2014 for 66 economies.

² The data sources are described in greater detail in the online Appendix 1. Five of the six reform areas (trade tariffs excepted) are based on coding of the laws and policies governments used to regulate economic activity in the relevant area. Teams of experts in each reform areas were assembled, and coding rules were developed. For text-based coding, multiple coders independently scored rules and regulations in terms of the intensity of regulatory restrictions, with other coders reconciling differences.

regarding accuracy, reliability and consistency of our dataset, we evaluate the indicators in several ways. First, we compare our indicators to those existing in the literature, typically available for a smaller set of economies and time periods.³ Second, we show that our indicators are associated with related de jure measures (such as financial depth, trade and financial openness). Third, we cross-check that major changes in the reform indicators are associated with major reform events identified in previous work (such as for product and labor market regulations in advanced economies, Duval et al. 2017).

Our database covers a balanced sample of 90 countries over the full period 1973–2014 (Table 1). It includes 29 advanced economies, 50 emerging markets, and 21 low-income countries, with a broad geographical representation. The countries included represent 96 percent of the world’s 2017 GDP. The following section briefly describes the six indicators—domestic finance, capital and current accounts, trade, product markets, and labor markets. The details of the data set are described in the online Appendix 1.

Domestic financial sector. We construct the structural reform indicator for domestic finance following the approach used in Abiad, Detragiache, and Tressel (2009). We consider six dimensions of domestic finance regulation: credit controls, interest rate controls, bank entry barriers, banking supervision, privatization, and security market development. Along each dimension except banking supervision, a country is scored from 0 (highest degree of repression) to 1 (full liberalization). For the banking supervision dimension, tighter regulations—whether a country has adopted a capital adequacy ratio based on the Basel standards, and whether it has an independent banking supervisory agency—are associated with a higher score.

Current and capital account. These indicators follow the approach used in Quinn (1997) and Quinn and Toyoda (2008).⁴ We also construct subindicators of the capital account for inward and outward foreign direct investment, portfolio investment, bond

³ Other scholars and institutions have developed structural reform indicators over the past two decades in the areas of: (i) domestic finance (e.g., Abiad, Detragiache, and Tressel 2009); (ii) openness to external finance (e.g., Chinn and Ito 2008; Quinn and Toyoda 2008; Fernández et al. 2016); (iii) financial current account openness and trade (Quinn and Toyoda 2008; the World Bank); product market regulation (OECD); and labor market regulation (Botero et al., 2004; Campos and Nugent 2012).

⁴ This underlying project on the capital account extension and decomposition represents joint work with Haillie Lee, Amy Pond, and A. Maria Toyoda.

market, money markets, and finance and lending markets for 60 countries from 1980 to 2014. These de jure indicators are based on the laws and regulations described in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). It contains information about policy based on six categories: payment for imports, receipts from exports, payment for invisibles, receipts from invisibles, capital flows by residents, and capital flows by nonresidents.

Trade. The indicator measures trade tariffs at the product level. Product-level tariff data are aggregated by calculating simple and weighted averages, with weights given by the export share of each product. These averages are normalized from 0 (closed to trade, corresponding to the highest tariff in the sample, about 110 percent) to 1 (fully open to trade, corresponding to the lowest tariff in the sample, 0 percent).

Product market. The indicator covers liberalization in two network sectors: telecommunication and electricity. For each of these components, four dimensions of regulation are considered. For telecommunications, these are: competition, state ownership, the presence or absence of an independent regulatory agency, and the degree of government intervention in access to telecommunications. For electricity markets, the measures are as follows: the bundling or unbundling of generation, transmission distribution, state ownership, the presence or absence of an independent regulatory agency, and the degree of liberalization in the wholesale market. Along each of the four dimensions, a country is scored from 0 (highest degree of repression) to 1 (full liberalization).

Labor market. The labor market liberalization (LML) indicator provides a new measure of employment protection legislation (EPL) related to the termination of full-time indefinite contracts for objective reasons. Three dimensions of EPL are considered: (1) procedural requirements, such as third-party approval; (2) firing costs, including severance payments and notice requirements; (3) and grounds for dismissal with the possibility (or not) of redress. Each subindex is constructed by taking the simple average of several indicators and is normalized to range from 0 (highest regulation) to 1 (highest liberalization). We consult statutory legislation setting minimum requirements to generate this indicator. To reconstruct the history of EPL in each country, we use the most recent laws as a reference point. Next, three distinct approaches are followed to analyze older

legislation. First, we check whether the most recent laws specify which older laws they repealed or amended upon their entry into force. Second, we check the coverage of older legislation. Third, we study country-specific databases and other documents, such as government gazettes and parliamentary records. In a final step we cross-check the data from different sources.

B. Political data

A contribution of this project is making available data on incumbent electoral outcomes. We describe the dataset below and in more detail in the online appendix, Appendix 2 “Electoral Dataset Appendix.”⁵

The electoral dataset contains information on each election taken place in the countries covered in the structural reform database, from 1960 onward. The most relevant information contained are: (i) the election date; (ii) the name and of the incumbent leader (prime minister or president) and his/her party affiliation; (iii) the name of the new leader and party affiliation; (iv) the date in which the incumbent leader took office; (v) the vote share of the (coalition of) party (parties) supporting the incumbent at the current, last and second-last elections. Additional information includes the types of political systems (presidential vs. parliamentary), the electoral system (majoritarian vs. proportional) and the number of parties in the coalition.

In this paper we cover an unbalanced sample of democratic elections from 1973 (or the first year in which the country is characterized as a democratic regime) to 2014 for 66 countries (Table 2). The identification of democratic regimes is based on the POLITY2 score—a measure of regime characteristics ranging from -10 (strongly autocratic) to 10 (strongly democratic) published by Marshall et al. (2017). A country is defined to have a democratic regime if its POLITY2 score is greater than or equal to 1. Overall, the dataset contains information on 495 elections.

The start and end dates in office, as well as the party affiliation, for the head of government in each country are taken from the Database on World Political Leaders

⁵ Two other excellent electoral datasets are available. These are Dawn Brancati’s *Global Elections Database* and Scartascini et al.’s (2018) *Database of Political Institutions 2017*. GED covers the elections in 57 countries in great detail but stops (depending on the country) in the mid-2000s.

produced by Roberto Ortiz de Zárate (2019). The person acting as head of the government (parliamentary systems) or president (presidential systems) preceding the election is recorded as the incumbent. The party to which the incumbent is affiliated is recorded as the incumbent's party. The parties running on the same ticket of the incumbent's party are recorded as part of the coalition government.

The evolution of political parties is traced closely, in order to take into account changes of party names, mergers and separations. This allows to accurately calculate the length of the tenure of the leaders as well as that of the parties in office.

The dependent variable is the vote share of the incumbent's party. The main sources are the official records released by each country's electoral authority. To ensure accuracy, we complement and cross-check this information with the vote shares reported in the Global Elections Database (Brancati 2018) and the Adam Carr's Election Archive. In addition to the vote share for individual parties, we also compute the vote share of the coalition of governing parties. In the case that party coalition ran on the same ticket—that is, there are no separate vote data for each party—the incumbent party vote share is recorded as missing, while coalition vote shares data are recorded for the incumbent.

The main explanatory variables used in the analysis are: (i) the reform in the election year, and (ii) the reform in the rest of the term. Reforms in the election year are measured by the change in the structural reform indicator during the year of election. When elections take place in the first three months of the year, we code reforms as the change in the indicator in the year before. Reforms in the rest of the terms are measured by the change in the indicator between the beginning of the incumbent term and the year prior to elections. To make these two variables comparable, we divide the reform in the rest of the term by the number of years in the rest of term.

IV. THE PATTERN OF REFORMS

The online Appendix 1 shows the descriptive statistics and other empirical regularities of the data. We briefly note key general trends here. First, there has been a significant, but heterogenous reform efforts in the past four decades (Figure 1): since the late 1980s, there has been a broad tendency to pursue liberalization across advanced and developing economies (Panel A). The pace of liberalization, however, has typically declined since the Global Financial Crisis (GFC). This has been specially the case in the

areas of domestic finance, current and capital account, where there has been a modest reversal of reforms in some countries. Second, the reform process has proceeded unevenly across different sectors (Panel B): reforms appear to have been more frequent in domestic finance, trade, capital and current account than in product and labor markets. In addition, major liberalization pushes across different areas have occurred in different periods: trade reforms have occurred in the 1970s and 1980s; domestic and external finance reforms in the early 1990s; product market reforms in the late 1990s. In labor market regulation (EPL), there has been no deregulation trend and there has even been a tightening in recent years. Third, advanced economies tend to be characterized by less stringent regulations than emerging markets and low-income countries (Panel C). In addition, while emerging markets and low-income countries had a similar regulation until the 1990s, reform progress has been stronger in emerging markets than in low-income countries since then. Again, an exception is for labor market regulation (EPL), where no systematic differences emerge across countries at a different level of economic development. Fourth, reform progress has been heterogeneous across different regions in the world (Panel D): it has been the strongest in Europe, while it has been generally modest in Middle East and Central Asia and in Sub-Saharan Africa. By end of 2014, the level of regulation in these regions remains significantly tighter than in Europe. Interestingly Philippon (2017) points out that the pace of liberalizing reforms has been faster in the EU than in the US in the last decade or so.

Despite this broad tendency to pursue liberalization, there have been several cases of tightening of regulation and major reform reversals. Employment protection legislation, in particular, is an area characterized by several tightening reforms as evidenced by the declining trend in the indicator. But tightening reforms have occurred also in other regulatory areas both in advanced and developing economies. Major examples are the tightening of the capital and current accounts in Argentina after the collapse of the currency board in the early 2000s; the significant increase in tariffs in Thailand following the crisis in the late 90s; the increase in domestic finance regulation in Ecuador in the mid-2000s; the reversal of the privatization of electricity sector in Jordan in 2011; and tightening labor market reforms in Portugal in the mid-70s.

A. Reforms in the electoral cycles

Table 3 shows the intensity of reforms during the incumbent leader' electoral term. Two key general patterns are noticeable. First, the extent of liberalization reforms is lower during the year the election (note that when elections take place in the first three months of the year, we code reforms as the change in the indicator in the year before) than in the rest of the leader' electoral term.

This may suggest that governments could have stronger political support to implement reforms at the beginning of their mandate; and/or; elected politicians may opt out from implementing reforms because of the fear of jeopardizing their re-election. Interestingly, the opposite hold for tightening reforms, which intensity is larger during the election year, possibly as the results of the government's attempt to gain popularity from opponents to liberalization.

