Politico-Financial Crises: New Evidence

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Abstract

Using a wide sample of countries during the period 1970-2004, we instrument leader exits and financial crises to assess the causal effect each has on the other. We find that leader exits due to scheduled elections and term limits raise the probability of a banking crisis in the same year by 9% and that of a twin crisis by 7.6%. These effects are highly significant statistically, robust, and confined primarily to presidential regimes. In contrast, for financial crises instrumented with determinants from early warning models, only sovereign defaults appear to induce the exit of national leaders.

Keywords: Financial crises, leadership, economic growth.

JEL Codes: G01, E00

1 Introduction

Recent economic literature has displayed significant interest in the political causes and consequences of financial crises. Empirical evidence demonstrates that political leaders are significantly more likely to lose their jobs following a sovereign default (Borensztein and Panizza, 2009; DiGiuseppe and Shea, 2016; Malone, 2011) or balance-of-payments crisis (Frankel, 2005). However, previous work has generally neglected the issue of whether these regularities are causal in nature. Conversely, literature that has explored the causal effects of leadership transitions, such as Jones and Olken (2005) and those that build upon that seminal paper (Besley et al., 2011; Brady and Spence, 2009; Collier and Hoeffler, 2009; Shea and Solis, 2018), have focused primarily on the consequences of exogenous leader exits for economic growth and policies, but not financial crises. Understanding the nature of the causal linkages between political and financial crises is important, given the presumption of recent theoretical literature on financial crises that such linkages are crucial (Chang, 2007, 2010; Chatterjee and Eyigungor, 2019; Malone, 2011; Vaugirard, 2007).

We address this gap in the literature by exploiting plausibly exogenous sources of variations in the probability of both financial crises and leadership transitions within a large sample of countries spanning the period 1970-2004. We focus on transitions in the identity of the leader of the executive branch of government, as well as four types of financial crises: sovereign defaults, banking crises, balance-of-payments (BOP) crises, and twin banking/BOP crises. In our models of leadership transitions, we draw our instruments for financial crises from the literature on early warning models (EWMs). For each type of crisis, we employ a parsimonious set of robust determinants identified by previous studies, lagged at least one year prior to the crisis event.

To instrument leadership transitions in models of financial crises, we use a set of determinants of leadership transitions from the work of Burke and Leigh (2010), Burke (2012), and Cáceres and Malone (2015). This set of determinants includes factors such as leader age, leader tenure in office, and most crucially, dummy variables for pre-scheduled election years and term limits for the leader of the executive branch. These instruments prove highly relevant for explaining leadership transitions, and variations in these instruments induce plausibly exogenous variation in leadership transition events.

We find that the coefficients of financial crises in our preferred leadership transition models, while uniformly positive, are imprecisely estimated and significant only for sovereign defaults. Although economically large, the coefficient of 26.4% on the sovereign default event dummy in our model of leadership transitions is itself only statistically significant at the 10% level. The use of alternative instrumentation strategies for financial crises, based on using lagged crisis and leadership transitions dummies in a dynamic panel IV framework Arellano and Bond (1991), leads to broadly similar conclusions. Financial crises do not appear to robustly cause leadership transitions, except tentatively for the case of default, and in that case any effect appears to be confined to the first year of the default episode.

In contrast to the foregoing results, we find that leadership transitions significantly and quite robustly raise the probability of banking and twin crises. In our linear probability models for banking crises, we find that a leadership transition, induced through plausibly exogenous variations in scheduled elections and term limits, raises the probability of a banking crisis in the same year by 9%. This result is statistically significant at the 1% level. Leadership transitions raise the probability of experiencing a twin crisis in the same year by 7.6%, and the result is significant at the 5% level. These results control for possible country- and year-specific fixed effects.