Second, liberalization reforms (both in election years and in the rest of the government term) are more frequent and larger in magnitude when economic conditions are weak. This suggest that often they are imposed by a situation of crisis and the timing does not seem optimal, both in terms of economic and political effect of reforms as we show later. In contrast, tightening reforms (both in election years and in the rest of the government term) are more frequent when the economy is in an economic expansion.

These two considerations are relevant when examining the economic and electoral effects of reforms in the next sections.

V. THE EFFECTS OF REFORMS ON THE ECONOMY: IMPACT AND DELAYS

We use two econometric specifications to estimate the macroeconomic impact of reforms. The first establishes whether reforms have significant effects on output. The second assesses whether these effects vary with the state of the economy prevailing at the time of the reform. The statistical method follows the approach proposed by Jordà (2005) to estimate impulse-response functions, a methodology used also by Auerbach and Gorodnichenko (2013), Ramey and Zubairy (2018) and Alesina et al. (2019b) among others. This procedure does not impose the dynamic restrictions embedded in vector

autoregression specifications and is particularly suited to estimating nonlinearities in the dynamic response. The first regression we estimate is:

$$y_{t+k,i} - y_{t-1,i} = \alpha_i + \gamma_t + \beta_k \Delta R_{i,t} + \theta X_{i,t} + \varepsilon_{i,t} \quad (1)$$

in which y is the log of output; α_i are country fixed effects, included to take account for differences in countries' average growth rates; γ_t are time fixed effects, included to take account for global shocks such as shifts in oil prices or the global business cycle; ΔR denotes the change in the reform indicator; remember that R , the reform index, is increasing with the degree of liberalization, thus a liberalizing reform implies a positive value of $\Delta R_{i,t}$ and a move back from liberalization a negative value. X is a set of control variables including two lags of the dependent variable, two lags of the change in the reform indicator, and recessions dummies—identified as period of negative growth.

The second specification allows the response to vary with the business cycle conditions (a continuum of states between extreme recessions and booms) at the time of the reform. It is estimated as follows:

$$y_{i,t+k} - y_{i,t-1} = \alpha_i + \gamma_t + \beta_L^k F(z_{i,t}) \Delta R_{i,t} + \beta_H^k (1 - F(z_{i,t})) \Delta R_{i,t} + \theta X_{i,t} + \varepsilon_{i,t} \quad (2)$$

with $F(z_{it}) = \exp^{-\gamma z_{it}} / (\exp^{-\gamma z_{it}} + \exp^{\gamma z_{it}})$, $\gamma > 0$

in which z is an indicator of the state of the economy normalized to have zero mean and a unit variance. The indicator of the state of the economy considered in the analysis is the GDP growth.⁶ The weights assigned to each regime vary between 0 and 1 according to the weighting function $F(\cdot)$, so that $F(z_{it})$ can be interpreted as the probability of being in a given state of the economy. The coefficients β_L^k and β_H^k capture the output impact of reforms at each horizon k in cases of extreme recessions ($F(z_{it}) \approx 1$ when z goes to minus infinity) and booms ($1 - F(z_{it}) \approx 1$ when z goes to plus infinity), respectively.⁷ We choose $\gamma = 1.5$, following Auerbach and Gorodnichenko (2012), so that the economy spends about 20 percent of the time

⁶ We use contemporaneous GDP growth as reform do not have a significant contemporaneous effect on GDP. Similar results are obtained when using lagged GDP growth.

⁷ $F(z_{it})=0.5$ is the cutoff between weak and strong economic activity.

in a recessionary regime—defined as $F(z_{it}) > 0.8$ —close to the typical business cycle pattern of many advanced and emerging market economies.⁸

Equations (1 and 2) are estimated for each $k=0,\dots,5$. Impulse response functions are computed using the estimated coefficients β_k , and the confidence bands associated with the estimated impulse-response functions are obtained using the estimated standard errors of the coefficients β_k , based on clustered robust standard errors. Figure 2 shows the estimated dynamic response of GDP to a major historical reform—identified as a change in the aggregate reform indicator above two standard deviations of the average change in the indicator—over the five-year period following reform implementation, together with the 90 percent confidence interval around the point estimate. Major deregulation episodes (such as those of Chile in the late 80s or Romania in the late 90s) have a positive and statistically significant (at 5 percent) output effect over the medium term, of about 1 percent five years after the reform. The effect, however, materialize only gradually and becomes statistically significant only two years after the implementation of reform.

The effect of the reform is broadly symmetric between liberalizing reforms and tightening reforms (Figure 3).⁹ The formers increase output in the medium term, while tightening reforms lead to a contraction in output in the short term—with the effect becoming less precisely estimated in the medium term. The difference in the absolute magnitude of the effect is not statistically significant.

The response of reforms (both liberalizing and tightening) masks widely different effects according to overall business conditions (Figure 4). In an expansion, reforms have a sizable positive and statistically significant impact on output, whereas they have a negative and statistically significant impact in a recession—the difference in the response across the two economic regimes is statistically significant at 1 percent. This result is consistent with previous empirical studies showing asymmetric effect across different

⁸ Our results hardly change when using alternative values of the parameter γ , between 1 and 6.

⁹ The number of liberalizing and tightening reforms are 1772 and 620, respectively.

economic regimes for specific reforms such as changes in tariff rates (Furceri et al 2018) and labor market reforms (Duval and Furceri 2018).¹⁰

The important points to be drawn from this section are two. First liberalizing reforms take a while, up to a couple of years, to show their positive effects on growth; reforms which move in the opposite direction have a negative, more-immediate, impact on the economy. Second reforms work better if implemented during an upturn of the business cycle. These points are critical for the electoral effects of reforms to which we now turn.

VI. ELECTORAL IMPACT OF ECONOMIC REFORMS

A. Reforms and elections

We begin by estimating the effects of reforms on the change in the incumbent party (or the coalition of parties) vote share following reforms introduced in the election year and in the rest of the government term as described above. The coefficients we are mostly interested in are those on various measures of reforms but of course we control for other determinants of elections.

In the benchmark specification we control for the average GDP growth during the electoral term and three binary indicators (see Table 2): a developed country dummy (1 = countries defined as advanced economy according the IMF classification and 0 otherwise); a dummy variable for new democracies (1 = countries for the first four elections after a year with a negative Polity score on the -10 to 10 scale, or 0 otherwise); and a dummy variable for a majoritarian political system (1 = countries with an electoral

¹⁰ One of the reasons why the impact of tariffs depends on the state of the business cycle is related to the effect of tariffs on inflation and the role of monetary policies. An increase in tariffs acts as a supply shock by decreasing output and increasing inflation in the short run. This, in turn, prompts central banks to respond with a contractionary impulse, thereby magnifying the negative effect of tariffs (Barattieri, Cacciatore, and Ghironi 2018). For labor market reform, the theoretical rationale is that reform affects differently firms' hiring versus firing incentives in good and bad times. In a recession, firms seek to dismiss more and hire less than in a boom, but stringent job protection partly discourages them from laying off; relaxing that constraint triggers a wave of layoffs, increasing unemployment, weakening aggregate demand and delaying the recovery (Cacciatore et al., 2016b).

system that awards seats in “winner-take-all” geographically based districts according to the Database of Political Institutions, and 0 otherwise; Cruz, Keefer, and Scartascini 2016). This list of control is standard and follows Brender and Drazen (2008).¹¹

Specifically, we estimate the following specification:

$$\begin{aligned} \Delta \text{Incumbent Party Vote Share}_{i,t} = & \beta_0 + \beta_1 \text{Reform}_{ey_{i,t}} + \beta_2 \text{Reform}_{term_{i,t-1}} + \\ & \beta_3 \text{Growth}_{ey_{i,t-1}} + \beta_4 \text{Growth}_{term_{i,t-1}} + \beta_4 \text{Developed Country}_i + \\ & \beta_5 \text{Developed Country}_{i,t} + \beta_6 \text{Majoritarian system}_{i,t} + \beta_7 \text{Initial Regulation}_{i,t-x} + \\ & \beta_8 \text{Incumbent Party Vote Share}_{i,t-1} + \varepsilon_{i,t}, \end{aligned} \quad (3)$$

where $i=(country)$, $t=(election\ year)$. We explicitly examine changes in the reform index in the year of election: $Reform_{ey_{i,t}}$, which is change in the unweighted average of all reform indicators in the year of an election. When elections take place in the first three months of the year, we code reforms as the change in the indicator in the year before.¹² We also examine $Reform_{term_rest_{i,t-x}}$, which is change in the aggregate reform index in the rest of the incumbent’s term, plus the initial level of the indicator at the start of the incumbent’s term, given that the reform indicators are bounded between zero and one. Equation 3 is estimated using a panel pooled OLS estimator.

It is important to clarify the sign of our indicators of reforms. A positive value of that variable means a move toward liberalization, while a negative sign a move away from it. Thus, a positive sign on the coefficient on that variable implies an increase in the dependent variable when the reforms move toward liberalization.

We begin pressing the results in Table 4 with reforms during the election year. They are associated with a statistically significant decrease in the vote share. We find that a major reform—identified as a change in the aggregate reform indicator above two standard deviations of the average change in the indicator—is associated with a 2.7

¹¹ The dummy for new democracies is related to the results of that paper in which indeed these countries behave more in a way predicted by models of political budget (and economic) cycles.

¹² Brender and Drazen (2008) models estimate elections effects only when incumbents have been in power for two full fiscal years, which can in practice mean a government can have been in power for up to 35 months and still not appear in their data. Countries with frequent Parliamentary elections prior to the end of a full-term are under-represented in their data.

percentage points decrease in vote share (column I)—approximately $\frac{1}{2}$ standard deviation of the change in vote share in our sample.

Better economic conditions during the election year are associated with more favorable political outcomes. In addition, we find that the changes in vote shares are typically larger in advanced economies and in the majoritarian system. The results are robust to including country fixed effects (column II), country-specific time trends (column III), and extending the set of controls to include changes in the budget balance and inflation during the electoral term (column IV). The magnitude of the effect of reforms on the vote share is almost identical, albeit larger, to the one obtained in the baseline, but less precisely estimated.

In Table 5 we repeat the exercise for all the reforms implemented during the rest of the government term—measured by the change in the indicator between the beginning of the incumbent term and the year prior to elections. There is no negative effect on vote share of the incumbent in this case. The other coefficients remain stable relative to Table 4. When we put in the same regression reforms in election year and rest of the term, election year reforms maintain the same effects as in Table 4 and the rest of the term reform the same insignificant one of Table 5, as shown in Table 6.

B. Economic conditions at the time of reform

We showed above that the condition of the business cycle influences the effects on the economy. We use the smooth transition function described in equation (2) to allow the electoral effect of reforms to vary with the overall business cycle conditions (a continuum of states between extreme recessions and booms) at the time of the reform. Specifically, we estimate the following equation:

$$\begin{aligned} \Delta \text{Incumbent Party Vote Share}_{i,t} = & \beta_0 + F(z_{i,t})[\beta_1^L \text{Reform}_{ey_{i,t-1}} + \\ & \beta_2^L \text{Reform}_{term_{i,t-1}}] + (1 - F(z_{i,t}))[\beta_1^H \text{Reform}_{ey_{i,t-1}} + \beta_2^H (1 - \\ & D)\text{Reform}_{term_{i,t-1}}] + \beta_3 \text{Growth}_{ey_{i,t-1}} + \beta_4 \text{Growth}_{term_{i,t-1}} + \\ & \beta_4 \text{Developed Country}_i + \beta_5 \text{New Democracy}_{i,t} + \beta_6 \text{Majoritarian system}_{i,t} + \\ & \beta_7 \text{Initial Regulation}_{i,t-x} + \beta_8 \text{Incumbent Party Vote Share}_{i,t-1} + \varepsilon_{i,t} \quad (4) \end{aligned}$$

where $i=(country)$, $t=(election\ year)$.

The results suggest a marked difference between the effect of reforms in good and bad times. The negative effect of reforms is concentrated solely in those enacted in election years with weak economic activity (Table 7). In bad times, a major reform—identified as a change in the aggregate reform indicator above two standard deviations of the average change in the indicator—is associated with a decline in the vote share of about 4 percentage points. Note that, and this is important, that we are still controlling for growth in the election year.

In Table 8 we investigate whether there are different effects between liberalizing and tightening reforms, in other words we allow for different coefficients in the estimation for the indicator of reforms, when it is positive or negative. Note that when the indicator has a negative value a positive coefficient implies that the reform implies a loss of votes, and the other way around. For ease of interpretation in the table we report the value of the coefficients with the sign switched, thus the reported coefficients indicate the loss of votes for a given (negative) change in the reform index.

The results in column (I) suggest while liberalization reforms have a negative and statistically significant electoral cost, when implemented during the election year, tightening reforms tend to increase the vote share of the incumbent coalition. The difference in the estimated coefficient, however, is not statistically significant.

These results change significantly when we allow the effect of reforms to vary between good and bad economic times. The striking result in column (II) is that incumbents are punished for reforms in any direction when they occur in recession years, while they are not punished but actually rewarded for any reforms when the latter occur in expansions—remembering that we are still controlling for the rate of growth of the economy as well. The effects are economically large. In the extreme (and hypothetical) case of a protracted and extreme recession (expansion)—that is, lasting for the entire electoral term—major changes in the reform indicator for the entire electoral term would lead to a decline (increase) in the vote share of about 21 (31) percentage points.

These results suggest that the voters associate the poor economic conditions with anything that the government does at time in any direction. The reverse occurs for reforms

implemented during expansions. In other words, any policy which occurs during a recession is viewed as “responsible” for the recession. In addition, the voters may not fully account for the delays in the economic effects of different types of reforms on output which we described above.

VII. ENDOGENEITY

Governments can sometimes choose when to implement reforms. We say “sometimes” because the literature on policy reform (for instance Alesina and Drazen 1991) shows that often the time of reforms is determined by a resolution of a political struggle, often complex and implying long parliamentary impasses; or reforms are imposed by an economic emergency. However, there might be a bias in the sense that a reforming government may be reelected despite having implemented reforms, because it chooses to reform when it is especially popular for other reasons. Thus, endogeneity generates an upward bias in the electoral rewards of reforms if the government can choose whether to reform or not.

To explore this issue, we proceed in two ways. First, we distinguish between reforms which are externally mandated and not a choice by the national government. To do so, we estimate our basic specification like equation (3) but we interact the reform indicator with a dummy variable that is equal to 1 for reforms implemented during IMF programs, and zero otherwise. Note that this implies assuming that reforms implemented outside an IMF program do not have political costs. As a result, this identification strategy could introduce an ‘attenuation’ bias and underestimates the impact of IMF mandated reforms on the vote share.

Second, we use an instrumental variable proposed by Giuliano et al (2013). The estimation strategy relies on previous theoretical and empirical evidence that economic reforms are driven by democratic transitions (see Milner and Mukerhjee 2008 and Giuliano et al. 2013 for a review). Since the relation between reform and democracy can go both ways, we follow Giuliano et al (2013) and use as the instrument the weighted average of the change in the democracy indicator in trading partners over the last two years, where the weights are determined by the strength of trade linkages with other countries. The first stage estimates suggest that this instrument is “strong” and

statistically significant. The Kleibergen–Paap rk Wald F statistic—which is equivalent to the F-effective statistics for non-homoskedastic error in case of one endogenous variable and one instrument (Andrews, Stock and Su, 2019)—is higher than the associated Stock-Yogo critical values. In addition, we can plausibly consider the instrument to be exogenous, since changes in the democratic institutions of trading-partner countries are unlikely to be correlated with the error term of Equation (3).

Another endogeneity issue concerns the timing of elections. In many countries, national election maybe called early by national leaders or legislative body. Exogenous elections correspond to about 40 percent (127 out of 327) of overall elections in our sample. It could be the case that the timing of election is correlated with economic conditions or with the popularity of the incumbent leader, causing a bias in our estimates. We address this issue by focusing on countries/time periods with exogenous elections—that is, those for which the head of the government does not have the power to endogenously dissolve a parliament and call new elections.

A. Results

Table 9 to 11 report our results. The qualitative patterns of the OLS regression results reported in Tables 4-8 are confirmed in these three specifications. Table 9 shows the effect of reforms on vote shares obtained with the IV approach, or limiting to the cases of exogenously imposed reforms, or cases in which the timing of elections is fixed, is much larger than the one obtained with OLS. This finding confirms that politicians may decide to not implement reform because they are aware of possible political costs—which in our framework implies a downward bias of OLS estimates. The coefficients on the other control variables remain stable.

Table 10 confirms the result regarding the fact that the electoral cost of election year reforms occurs mostly (and it is more precisely estimated) when the election year is a recession. The distinction between reforms implemented in recessions and in expansions is not precisely estimated for IMF imposed reforms. The reason is that in the vast majority of cases IMF imposed reforms occur during recessions that is when countries request IMF intervention because they are in a difficult economic situation (see Table A1).

Table 11 distinguishes between liberalizing reforms and those moving in the opposite direction and the timing relative to the business cycle. In this table, we do not include IMF imposed reforms because there are only a handful of cases of non-liberalizing reforms imposed by IMF in addition to having very few IMF mandated reforms in an expansionary period.¹³

VIII. EXTENSIONS

In this section we explore several extensions of our basic results. We examine whether the effect of reforms varies: (i) across types of reforms; between (ii) coalition government and single party government; (iii) advanced and developing economies; (iv) majoritarian and proportional systems and (v) old and new democracies.

The cases (ii)-(v) are tested by extending the baseline specification as follows:

$$\begin{aligned} \Delta \text{Incumbent Party Vote Share}_{i,t} = & \beta_0 + \beta_1^A D * \text{Reform}_{ey,i,t-1} + \beta_2^A D * \\ & \text{Reform}_{term,i,t-1} + \beta_1^C D * \text{Reform}_{ey,i,t-1} + \beta_2^C (1 - D) * \text{Reform}_{term,i,t-1} + \\ & \beta_3 \text{Growth}_{ey,i,t-1} + \beta_4 \text{Growth}_{term,i,t-1} + \beta_4 \text{Developed Country}_i + \beta_5 \text{New Democracy}_{i,t} + \\ & \beta_6 \text{Majoritarian system}_{i,t} + \beta_7 \text{Initial Regulation}_{i,t-x} + \\ & \beta_8 \text{Incumbent Party Vote Share}_{i,t-1} + \varepsilon_{i,t} \quad (5) \end{aligned}$$

where D is a dummy variable as described below for each analysis. Equation (5) is estimated using OLS as well for the three strategies we use to mitigate endogeneity concerns.

A. Results

Types of reforms

We estimate equation (2) to differentiate the effect of financial sector reforms (Domestic Finance, Capital, and Financial Current) and the other domestic sector reforms

¹³We report these results in Table A2.

(Trade, Product and Labor markets). The results show that while the effect of financial sector reforms on the vote share is large and statistically significant, the effect of real sector reform is not statistically significantly different from zero (Table 12). Similar results are obtained when estimating each reform separately (Table A3). One potential explanation of this results is that perhaps financial sector reforms are especially prone to engender increased income inequality (see, for example, de Han and Sturm, 2017; Furceri and Loungani, 2018; Ostry et al., 2018; Furceri et al., 2019).

In addition, we find that in bad times, both financial and real sector reforms are associated with lower vote share (Table A4). In contrast, in good times, while financial sector reforms have a negative effect on vote shares, real sector reforms have a positive effect.¹⁴ In other words, real sector reforms enacted in good times appear to help governments be re-elected. The result is consistent with reforms leading to higher economic and distributional costs when implemented when economic conditions are weak, and/or that voters are unable to distinguish between the effects of reform from those due to the underlining economic conditions.

Coalition vs. single party government

We should expect that the electoral penalty for reforms fell largely on either party governing alone or the majority party in a coalition. To test for this prediction, we estimate a specification like equation (5), in which D is dummy variable that take value 1 when the government is governing alone, and zero otherwise. The results suggest that the effect of reforms on the incumbent majority party's vote share is three times larger when the party is governing alone than when governing in a coalition (Table 13). This seems reasonable since the "blame" for reforms is shared amongst members of a coalition while it is fully absorbed by the single party monopolizing the government.

¹⁴ This is specially the case for trade reforms, Table A6.

Advanced vs. developing economies

To test whether the effect of reforms varies across countries, we estimate a specification like equation (5), in which D is dummy variable that take value 1 for countries defined as advanced economies according the IMF classification and 0 otherwise (Table 2). The results presented in Table 14 suggests that the effect is larger and more precisely estimated in developing economies than in advanced economies. The difference, however, is statistically significant only for the IV specification. In this table we do not include the IMF imposed reforms specification since there are very few in advanced countries.¹⁵

New vs. old democracies

Brender and Drazen (2005 and 2008) find evidence that deficits reduce the probability of reelection in new democracies, but no in old democracy. In the same spirit, we test whether the electoral effect of reforms varies between these two groups. As a reminder, “new democracies” are classified using a dummy variable that takes value 1 for the first four elections after a year with a negative Polity score on the -10 to 10 scale, and 0 otherwise (Table 2). The results in Table 15, obtained by estimating a specification like equation (5) with D a dummy variable that take value 1 for new democracy, do not provide clear cut evidence. Governments in both new and old democracy tend to be electorally penalized after implementing reforms.