We would be remiss to cement our conclusions without considering the role of economic growth as a uniquely important driver of both financial and political crises. In light of this, we evaluate the robustness of our models to the inclusion of contemporaneous and lagged effects of growth. Most importantly, we deal with growths potential endogeneity by instrumenting it with a set of relevant and plausibly exogenous instruments from recent literature. Our instruments for growth include commodity price indices, a weighted average of growth in the GDPs of an instrumented countrys export partners, and country-specific weather variations, following the work of Burke and Leigh (2010), Burke (2012), and Cáceres and Malone (2015). Our primary result –that leadership transitions make banking and twin crises more likely– is highly robust to controlling for growth, even after allowing for its potential endogeneity. There is also some evidence, consistent with the literature, that negative shocks to growth increase the probability of both leadership transitions and financial crises in the following year.

Finally, we repeat our primary exercises for different types of political regimes, and find that leadership transitions induce banking and twin crises far more strongly in polities with presidential, as opposed to parliamentary, systems. Although our instrumentation strategy does not lend itself naturally to the examination of autocratic regimes, as in the seminal work of Jones and Olken (2005), the foregoing finding is consistent with their observation that the economic effects of leadership transitions tends to be greatest in regimes, such as presidential systems, where the leader of the executive branch wields more direct influence over economic decision-making and has fewer constraints on his or her actions. The rest of this paper is organized as follows. Section 2 contains a brief review of the related literature. Section II describes the dataset and methodology, including our instrumentation strategy. Section III presents the results, and Section IV concludes.

2 Related Literature

Transitions in the head of state and financial crises are deeply endogenous because of selection and moral hazard. Politicians have access to private information about costly financial mishaps that is unavailable to the electorate, which recurs to public signals of economic performance. Similarly, the politicians preferences can be misaligned with those of the public or foreign investors because of pecuniary and non-pecuniary benefits of staying in office. Uncertainty over the politicians motives exacerbates market volatility and may expedite the leader's exit from power. Theoretical analyses by Chang (2007, 2010) and Chatterjee and Eyigungor (2019) on sovereign defaults, and Vaugirard (2007), on banking crises, provide useful reference points that emphasize the above features.

Chang (2007) presents an open economy model of sovereign defaults. In this model, the politician may have reputational concerns, in the form of an additional (non-social) cost related to the decision to default, and this leads the self-interested politician to choose to repay in many situations when default would be socially optimal. The voters may choose to dismiss the politician, in which case they learn the true cost of default and make the final default decision. Thus, politico-economic crises, in which the politician is dismissed and the country defaults, can occur in equilibrium.

Chang (2010) provides an alternative setup for examining politico-economic crises, which places the distinct voting patterns of two types of agents, entrepreneurs and workers, at the center of the story. In Changs (2010) model, foreigners finance investments by entrepreneurs, who promise in equilibrium to repay a debt amount that is decreasing in the probability that a pro-business candidate wins. The latter probability is endogenous, because the taxation patterns of pro-business versus pro-worker candidates upon election is distinct, so that higher debt makes pro-worker candidates relatively more attractive. In this setting, politico-economic equilibriums arise in which shocks to the world interest rate can have a multiplier effect on both electoral and economic outcomes. Chatterjee and Eyigungor (2019) propose a model with endogenous leader turnover, assuming that economic recessions decrease the probability of reelection. Politicians with private information about low economic prospects behave myopically closer to elections and increase the countrys risk of default.

Vaugirard (2007) contribution focuses on the political economy of banking crises. He explores the situation in which bank solvency crises occur due to macroeconomic shocks. The government may bail out banks in situations where it is not warranted, due to the possibility of cronyism. For Vaugirard (2007) as for Chang (2007), the information transmission problem and discordant preferences are key. Vaugirard (2007) argues that uncertainty regarding the actions of politicians, when coupled with financial frailty, can lead to banking crises. Paradoxically, this generates a bias in the ruler towards satisfying foreign lenders rather than the public. This vicious loop can be the cause of self-fulfilling prophecies.

On the empirical side, a growing number of studies have focused on documenting the political costs of financial crises. For sovereign defaults, Malone (2011) demonstrates, using a dataset consisting of 94 countries during the period from 1970-2003, that after controlling for other determinants, the quantitative effect of a default on the probability of job loss is comparable to a 3.5 standard deviation drop in economic growth. Borensztein and Panizza (2009) examine a smaller dataset, consisting of all the countries that defaulted during the 1980-2003 period. They find that in 50 percent of the cases (11 out of 22 episodes) there was a change in the chief of the executive either in the year of or following the default event.