Majoritarian vs. proportional systems

Finally, we test whether the effect of reforms varies between majoritarian and proportional system. Majoritarian countries are those with an electoral system that awards seats in “winner-take-all” geographically based districts according to the Database of Political Institutions, and 0 otherwise; Cruz, Keefer, and Scartascini 2016 (Table 2) As shown in the baseline specification in Table 4, the coefficient for the majoritarian dummy is positive and statistically significant, suggesting that in majoritarian systems there are more

¹⁵ We report the results in Table A7.

swings in the vote share. This may also imply that the electoral effects of reforms tend to be amplified in these systems. To test for this possibility, we estimate a specification like equation (5), in which D is dummy variable that take value 1 for majoritarian systems, and zero otherwise. The results presented in Table 16 suggests that, the effect of reforms is larger and more precisely estimated in proportional systems than in majoritarian ones. The difference, however, is not statistically significant. In this table we do not include the IMF imposed reforms specification since there are very few in majoritarian systems.

IX. CONCLUSIONS

We offer two new datasets: a new comprehensive global dataset of regulation and major reform and reversal events that covers a large sample of advanced and developing economies over almost half a century; and an election outcomes dataset. These databases offer many opportunities to scholars and policymakers for future research.

We explore the electoral consequences of structural reform policy changes to incumbent politicians in democratic countries. Our core findings are that incumbent reelection prospects diminish with reforms that are undertaken close to election and when the economy is in a recessionary state. In contrast, incumbents are not punished or even rewarded for reforms during periods of economic expansion. Incumbent party vote shares of the main governing party also decline with pre-election reforms, but not the vote shares of coalition partner parties.

This implies that the best time for a government to implement reforms is at the beginning of its term of office and when the economy is in an expansionary period. Unfortunately for a series of political and economic issues often governments cannot choose optimally the timing of reforms. In fact, often the eater is impended in periods of crises.

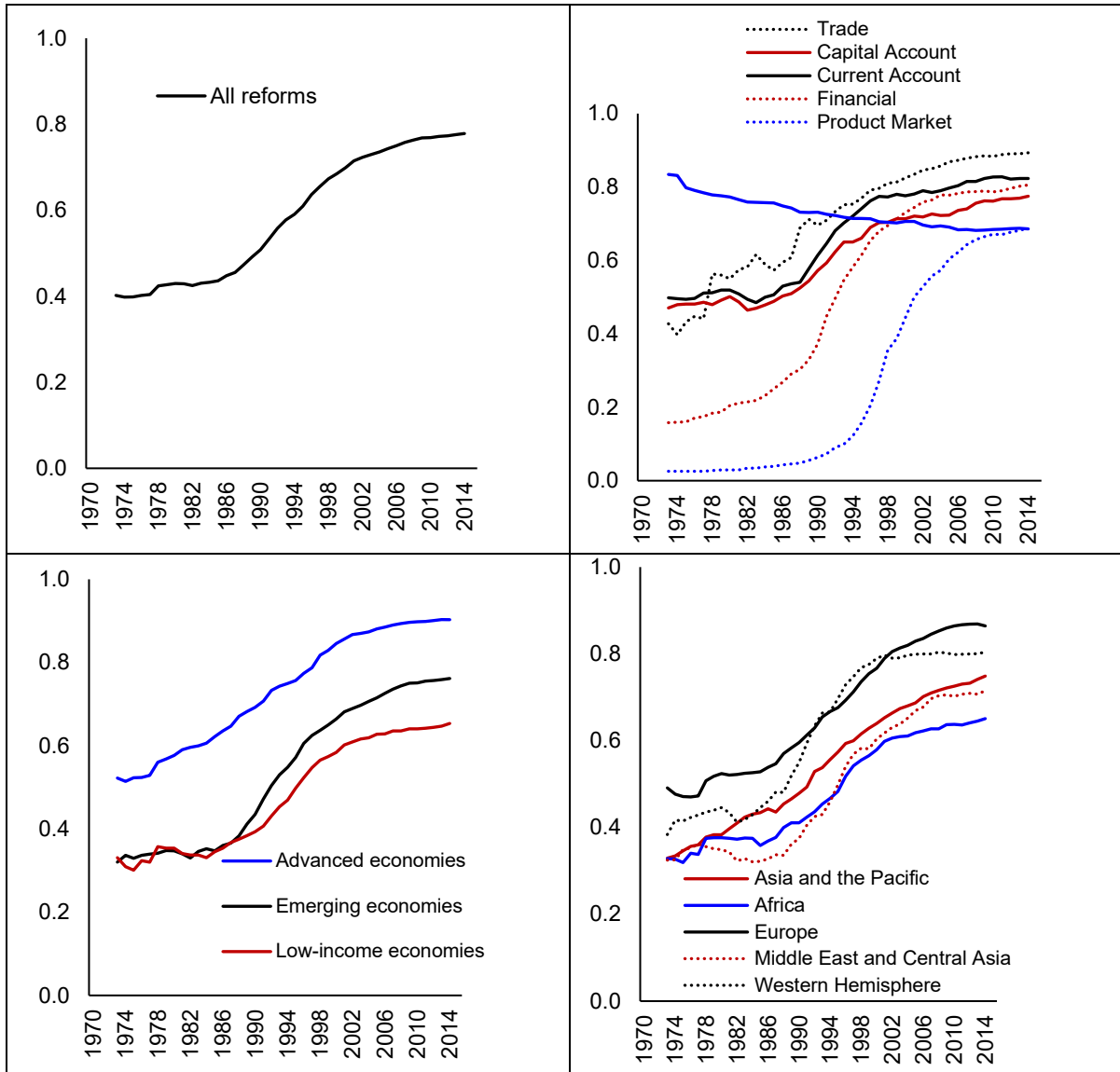
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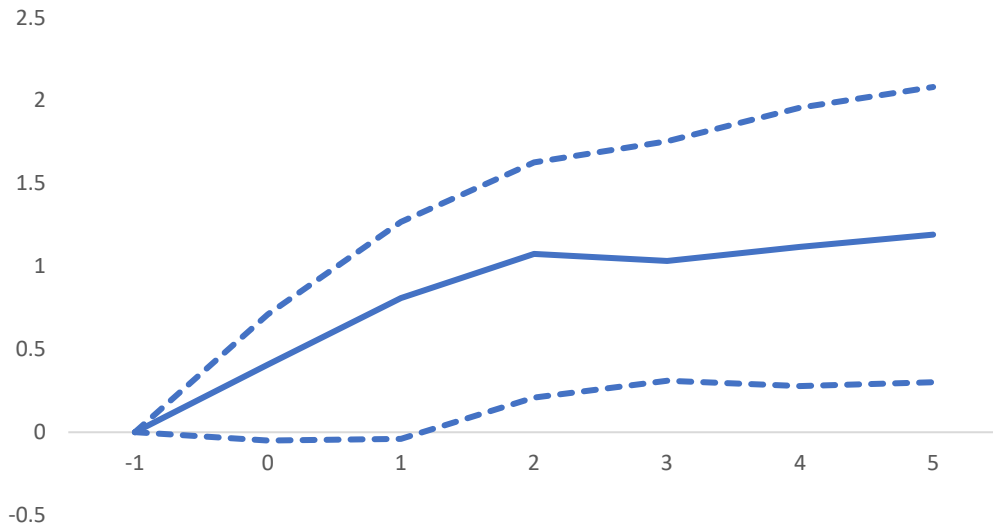
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Figure 1. Stylized facts on reform progress

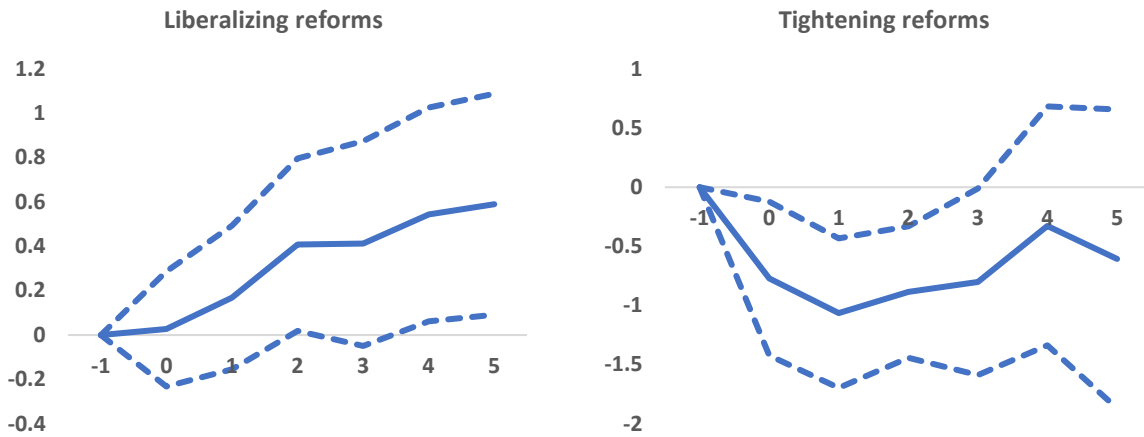
Note: the indicators range from 0 to 1. Higher levels denote more liberalization.

Figure 2. Macroeconomic effects of reform—output effect (%)



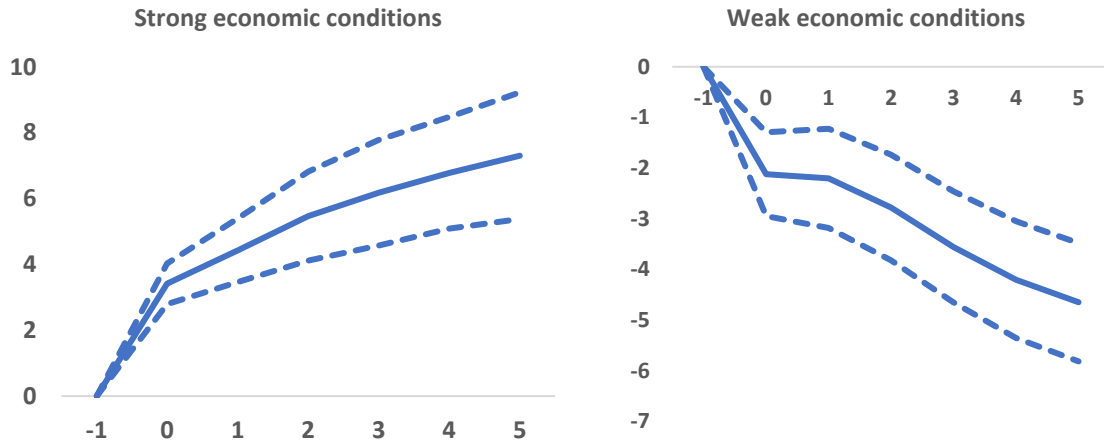
Note: Output effects estimated using the local projection method (Jorda 2015). $t = 0$ is the year of the reform; solid lines denote the response of output to a major reform event, defined as a change of two standard deviations in the reform indicator. Dotted lines denote 90 percent confidence bands.

Figure 3. Macroeconomic effects of reform—output effect of liberalizing and tightening reforms (%)



Note: Output effects estimated using the local projection method (Jorda 2015). $t = 0$ is the year of the reform; solid lines denote the response of output to a major reform event, defined as a change of two standard deviations in the reform indicator. Dotted lines denote 90 percent confidence bands.

Figure 4. Macroeconomic effects of reform—output effect depending on economic conditions (%)



Note: Output effects estimated using the local projection method (Jorda 2015). $t=0$ is the year of the reform; solid lines denote the response of output to a major reform event, defined as a change of two standard deviations in the reform indicator. Dotted lines denote 90 percent confidence bands.

Table 1. Reform dataset country coverage

Advanced economies	Emerging markets		Low income countries
Australia	Albania	Namibia	Bangladesh
Austria	Algeria	Pakistan	Bolivia
Belgium	Argentina	Paraguay	Burkina Faso
Canada	Azerbaijan	Peru	Cameroon
Czech Republic	Belarus	Philippines	Côte d'Ivoire
Denmark	Botswana	Poland	Ethiopia
Estonia	Brazil	Romania	Ghana
Finland	Bulgaria	Russia	Kenya
France	Chile	South Africa	Kyrgyz Republic
Germany	China	Sri Lanka	Lesotho
Greece	Colombia	Swaziland	Madagascar
Hong Kong SAR	Costa Rica	Thailand	Malawi
Ireland	Dominican Republic	Tunisia	Mozambique
Israel	Ecuador	Turkey	Nepal
Italy	Egypt	Ukraine	Nicaragua
Japan	El Salvador	Uruguay	Nigeria
Korea	Georgia	Venezuela	Senegal
Latvia	Guatemala		Tanzania
Netherlands	Hungary		Uganda
New Zealand	India		Uzbekistan
Norway	Indonesia		Vietnam
Portugal	Jamaica		Zambia
Singapore	Jordan		Zimbabwe
Spain	Kazakhstan		
Sweden	Lithuania		
Switzerland	Malaysia		
United Kingdom	Mexico		
United States	Morocco		

Table 2. Election dataset coverage

Country Name	Years Covered	No. of Elections	Leg. Elections	Pre. Elections	Dev. economy	Maj	New dem.
Albania	1996-2013	6	x				1996-2013
Argentina	1989-2011	6		x			1989-2003
Australia	1974-2013	16	x		x		
Austria	1975-2013	12	x		x		1975-1986
Belgium	1974-2010	12	x		x		
Bolivia	1985-2009	7		x			1985-1997
Brazil	1989-2010	6		x			1989-2002
Bulgaria	2001-2009	3	x				2001-2009
Canada	1974-2011	12	x		x	x	
Chile	1993-2013	5		x		x	1993-2009
Colombia	1974-2010	10		x			1974-1986
Costa Rica	1974-2010	10		x			
Czech Republic	1996-2006	3	x		x		1996-2006
Denmark	1975-2011	14	x		x		1975-1979
Dominican Rep.	1978-2012	10		x			1978-2012
Ecuador	1984-2013	9		x			1984-1996
El Salvador	1989-2009	5		x			1989-2004
Estonia	1992-2011	6	x		x	x	
Finland	1979-2011	9	x		x		1979-1991
France	1974-2012	7		x	x	x	1974-1988
Georgia	1995-2013	3		x	x		
Germany	1976-2013	11	x				1976-1987
Ghana	2000-2012	4		x		x	2000-2012
Greece	1977-2009	10	x		x		1977-1989
Guatemala	1990-2011	6		x			1990-2011
Hungary	1994-2006	4	x				1994-2006
India	1977-2009	10	x				
Indonesia	2004-2014	2		x			2004-14
Ireland	1977-2011	11	x		x		
Israel	1981-2013	11	x		x		
Italy	1976-2013	9	x		x		1976-1987
Jamaica	1976-2011	9	x			x	
Japan	1976-2012	13	x		x		1976-1986
Kenya	2002-2013	3		x		x	2002-2013
Kyrgyzstan	2009-2011	2		x			2009-2011
Latvia	1993-2011	7	x		x		
Lithuania	1997-2009	3		x	x		
Madagascar	1996-2006	3		x			1996-2006
Malaysia	1974-2013	10	x			x	
Mexico	1988-2012	5		x			1994-2012
Mozambique	1994-2014	4		x			1994-2014
Nepal	1991-2008	4	x			x	1991-2008
Netherlands	1977-2012	12	x		x		1977-1986
New Zealand	1975-2011	13	x		x	x	
Nicaragua	1990-2011	5		x			1996-2011

Nigeria	1983-2015	4		x		x	1983-2015
Norway	1977-2013	10	x		x		
Paraguay	1993-2013	5		x			1998-2008
Peru	1985-2011	6		x			1985-2011
Philippines	1992-2010	4		x		x	1992-2010
Poland	1995-2010	4		x			1995-2010
Portugal	1980-2011	11	x		x		1983-1991
Romania	1996-2012	4	x				1996-2012
Senegal	2007-2012	2		x			2007-2012
South Africa	1987-2009	6		x			1994-2014
South Korea	1992-2012	5		x	x		1992-2007
Spain	1979-2011	10	x		x		1979-1993
Sri Lanka	1982-2010	6		x			
Sweden	1976-2010	11	x		x		1973-1982
Thailand	1995-2011	5	x			x	1995-2011
Turkey	1977-2011	8	x				1977-1999
Ukraine	1994-2010	3		x		x	
United Kingdom	1974-2010	10	x		x	x	
United States	1976-2012	10		x	x	x	
Uruguay	1989-2009	5		x			1989-2004
Venezuela	1978-2006	7		x			1973-1988

Table 3. Reforms in the electoral cycle

	All	Weak economic conditions	Strong economic conditions
Reform_ey	0.410	0.432	0.381
Reform_ey (+)	0.491	0.503	0.474
Revesal_ey (-)	-0.072	-0.065	-0.081
Reform_tem	0.628	0.687	0.555
Reform_term (+)	0.680	0.729	0.620
Revesal_term (-)	-0.043	-0.037	-0.049

Note: Reform_ey and Reform_term denote reforms in the election year and in the rest of the incumbent leader term, respectively. Reform (+) and Reversal (-) denote liberalization and tightening reforms, respectively. Weak and strong economic conditions are defined as in equation (2).

Table 4. The effect of reforms on electoral outcomes—election year

	(I)	(II)	(III)	(IV)
Reform_ey	-2.770*** [0.915]	-3.187** [1.263]	-3.496** [1.321]	-2.721** [1.278]
Initial level regulation	-5.097 [5.910]	1.563 [10.561]	23.375 [33.409]	13.669 [17.134]
Growth_ey	0.516** [0.206]	0.373 [0.267]	0.260 [0.410]	0.171 [0.429]
Growth_term	0.411 [0.320]	0.692* [0.394]	0.834* [0.487]	0.748 [0.497]
Advanced economy	3.409*** [1.235]			
New democracies	0.837 [1.117]	0.146 [2.240]	0.310 [3.990]	-0.033 [4.018]
Majoritarian system	2.314** [0.940]	4.763 [4.141]	10.350** [4.021]	11.147*** [4.113]
Lagged vote share	-0.146 [0.093]	-0.242** [0.103]	-0.265* [0.137]	-0.265* [0.135]
Budget				0.153 [0.267]
Inflation				-0.006* [0.003]
Country fixed effects	No	Yes	Yes	Yes
Country-specific time trends	No	No	Yes	Yes
R2	0.10	0.27	0.47	0.48
Observations	327	327	327	327

Note: Reform_ey denotes reforms in the election year. Estimates based on equation (3). Standard deviations based on robust standard errors in parentheses. ***, **, * denote significance at 1, 5 and 10 percent, respectively.

Table 5. The effect of reforms on electoral outcomes—rest of term

	(I)	(II)	(III)	(IV)
Reform_term	-0.400 [1.088]	-0.413 [1.173]	0.825 [1.432]	-0.060 [1.743]
Initial level regulation	-1.095 [6.210]	5.845 [10.042]	32.619 [35.431]	29.353 [37.351]
Growth_ey	0.468** [0.201]	0.299 [0.255]	0.167 [0.417]	0.081 [0.423]
Growth_term	0.488 [0.327]	0.784* [0.406]	0.878* [0.484]	0.781 [0.506]
Advanced economy	3.275** [1.243]			
New democracies	0.766 [1.176]	0.248 [2.243]	1.331 [3.889]	0.437 [3.883]
Majoritarian system	2.303** [0.992]	4.396 [3.977]	10.057** [4.430]	10.067** [4.810]
Lagged vote share	-0.149 [0.092]	-0.229** [0.104]	-0.249* [0.138]	-0.255* [0.133]
Budget				0.163 [0.251]
Inflation				-0.008*** [0.003]
Country fixed effects	No	Yes	Yes	Yes
Country-specific time trends	No	No	Yes	Yes
R ²	0.08	0.25	0.46	0.47
Observations	327	327	327	327

Note: Reform_term denote reforms in the rest of the incumbent leader term. Estimates based on equation (3). Standard deviations based on robust standard errors in parentheses. ***, **, * denote significance at 1, 5 and 10 percent, respectively.

Table 6. The effect of reforms on electoral outcomes—election year vs. rest of term

	(I)	(II)	(III)	(IV)
Reform_ey	-2.820*** [0.947]	-3.230** [1.295]	-3.460** [1.327]	-2.725** [1.279]
Reform_term	-0.672 [1.040]	-0.656 [1.170]	0.354 [1.398]	-0.137 [1.687]
Initial level regulation	-6.798 [6.009]	-0.981 [10.376]	26.900 [35.584]	26.035 [36.605]
Growth_ey	0.512** [0.206]	0.362 [0.265]	0.260 [0.410]	0.171 [0.431]
Growth_term	0.425 [0.323]	0.699* [0.398]	0.826* [0.486]	0.751 [0.495]
Advanced economy	3.474*** [1.245]			
New democracies	0.804 [1.109]	-0.036 [2.187]	0.380 [3.950]	-0.063 [3.981]
Majoritarian system	2.293** [0.923]	4.376 [4.164]	10.865** [4.585]	10.944** [4.811]
Lagged vote share	-0.146 [0.093]	-0.243** [0.103]	-0.264* [0.137]	-0.265* [0.134]
Budget				0.152 [0.266]
Inflation				-0.006* [0.003]
Country fixed effects	No	Yes	Yes	Yes
Country-specific time trends	No	No	Yes	Yes
R ²	0.10	0.27	0.47	0.48
Observations	327	327	327	327

Note: Reform_ey and Reform_term denote reforms in the election year and in the rest of the incumbent leader term, respectively. Estimates based on equation (3). Standard deviations based on robust standard errors in parentheses. ***, **, * denote significance at 1, 5 and 10 percent, respectively.