For BOP crises, Frankel (2005) finds that over the period from 1971 to 2003, devaluations increased the probability of a change in the chief of the executive branch in the 12 following months by approximately 45 percent (from 20 to 29 percent). In a contribution that focuses on the historical dimension of links between banking crises and political crises, Chwieroth and Walter (2010) find that crises are correlated with politicians job prospects over the last two centuries, but that the relationship appears to be much weaker in the post-WWII data. Cuaresma and Slacik (2009) measure the effect of banking crises on the duration of partisan spells on a sample of 89 democracies between 1979 and 2005. They dont find any significant overall effects. Keefer (2007) examines the effect of election competitiveness on the intensity of crises, when politicians are likely to cater to special interest groups. He concludes that "checks and balances reduce politicians incentives to seek rents, offsetting the delays they induce in crisis response" (Keefer, 2007).

Evidence on the political determinants of financial crises is scarce relative to evidence on their political consequences. A notable exception is provided by the work of Kohlscheen (2010), who shows that middle-income democracies with parliamentary regimes, lower turnover in leadership, more checks on the executive, and coalition governments exhibit lower default probabilities. Like most empirical studies to date, however, Kohlscheen (2010) does not control for the possible endogeneity of default events and leadership transitions. A more recent paper by Shea and Poast (2020), which documents a significant increase in default probabilities following irregular leadership transitions between 1875 and 2005, such as those due to assassinations and coups dtat, establishes at least one scenario in which leadership transitions can increase default probabilities. Furthermore, Trebesch (2019) provides evidence that political turmoil disrupts the settlement process and increases the length of debt crises. Our study is the first in the literature, to our knowledge, that measures the causal effect of leadership transitions on the probabilities of different types of financial crises.

3 Data

We source our data on political turnover from the Archigos project (Goemans et al., 2009). A leader change is the event where the head of state leaves office, excluding cases of death. We incorporate two variables constructed by Burke (2012) from World Bank data on political institutions (Beck et al., 2001). A term limit is an event of leader change due to a legal requirement to leave office and an election is an event of presidential, parlimentary or assembly elections held in the same year. We account both contemporary and lagged election dummy variables in our models to account for the fact that in some countries the head of state may be required to leave office in year succeeding an election. Similarly, we use World Bank data on yearly economic indicators.

Standard and Poor (S&P) classifies default episodes as the failure to meet a principal or interest paid according to the agreed terms. We use the definition proposed by Reinhart and Rogoff (2009), which extends the S&P classification, as well as their definition of systemic banking crisis. For balance of payments, Kaminsky and Reinhart (1999) construct a weighted average of exchange rate changes and reserve changes with weights such that the two components and index have equal sample volatilities. Our definition of balance of payments (BOP) crisis is a dummy variable that is equal to one if the Kaminsky and Reinhart (1999) index exceeds three standard deviations around its mean and zero otherwise. A twin crisis is a joint occurrence of a banking and BOP crises in the same year. Our variable definitions coincide with those of Cáceres and Malone (2013), who compile financial, economic and political determinants to forecast leadership transitions. For a recent review of alternative crisis definitions, see Bordo and Meissner (2016).

4 Model

To fix ideas, consider the following system of linear probability models (LPMs) for leadership transitions (LTs) and financial crises (FCs):

$$\text{Financial Crisis}_{it} = \boldsymbol{\alpha}^{FC} + \text{Leader Change}_{it} \cdot \gamma + \mathbf{X}_{it}^{\prime FC} \boldsymbol{\beta}^{FC} + \boldsymbol{\eta}_t^{FC} + \boldsymbol{\nu}_i^{FC} + \boldsymbol{\varepsilon}_{it}^{FC} \quad (1)$$

$$\text{Leader Change}_{it} = \boldsymbol{\alpha}^{LC} + \text{Financial Crisis}_{it} \cdot \phi + \mathbf{X}_{it}^{\prime LC} \boldsymbol{\beta}^{LC} + \boldsymbol{\eta}_t^{LC} + \boldsymbol{\nu}_i^{LC} + \boldsymbol{\varepsilon}_{it}^{LC} \quad (2)$$

Financial Crisis$_{it}$ is a dummy variable for the occurrence of finance crisis in country i in year t. Similarly, Leader Change$_{it}$ is a dummy variable that equals 1 if a leadership transition occurs in country i in year t. The parameters $\boldsymbol{\eta}_t$ are year fixed-effects, and $\boldsymbol{\nu}_i$ are country-specific fixed effects, $\mathbf{X}_{it}$ is a vector of control variables, possibly measured at time t, $t-1$, or $t-2$ depending on the variable in question, and $\boldsymbol{\varepsilon}_{it}$ is the mean zero error term. Our primary interest is in the consistent estimation of the coefficients ψ and γ. The coefficient ϕ measures the change in the risk of political turnover after a financial crisis whereas γ captures the change in the probability of a crisis event after a leader change. The four types of financial crises we examine –sovereign defaults, banking, BOP, and twin crises– give rise to four separate systems of equations of the form given by (1) and (2).

Estimation of equations (1) and (2) separately via OLS will lead to inconsistent estimates of γ and ϕ, because leader changes and financial crises are endogenous. Our strategy to deal with this problem is to find appropriate instruments for (1) and (2). We partition the vectors of instruments as $\mathbf{Z}'_{it} = (\mathbf{Z}'^{incl}_{it}, \mathbf{Z}'^{excl}_{it})$ for $\mathbf{Z}'^{FC}_{it}$ and $\mathbf{Z}'^{LC}_{it}$, where "incl" denotes the set of included instruments and "excl" denotes the set of excluded instruments in the respective second stage equations. Then we can write $\mathbf{Z}'^{FC}_{it} = (\mathbf{X}'^{LC}_{it}, \mathbf{X}'^{FC}_{it})$ and $\mathbf{Z}'^{LC}_{it} = (\mathbf{X}'^{FC}_{it}, \mathbf{X}'^{LC}_{it})$ for the specifications employed in our paper. That is, we assume that the control variables in equation (1) for leadership transitions are the excluded instruments for leadership transitions in the LIML estimation of equation (2), and the control variables for the financial crisis of interest in equation (2) are the excluded instruments for financial crises in the 2SLS estimation of equation (1).

4.1 Instrumenting Leadership Transitions

Turning to the estimation of equation (1) for financial crises, we instrument Leader Change$_{it}$ using a set of exogenous political instruments, drawn from the work of Burke and Leigh (2010), Burke (2012), and Cáceres and Malone (2015). This instrument set includes: leader age, leader tenure in office, year t and year $t-1$ executive election dummies, and a pre-determined term limit dummy which indicates whether a legal requirement demands leader exit in year t. As before, for a given type of financial crisis Leader Change$_{it}$, denote the set of instruments by $\mathbf{Z}_{it}$, a vector that includes both the set of excluded leadership transition instruments just enumerated as well as the included instruments $\mathbf{X}'^{LC}_{it}$ from equation (1).

4.2 Instrumenting Financial Crises

The instruments for the various types of financial crises we examine come from the literature on early warning models (EWMs). While this literature is fairly large, a good overview can be gleaned from contributions by Berg et al. (1999), Hardy and Pazarbaşioğlu (1999), Edison (2003), and Edison (2003), which are discussed by Glick and Hutchison (2013). The most relevant instruments will depend on the financial crisis under consideration.