Table 7. The effect of reforms on electoral outcomes—recessions vs. expansions

	(I)	(II)	(III)
Reform_ey (recessions)	-4.092** [1.563]		-4.250** [1.598]
Reform_ey (expansions)	-1.201 [1.870]		-1.338 [1.917]
Reform_term (recessions)		-0.010 [2.520]	-1.583 [1.985]
Reform_term (expansions)		-0.772 [2.570]	0.150 [2.345]
Initial level regulation	-4.759 [6.037]	-1.090 [6.221]	-6.709 [5.992]
Growth_ey	0.474** [0.214]	0.465** [0.201]	0.478** [0.215]
Growth_term	0.415 [0.321]	0.503 [0.365]	0.391 [0.352]
Advanced economy	3.341*** [1.227]	3.281** [1.249]	3.400*** [1.229]
New democracies	0.821 [1.124]	0.785 [1.156]	0.746 [1.107]
Majoritarian system	2.210** [0.960]	2.294** [0.994]	2.208** [0.930]
Lagged vote share	-0.144 [0.094]	-0.149 [0.092]	-0.144 [0.094]
Total effect recessions	-4.092**	-0.010	-5.833***
Total effect expansions	-1.201	-0.772	-1.433
F-test difference	0.34	0.87	1.02
R ²	0.10	0.08	0.10
Observations	327	327	327

Note: Reform_ey and Reform_term denote reforms in the election year and in the rest of the incumbent leader term, respectively. Estimates based on equation (4). Standard deviations based on robust standard errors in parentheses. ***, **, * denote significance at 1, 5 and 10 percent, respectively.

Table 8. The effect of reforms on electoral outcomes—Reforms vs. Reversals

	(I) Baseline	(II) Recessions vs. expansions
Reform_ey (+)	-2.930** [1.157]	
Reversal_ey (-)	2.575 [3.025]	
Reform_term (+)	-0.397 [1.061]	
Reversal_term (-)	2.245 [4.071]	
Reform_ey (+) (recessions)		-4.196** [1.663]
Reversal_ey (-) (recessions)		0.618 [2.690]
Reform_term (+) (recessions)		-4.658* [2.349]
Reversal_term (-) (recessions)		-12.643*** [3.871]
Reform_ey (+) (expansions)		-0.286 [1.993]
Reversal_ey (-) (expansions)		7.286 [10.955]
Reform_term (+) (expansions)		3.413* [1.845]
Reversal_term (-) (expansions)		20.442*** [6.280]
F-test: Reform_ey (+) vs. (-)	0.92	0.83
Total effect recessions		-5.833***
Total effect expansions		-1.433
F-test difference		1.02
R ²	0.10	0.13
Observations	327	327

Note: Reform_ey and Reform_term denote reforms in the election year and in the rest of the incumbent leader term, respectively. Reform (+) and Reversal (-) denote liberalization and tightening reforms, respectively. Estimates based on equation (5). Additional controls in the baseline specifications are included but not reported. Standard deviations based on robust standard errors in parentheses. ***, **, * denote significance at 1, 5 and 10 percent, respectively.

Table 9. The effect of reforms on electoral outcomes—exogeneity checks

	(I)	(II)	(III)	(IV)
	OLS	Ex. elections	IMF	IV
Reform_ey	-2.820***	-3.966***	-5.109**	-7.672***
	[0.947]	[1.043]	[2.143]	[1.584]
Reform_term	-0.672	-0.596	-1.248	-1.140
	[1.040]	[2.096]	[2.449]	[1.047]
Initial level regulation	-6.798	-4.399	-1.482	-16.611**
	[6.009]	[14.615]	[5.954]	[7.487]
Growth_ey	0.512**	0.502*	0.502**	0.586***
	[0.206]	[0.269]	[0.208]	[0.222]
Growth_term	0.425	1.191**	0.445	0.316
	[0.323]	[0.568]	[0.313]	[0.341]
Advanced economy	3.474***	4.948	2.776**	3.815***
	[1.245]	[2.985]	[1.321]	[1.281]
New democracies	0.804	1.713	1.114	0.870
	[1.109]	[2.253]	[1.127]	[1.039]
Majoritarian system	2.293**	0.536	2.131**	2.275***
	[0.923]	[2.480]	[0.999]	[0.856]
Lagged vote share	-0.146	-0.009	-0.135	-0.141
	[0.093]	[0.121]	[0.094]	[0.093]
Kleibergen-Paap rk Wald F statistic				25.92
Stock-Yogo 10% critical value				16.38
(Uncentered) R ²	0.10	0.14	0.09	0.23
Observations	327	127	327	327

Note: Reform_ey and Reform_term denote reforms in the election year and in the rest of the incumbent leader term, respectively. Estimates based on equation (3). Standard deviations based on robust standard errors in parentheses. ***, **, * denote significance at 1, 5 and 10 percent, respectively.

Table 10. The effect of reforms on electoral outcomes—recessions vs. expansions, exogeneity checks

	(I) OLS	(II) Ex. elections	(III) IMF	(IV) IV
Reform_ey (recessions)	-4.250** [1.598]	-5.362*** [0.813]	-1.886 [11.814]	-7.357*** [1.193]
Reform_ey (expansions)	-1.338 [1.917]	-1.441 [4.201]	-6.893 [4.811]	-0.093 [1.690]
Reform_term (recessions)	-1.583 [1.985]	-2.465 [3.424]	-2.293 [3.667]	-2.193 [1.954]
Reform_term (expansions)	0.150 [2.345]	1.043 [4.531]	-0.474 [5.353]	0.474 [2.269]
Initial level regulation	-6.709 [5.992]	-4.002 [14.824]	-1.579 [5.975]	-8.525 [6.062]
Growth_ey	0.478** [0.215]	0.451 [0.295]	0.510** [0.208]	0.436* [0.225]
Growth_term	0.391 [0.352]	1.145* [0.572]	0.428 [0.311]	0.357 [0.353]
Advanced economy	3.400*** [1.229]	4.899 [2.981]	2.744** [1.327]	3.370*** [1.209]
New democracies	0.746 [1.107]	1.519 [2.433]	1.090 [1.143]	0.712 [1.074]
Majoritarian system	2.208** [0.930]	0.595 [2.459]	2.135** [0.994]	2.057** [0.912]
Lagged vote share	-0.144 [0.094]	-0.002 [0.123]	-0.137 [0.094]	-0.139 [0.091]
Total effect recessions	-5.833***	-7.827**	-4.178	-9.551***
Total effect expansions	-1.433	-0.398	-7.367	0.382
F-test difference	1.02	0.96	0.03	4.51**
Kleibergen-Paap rk Wald F statistic				184.4
Stock-Yogo 10% critical value				16.38
(Uncentered) R ²	0.10	0.14	0.09	0.26
Observations	327	127	327	327

Note: Reform_ey and Reform_term denote reforms in the election year and in the rest of the incumbent leader term, respectively. Estimates based on equation (4). Standard deviations based on robust standard errors in parentheses.

***, **, * denote significance at 1, 5 and 10 percent, respectively.

Table 11. The effect of reforms on electoral outcomes—Reforms vs. Reversals

	(I) OLS	(II) Ex. elections	(III) IV
Reform_ey (+) (recessions)	-4.196** [1.663]	-5.620*** [1.880]	-6.623*** [1.191]
Reversal_ey (-) (recessions)	0.618 [2.690]	1.679 [3.957]	-0.388 [2.859]
Reform_term (+) (recessions)	-4.658* [2.349]	-4.701 [5.895]	-4.859** [2.233]
Reversal_term (-) (recessions)	-12.643*** [3.871]	-5.675 [6.833]	-10.961*** [2.985]
Reform_ey (+) (expansions)	-0.286 [1.993]	1.700 [4.827]	0.583 [1.656]
Reversal_ey (-) (expansions)	7.286 [10.955]	13.680 [18.993]	7.934 [10.522]
Reform_term (+) (expansions)	3.413* [1.845]	5.529 [3.829]	3.460** [1.764]
Reversal_term (-) (expansions)	20.442*** [6.280]	17.341*** [6.833]	19.711*** [5.749]
Initial level regulation	-6.097 [6.494]	-1.760 [14.667]	-7.717 [6.523]
Growth_ey	0.457* [0.246]	0.290 [0.354]	0.377* [0.234]
Growth_term	0.091 [0.365]	0.869 [0.751]	0.078 [0.354]
Advanced economy	3.467*** [1.287]	5.237* [2.881]	3.417*** [1.248]
New democracies	1.311 [1.108]	2.427 [2.492]	1.285 [1.081]
Majoritarian system	2.175** [0.963]	0.774 [2.392]	2.034** [0.937]
Lagged vote share	-0.160* [0.093]	-0.031 [0.128]	-0.154* [0.089]
Total effect recessions	-20.879***	-14.317	-22.831***
Total effect expansions	30.856**	38.251**	31.688**
F-test: difference	11.95***	4.77**	14.18***
Kleibergen-Paap rk Wald F statistic			293.32
Stock-Yogo 10% critical value			16.38
(Uncentered) R ²	0.13	0.18	0.29
Observations	327	127	327

Note: Reform_ey and Reform_term denote reforms in the election year and in the rest of the incumbent leader term, respectively. Reform (+) and Reversal (-) denote liberalization and tightening reforms, respectively. Estimates based on equation (5). Standard deviations based on robust standard errors in parentheses. ***, **, * denote significance at 1, 5 and 10 percent, respectively.

Table 12. The effect of reforms on electoral outcomes—Finance vs. Real

	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)
	OLS		Exogenous elections		IMF		IV	
	Finance	Real	Finance	Real	Finance	Real	Finance	Real
Reform_ey	-7.346***	1.712	-9.090***	7.776	-20.612***	11.987	-16.685***	0.297
	[2.362]	[2.155]	[2.491]	[7.290]	[6.743]	[14.689]	[3.749]	[16.620]
Reform_term	0.018	-1.257	4.427	-2.126	-1.886	-11.984*	-0.554	-1.174
	[2.557]	[1.786]	[3.851]	[4.096]	[3.797]	[6.120]	[2.464]	[1.993]
Initial level regulation	-3.049	-0.706	4.586	2.228	-1.553	-0.788	-7.655	-1.372
	[4.923]	[6.225]	[8.902]	[14.795]	[4.368]	[6.150]	[5.277]	[10.184]
Growth_ey	0.287	0.467**	0.442*	0.414	0.319	0.493**	0.299	0.473**
	[0.256]	[0.199]	[0.258]	[0.249]	[0.253]	[0.200]	[0.262]	[0.205]
Growth_term	0.673**	0.484	0.987**	1.343**	0.679**	0.419	0.609*	0.483
	[0.311]	[0.326]	[0.454]	[0.528]	[0.314]	[0.318]	[0.314]	[0.324]
Advanced economy	3.298***	3.189***	4.124*	5.290*	2.519**	2.603**	3.698***	3.211***
	[1.217]	[1.173]	[2.232]	[2.826]	[1.237]	[1.153]	[1.230]	[1.108]
New democracies	0.739	0.668	1.188	1.385	1.163	1.022	0.742	0.708
	[1.125]	[1.162]	[1.917]	[2.507]	[1.137]	[1.184]	[1.086]	[1.112]
Majoritarian system	1.536	2.264**	0.252	0.409	1.293	1.926*	1.528	2.280**
	[1.042]	[1.015]	[2.158]	[2.797]	[1.030]	[1.006]	[1.062]	[0.981]
Lagged vote share	-0.182**	-0.15	-0.027	-0.019	-0.176**	-0.158*	-0.177**	-0.149*
	[0.082]	[0.091]	[0.112]	[0.113]	[0.081]	[0.085]	[0.081]	[0.090]
Kleibergen-Paap rk Wald F statistic							31.37	9.03
Stock-Yogo 10% critical value							16.38	16.38
(Uncentered) R ²	0.11	0.09	0.15	0.12	0.11	0.1	0.08	0.08
Observations	363	327	140	127	363	327	363	327

Note: Reform_ey and Reform_term denote reforms in the election year and in the rest of the incumbent leader term, respectively. Estimates based on equation (3). Standard deviations based on robust standard errors in parentheses. ***, **, * denote significance at 1, 5 and 10 percent, respectively.

Table 13. The effect of reforms on electoral outcomes—Governing alone vs. coalition

	(I) OLS	(II) Ex. elections	(III) IMF	(IV) IV
Reform_ey (Gov. alone)	-1.566*** [0.517]	-2.056*** [0.507]	-3.135*** [1.112]	-3.688*** [0.769]
Reform_term (Gov. alone)	-0.056 [0.701]	-0.372 [1.021]	0.123 [1.045]	-0.24 [0.670]
Reform_ey (Gov. in coalition)	-0.501 [0.612]	2.538 [9.176]	4.663 [3.919]	-0.852 [0.644]
Reform_term (Gov. in coalition)	-0.861 [0.740]	1.981 [7.787]	-18.161*** [5.435]	-1.252 [0.773]
Initial level regulation	-6.613 [5.940]	-4.449 [14.821]	-0.278 [5.874]	-14.448** [6.966]
Growth_ey	0.514** [0.205]	0.490* [0.267]	0.613*** [0.194]	0.573*** [0.218]
Growth_term	0.437 [0.318]	1.214** [0.564]	0.446 [0.296]	0.359 [0.319]
Advanced economy	3.509*** [1.241]	5.136 [3.105]	3.020** [1.296]	3.716*** [1.264]
New democracies	0.729 [1.143]	1.766 [2.243]	0.993 [1.096]	0.814 [1.057]
Majoritarian system	2.248** [0.961]	0.209 [2.470]	1.901* [1.004]	2.344*** [0.889]
Lagged vote share	-0.146 [0.093]	-0.015 [0.118]	-0.11 [0.092]	-0.141 [0.093]
Total effect (Gov. alone)	-3.244*	-4.856*	-6.024*	-7.858***
Total effect (Gov. in coalition)	-2.724	9.038	-26.996***	-4.208**
F-test: difference	0.06	0.17	8.07***	3.00*
Kleibergen-Paap rk Wald F statistic				25.85
Stock-Yogo 10% critical value				16.38
(Uncentered) R ²	0.1	0.15	0.13	0.07
Observations	327	128	327	327

Note: Reform_ey and Reform_term denote reforms in the election year and in the rest of the incumbent leader term, respectively. Estimates based on equation (6). Standard deviations based on robust standard errors in parentheses. ***, **, * denote significance at 1, 5 and 10 percent, respectively.

Table 14. The effect of reforms on electoral outcomes—Advanced vs. Developing Economies

	(I) OLS	(II) Ex. elections	(III) IV
Reform_ey(Adv.)	-1.310* [0.696]	-8.991 [7.035]	-1.503** [0.687]
Reform_ey(Dev.)	-4.075*** [1.344]	-3.711*** [1.113]	-7.651*** [1.564]
Reform_term(Adv.)	-0.79 [1.030]	0.786 [5.423]	-1.058 [1.047]
Reform_term(Dev.)	-0.7 [1.824]	-0.721 [2.115]	-1.011 [1.718]
Initial level regulation	-6.835 [6.083]	-4.255 [15.681]	-10.993 [6.815]
Growth_ey	0.511** [0.206]	0.510* [0.273]	0.541** [0.217]
Growth_term	0.406 [0.322]	1.217** [0.578]	0.339 [0.323]
Advanced economy	2.944** [1.455]	4.94 [3.651]	2.398* [1.397]
New democracies	0.816 [1.126]	1.795 [2.203]	0.866 [1.071]
Majoritarian system	2.253** [0.962]	0.43 [2.532]	2.193** [0.956]
Lagged vote share	-0.144 [0.093]	-0.007 [0.122]	-0.139 [0.093]
Total effect (Adv.)	-2.100	-8.205	-2.561*
Total effect (Dev.)	-4.775*	-4.432	-8.662***
F-test: difference	0.97	0.22	7.21***
Kleibergen-Paap rk Wald F statistic			22.44
Stock-Yogo 10% critical value			16.38
(Uncentered) R ²	0.11	0.15	0.26
Observations	327	127	327

Note: Reform_ey and Reform_term denote reforms in the election year and in the rest of the incumbent leader term, respectively. Estimates based on equation (5). Standard deviations based on robust standard errors in parentheses. ***, **, * denote significance at 1, 5 and 10 percent, respectively.

Table 15. The effect of reforms on electoral outcomes—new vs. old democracy

	(I) OLS	(II) Ex. elections	(III) IMF	(IV) IV
Reform_ey(New dem.)	-3.871*** [1.224]	-4.030*** [1.153]	-6.774*** [2.200]	-6.354*** [1.350]
Reform_ey(Old dem.)	-1.529 [1.007]	-1.854 [3.919]	-2.017 [3.692]	-1.612* [0.981]
Reform_term((New dem.)	2.332 [1.538]	1.832 [2.093]	2.527* [1.361]	1.881 [1.457]
Reform_term(Old dem.)	-2.248 [1.448]	-3.968 [3.239]	-12.839** [5.867]	-2.356 [1.411]
Initial level regulation	-7.601 [6.228]	-4.596 [15.009]	-1.252 [5.880]	-9.206 [6.250]
Growth_ey	0.531** [0.208]	0.465 [0.278]	0.556*** [0.199]	0.554*** [0.213]
Growth_term	0.346 [0.314]	1.060* [0.581]	0.343 [0.305]	0.303 [0.309]
Advanced economy	3.596*** [1.21]	5.208* [2.846]	2.296* [1.337]	3.622*** [1.197]
New democracies	-0.141 [1.555]	0.197 [2.778]	0.146 [1.230]	0.536 [1.518]
Majoritarian system	2.219** [0.924]	0.449 [2.373]	1.844* [0.990]	2.176** [0.912]
Lagged vote share	-0.150 [0.093]	-0.024 [0.129]	-0.139* [0.091]	-0.144 [0.091]
Total effect (New dem.)	-1.539	-2.198	-4.246	-4.473**
Total effect (Old dem.)	-3.777*	-5.822	-14.856**	-3.969**
F-test: difference	0.55	0.38	2.33	0.03
Kleibergen-Paap rk Wald F statistic				44.64
Stock-Yogo 10% critical value				16.38
(Uncentered) R ²	0.11	0.15	0.12	0.27
Observations	327	127	327	327

Note: Reform_ey and Reform_term denote reforms in the election year and in the rest of the incumbent leader term, respectively. Estimates based on equation (5). Standard deviations based on robust standard errors in parentheses. ***, **, * denote significance at 1, 5 and 10 percent, respectively.

Table 16. The effect of reforms on electoral outcomes—Majoritarian vs. non-majoritarian systems

	(I) OLS	(II) Ex. elections	(III) IMF	(IV) IV
Reform_ey(Maj)	-2.438* [1.328]	-2.913 [8.732]	-10.178 [6.552]	-2.932** [1.339]
Reform_ey(nonMaj)	-2.878** [1.116]	-3.921*** [1.049]	-4.334* [2.371]	-7.587*** [1.443]
Reform_term(Maj)	0.415 [2.894]	8.642 [6.529]	-20.642 [15.280]	-0.401 [2.739]
Reform_term(nonMaj)	-0.775 [1.118]	-0.913 [2.064]	-1.105 [2.449]	-1.030 [1.111]
Initial level regulation	-6.574 [6.199]	-1.748 [14.801]	-1.809 [6.064]	-14.121* [7.257]
Growth_ey	0.505** [0.211]	0.459* [0.263]	0.489** [0.204]	0.554** [0.226]
Growth_term	0.428 [0.325]	1.206** [0.568]	0.448 [0.315]	0.342 [0.337]
Advanced economy	3.439** [1.248]	4.880* [3.018]	2.759** [1.328]	3.677*** [1.284]
New democracies	0.789 [1.109]	1.488 [2.285]	1.263 [1.142]	0.898 [1.045]
Majoritarian system	1.906 [1.660]	-2.089 [3.501]	2.690** [1.200]	1.265 [1.545]
Lagged vote share	-0.145 [0.094]	0.001 [0.122]	-0.126 [0.095]	-0.144 [0.094]
Total effect (Maj)	-2.022	5.729	-30.802*	-7.987
Total effect (nonMaj)	-3.653**	-4.834	-5.439*	-3.962***
F-test: difference	0.17	1.64	2.34	2.30
Kleibergen-Paap rk Wald F statistic				32.90
Stock-Yogo 10% critical value				16.38
(Uncentered) R ²	0.10	0.15	0.10	0.26
Observations	327	127	327	327

Note: Reform_ey and Reform_term denote reforms in the election year and in the rest of the incumbent leader term, respectively. Estimates based on equation (5). Standard deviations based on robust standard errors in parentheses. ***, **, * denote significance at 1, 5 and 10 percent, respectively.