For default/debt events, Manasse and Roubini (2009) classify crises according to their likely triggers: solvency crises (most common during the Latin American crises in the 1980s), liquidity crises (most common in the 1990s, as in Mexico during the Tequila crisis in 1994 and later in Argentina in 2001) and crises induced by other types of deterioration in macroeconomic fundamentals. To take these classifications into account we use three instruments that are significant across several studies (Fioramanti, 2008; Fuertes and Kalotychou, 2006; Schimmelpfennig et al., 2003): Total external debt-to-GDP (to model solvency), short-term interest payments-to-international reserves (for liquidity), and gross capital investment in fixed assets-to-GDP (macroeconomic). This set of instruments is exogenous under the plausible assumption that the public has no direct preference over debt composition and instead uses default risk under the rule of the incumbent as a means to determine whether to remove the head-of-state from office.

For banking crises, we use three instruments. The first instrument is a measure constructed by Abiad et al. (2010) to gauge the quality of pre-crisis banking sector supervision. Their index takes on four possible values $\{0, 1, 2, 3\}$, with higher values indicating better supervision. The index is computed after obtaining, normalizing, and summing sub-scores related to four dimensions: implementation of capital adequacy ratios based on Basel standards, the degree of independence of the supervisory committee from the executive, and the effectiveness and scope of supervisory examinations of financial institutions, respectively. For the second, we include the rate of growth of real domestic credit (%) as a direct measure of credit expansion. According to Manasse et al. (2013) banking crises can be classified into two categories. In the first, the banking crisis follows a former credit boom, and coincides with the flight of domestic assets and inflation. In the second, the crisis is characterized by an investment boom financed by banks foreign debt. We experimented with variables capturing this second possible channel, but their inclusion did not improve the overall fit of the model.

Our third instrument for banking crises is the rate of inflation, as measured by the GDP deflator, to signal situations when the economy might be overheating. Inflation measures have featured prominently in other EWM studies on banking crises (Demirgüç-Kunt and Detragiache, 1998, 2005; Kaminsky et al., 1998). We do not include other important variables that may affect banking sector margins and vulnerability, such as world interest rates, because our use of time-fixed effects does not allow for variables that are common to all countries in a given year.

For balance-of-payments (BOP) crises we use five instruments: short-term debt over reserves (to capture illiquidity as a potential cause of currency crises), changes in net foreign assets over GDP (to capture capital flight, e.g. due to sudden stops), the M2 multiplier (Kaminsky and Reinhart, 1999), growth in exports from Berg et al. (1999), and an index of capital account liberalization from Abiad (2010). In the case of the last instrument, we hypothesize that more open capital accounts are likely to facilitate capital flight, which can increase the probability of a BOP crisis.

Twin crises, studied in Kaminsky et al. (1998) and Hutchison and Glick (2000), are essentially joint events of banking and currency crises, so for this reason we combine the instruments for banking and BOP crises together to form the instrument set for twin crises. It is worth noting that all crises are instrumented with lagged variables to minimize the risk of endogeneity. In implementing our models, we follow Fuertes and Kalotychou (2006) and winsorize the data to 4 standard deviations around their median in order to avoid bias due to the possibility of large outliers.

5 Empirical Results

In Table 1 we display the treatment effects estimated from fixed effects linear probability models, with country and time fixed effects, to establish a benchmark value for the ϕ and γ coefficients in equations (2) and (1) without instrumenting the main endogenous variables. To ensure valid comparisons with the rest of the tables, we restrict the sample to those country-year observations with complete cases for the main variables, the controls and the instruments.

(Insert Table 1)

The results of Table 2 indicate that a leader change increases the probability of a twin crisis by 3.3% and the coefficient is significant at the 10% level. The effect of leadership transitions on default, banking and BOP crises is not statistically significant. Similarly, we find no significant effects of financial crises on leadership transitions.

5.1 Uncertain Markets: Crisis Onset

In Table 2 we present estimates for γ in (1). Our main result is that a leader exit increases the probability of a banking crisis in the same year by 9%, with a coefficient that is statistically significant at the 1% level, and increases the probability of a twin crisis by 7.6%, with a coefficient that is significant at the 5% level. Point estimates of the effect of a leadership transition on the probability of default and BOP crises, respectively, are 0.9% and 5.6%, but neither coefficient is significant at conventional levels. The inclusion of relevant controls from the EWM literature has little impact on the estimated treatment effect in any of the four second stage regressions displayed in Table 2.