Table A1. Reforms and reversal in the electoral cycle

	All	IMF	Ex. El.	Adv.	Dev.	New dem.	Old dem.	Maj	nMAj
Reform_ey	0.410	0.521	0.390	0.360	0.468	0.520	0.341	0.481	0.401
Reform_ey (+)	0.491	0.617	0.508	0.426	0.564	0.598	0.423	0.529	0.487
Revesal_ey (-)	-0.072	-0.087	-0.106	-0.059	-0.086	-0.068	-0.075	-0.043	-0.079
Reform_tem	0.628	0.860	0.632	0.605	0.654	0.685	0.594	0.526	0.650
Reform_term (+)	0.680	0.934	0.707	0.621	0.748	0.759	0.634	0.592	0.700
Revesal_term (-)	-0.043	-0.062	-0.063	-0.014	-0.077	-0.057	-0.035	-0.055	-0.042

Note: Reform_ey and Reform_term denote reforms in the election year and in the rest of the incumbent leader term, respectively. Reform (+) and Reversal (-) denote liberalization and tightening reforms, respectively.

Table A2. Reforms and reversal in the electoral cycle—**recessions vs expansions**

	Weak economic conditions			Strong economic conditions		
	All	IMF	Ex. El.	All	IMF	Ex. El.
Reform_ey	0.432	0.566	0.390	0.381	0.459	0.390
Reform_ey (+)	0.503	0.636	0.477	0.474	0.590	0.547
Revesal_ey (-)	-0.065	-0.069	-0.081	-0.081	-0.108	-0.136
Reform_tem	0.687	1.024	0.686	0.555	0.703	0.568
Reform_term (+)	0.729	1.036	0.763	0.620	0.836	0.641
Revesal_term (-)	-0.037	-0.012	-0.070	-0.049	-0.097	-0.056

Note: Reform_ey and Reform_term denote reforms in the election year and in the rest of the incumbent leader term, respectively. Reform (+) and Reversal (-) denote liberalization and tightening reforms, respectively. Weak and strong economic conditions are defined as in equation (2).

Table A3. The effect of reforms on electoral outcomes—IMF Reforms vs. Reversals and recessions and expansions

	IMF
Reform_ey (+) (recessions)	-1.751 [12.331]
Reversal_ey (-) (recessions)	-31.348 [26.763]
Reform_term (+) (recessions)	-5.002 [6.783]
Reversal_term (-) (recessions)	-37.822*** [11.755]
Reform_ey (+) (expansions)	-7.924 [4.907]
Reversal_ey (-) (expansions)	47.293 [29.767]
Reform_term (+) (expansions)	1.839 [5.409]
Reversal_term (-) (expansions)	326.53*** [71.920]
Initial level regulation	-1.053 [5.738]
Growth_ey	0.683*** [0.204]
Growth_term	0.310 [0.324]
Advanced economy	2.706** [1.352]
New democracies	1.226 [1.151]
Majoritarian system	2.142** [1.017]
Lagged vote share	-0.155* [0.088]
Total effect recessions	-13.278
Total effect expansions	273.15***
F-test: difference	8.75***
R ²	0.12
Observations	327

Note: Reform_ey and Reform_term denote reforms in the election year and in the rest of the incumbent leader term, respectively. Reform (+) and Reversal (-) denote liberalization and tightening reforms, respectively. Estimates based on equation (5). Standard deviations based on robust standard errors in parentheses. ***, **, * denote significance at 1, 5 and 10 percent, respectively.

Table A4. The Effect of Reforms on Re-election—single reforms

	Financial			Real		
	(I)	(II)	(III)	(IV)	(V)	(VI)
	Domestic finance	Capital account	Fin.Current account	Trade	Product market	Labor market
Reform_ey	-2.545*	-6.574*	-5.210**	0.314	-0.012	2.247
	(1.369)	(3.496)	(2.105)	(0.635)	(1.397)	(5.240)
Reform_term	-0.553	1.417	-0.480	-0.215	0.089	2.981
	(1.510)	(2.456)	(2.044)	(0.699)	(0.943)	(3.850)
Initial level regulation	-2.315	-1.247	-2.252	2.019	-0.397	-5.426
	(3.527)	(4.970)	(4.361)	(3.628)	(3.020)	(5.564)
Growth_ey	0.272	0.286	0.320	0.461**	0.278	0.328
	(0.258)	(0.257)	(0.260)	(0.201)	(0.250)	(0.203)
Growth_term	0.727**	0.676**	0.679**	0.472	0.725**	0.679**
	(0.309)	(0.317)	(0.315)	(0.326)	(0.322)	(0.298)
Advanced economy	3.275***	3.087**	3.164***	3.101**	3.026***	2.839**
	(1.160)	(1.217)	(1.173)	(1.249)	(1.023)	(1.067)
New democracies	0.714	0.648	0.792	0.761	0.708	0.476
	(1.152)	(1.148)	(1.090)	(1.155)	(1.133)	(1.132)
Majoritarian system	1.552	1.607	1.534	2.381**	1.564	1.671
	(1.074)	(1.019)	(1.005)	(1.020)	(1.035)	(1.079)
Lagged vote share	-0.182**	-0.185**	-0.188**	-0.151	-0.186**	-0.185**
	(0.083)	(0.082)	(0.083)	(0.093)	(0.082)	(0.079)
R ²	0.10	0.10	0.10	0.09	0.09	0.10
Observations	363	363	363	328	363	362

Note: Reform_ey and Reform_term denote reforms in the election year and in the rest of the incumbent leader term, respectively. Estimates based on equation (1). Standard deviations based on robust standard errors in parentheses. ***, **, * denote significance at 1, 5 and 10 percent, respectively.

Table A5. The effect of reforms on electoral outcomes—Financial vs. real and Reforms vs. Reversals

	(I)	(II)
	Financial	Real
Reform_ey (+)	-6.889**	1.313
	[2.823]	[2.229]
Reversal_ey (-)	11.105	-5.918
	[7.363]	[15.389]
Reform_term (+)	0.318	0.611
	[2.838]	[1.609]
Reversal_term (-)	0.910	12.443
	[5.889]	[7.639]
Initial level regulation	-2.532	1.420
	[5.030]	[6.302]
Growth_ey	0.289	0.463**
	[0.265]	[0.210]
Growth_term	0.683**	0.490
	[0.331]	[0.328]
Advanced economy	3.352**	3.338***
	[1.293]	[1.183]
New democracies	0.726	0.812
	[1.109]	[1.175]
Majoritarian system	1.541	2.384**
	[1.046]	[1.020]
Lagged vote share	-0.182**	-0.162*
	[0.084]	[0.087]
F-test reform vs. reversal coef.	0.36	0.21
R ²	0.11	0.09
Observations	363	327

Note: Reform_ey and Reform_term denote reforms in the election year and in the rest of the incumbent leader term, respectively. Reform (+) and Reversal (-) denote liberalization and tightening reforms, respectively. Estimates based on equation (5). Standard deviations based on robust standard errors in parentheses. ***, **, * denote significance at 1, 5 and 10 percent, respectively.

Table A6. The effect of reforms on electoral outcomes—recessions vs. expansions, financial vs. real

	(I)	(II)	(I)	(II)	(I)	(II)
	Dom. Fin	Capital	Curr.	Trade	PMR	LMR
Reform_ey (recessions)	-6.183*** [2.300]	-5.507 [7.392]	-10.153*** [2.354]	-2.597 [2.637]	2.678 [5.449]	2.707 [12.409]
Reform_ey (expansions)	1.138 [2.552]	-8.038 [7.198]	0.471 [3.509]	2.653 [1.865]	-1.541 [3.333]	1.410 [28.763]
Reform_term (recessions)	-4.000 [3.367]	1.169 [2.876]	2.357 [2.011]	-2.144 [1.858]	-5.010 [3.195]	9.286 [8.292]
Reform_term (expansions)	2.402 [2.721]	1.651 [5.796]	-3.004 [4.194]	1.435 [3.804]	3.475* [1.854]	0.714 [6.925]
Initial level regulation	-2.414 [2.721]	-1.363 [5.014]	-1.171 [4.194]	1.562 [3.805]	0.048 [3.040]	-4.989 [5.518]
Growth_ey	0.208** [0.260]	0.288 [0.258]	0.302 [0.263]	0.465** [0.206]	0.338 [0.276]	0.320 [0.208]
Growth_term	0.633** [0.315]	0.674** [0.321]	0.700** [0.314]	0.444 [0.343]	0.535 [0.360]	0.673** [0.306]
Advanced economy	3.111*** [1.159]	3.105** [1.225]	3.142** [1.215]	3.172** [1.252]	2.715*** [1.024]	2.873*** [1.055]
New democracies	0.523 [1.140]	0.628 [1.145]	0.994 [1.094]	0.769 [1.166]	0.762 [1.083]	0.562 [1.086]
Majoritarian system	1.561 [1.068]	1.631** [1.034]	1.404 [1.036]	2.238** [1.020]	1.487 [1.060]	1.647 [1.074]
Lagged vote share	-0.179 [0.083]	-0.186** [0.084]	-0.185** [0.084]	-0.153 [0.093]	-0.185** [0.082]	-0.183** [0.077]
Total effect recessions	-10.183***	-4.338	-7.796***	-4.741*	-2.332	11.994
Total effect expansions	3.541	-6.387	-2.533	4.088*	1.933	2.124
F-test difference	4.73**	0.02	0.55	2.63*	0.33	0.57
R ²	0.11	0.09	0.11	0.09	0.10	0.05
Observations	363	363	363	327	363	363

Note: Reform_ey and Reform_term denote reforms in the election year and in the rest of the incumbent leader term, respectively. Estimates based on equation (4). Standard deviations based on robust standard errors in parentheses. ***, **, * denote significance at 1, 5 and 10 percent, respectively.

Table A7. The effect of reforms on electoral outcomes—IMF Advanced vs. developing

	IMF
Reform_ey(Adv.)	-9.126** [3.655]
Reform_ey(Dev.)	-4.927** [2.085]
Reform_term(Adv.)	-29.085*** [5.376]
Reform_term(Dev.)	-0.006 [2.187]
Initial level regulation	-0.085 [5.880]
Growth_ey	0.534** [0.202]
Growth_term	0.485 [0.304]
Advanced economy	3.262** [1.313]
New democracies	0.958 [1.127]
Majoritarian system	2.007* [1.009]
Lagged vote share	-0.11 [0.092]
Total effect (Adv.)	-38.210***
Total effect (Dev.)	-4.933
F-test: difference	19.14***
R ²	0.12
Observations	327

Note: Reform_ey and Reform_term denote reforms in the election year and in the rest of the incumbent leader term, respectively. Estimates based on equation (5). Standard deviations based on robust standard errors in parentheses. ***, **, * denote significance at 1, 5 and 10 percent, respectively.