(Insert Table 2)

The coefficients on the (instrumented) leadership transition variable in models of banking and twin crises displayed in Table 2 are much higher than the analogous coefficients in models estimated by OLS, which are displayed in Table 2. This leads us to infer that the OLS coefficients are biased downward. Clientelistic politicians may appease special interest certain groups or institute mitigation policies that delay their exit from office (Vaugirard, 2007). That means that leader exits during non-election years are highly selected. Election and term limit instruments present a situation where leaders are high likely to lose office, and potential losers of leadership changes –investors fearing policy changes from potential entrants– may expedite capital reversals and sudden stops. Our results suggests that the heightened crisis risk from election periods is higher than the regular fixed effects results would suggest, even after controlling for relevant determinants of financial crises as well as country and time fixed effects.

We use the Hansen J-test of overidentifying restrictions to test the validity of the model. Our results show that we cannot reject the null hypothesis of exogeneity of the instruments for any of the four types of financial crisis displayed in Table 4 at the 5% level of significance. The p-value is somewhat low for twin crises, but still above the 5% threshold. Stock and Yogo (2002) developed critical values to recognize weak instruments for 2SLS, LIML and Fuller estimators, which we present at the bottom of Table 2. The Kleibergen Paap (KP) statistic for all our models far surpasses the thresholds for 10% and 15% effect sizes. The instruments in all models also pass the under-identification test for instrument relevance at the 1% level, suggesting that there exists sufficient variation in the instruments to construct the rank matrix of the IV regression.

Overall, the results of Table 4 strongly suggest that leadership transitions increase the probability of banking and twin crises in the same year. Leadership transitions affect twin crises primarily through their effect on banking crises, it seems, rather than via BOP crises, as the treatment effect for leadership changes on twin crises lies between that obtained for banking crises and the (statistically insignificant) effect obtained for BOP crises.

5.2 Risk of Political Turnover

In Table 3 we present estimates for ϕ in (2). The table shows that default events increase the probability of exit of the head of state by 26.4%, but this effect is only significant at the 10% level. This coefficient is consistent with the 24% marginal probability found by Malone (2011) but significantly lower than the 50% found by Borensztein and Panizza (2009). On the other hand, banking, BOP, and twin crises increase the probability of a leadership transition by amounts that are large but far from statistical significance. In all four cases, the effect is larger than the fixed effects regressions would suggest, but the standard error of the treatment effects also goes up considerably. The coefficients are robust to the inclusion of additional controls (elections, leader age, tenure and term limit flags), which have high explanatory power but are presumed not to be directly correlated with financial crises.

Our instruments for default, primarily the lagged short-detm debt over reserves, the lagged ratio of external debt to GDP and the lagged growth in fixed assets to GDP, capture observable signals of financial performance that can be interpreted by the electorate and market participants to remove politicians from office. The downward bias of the fixed effect coefficients in Table 1 compared to the fixed IV suggests that politician's actions to renegotiate debt lead to selection of default episodes, that attenuates the effect of default on executive job loss.

We verify that all of the instruments pass the Hansen J-Test of overidentifying restrictions at the 5% level, with p-values of around 50% for default, BOP and twin crises, and a modest 9.47% for banking crises. We also conduct a test of instrument relevance, showing that there is sufficient variation in the instruments to construct the rank matrix of the IV regression. The null of the test is under-identification. We reject the null for the instruments for default at the 1% level, and we can reject the null for the instruments of banking and BOP crises at the 10% level.

(Insert Table 3)

Even when instruments are exogenous and relevant, and thus lead to consistent estimates of second stage coefficients for the variable being instrumented, instrument weakness can produce biased estimates of treatment effects in finite samples. We find that the KP statistic is above the 10% Stock-Yogo critical value for the model that instruments default crises, is marginally below the 10% Stock-Yogo critical value for the model that instruments BOP crises, and far below the 10% critical values for the models instrumenting banking and twin crises. In the models for banking and twin crises, the instruments are not inducing sufficient variation in the second stage financial crisis variable, leading to potentially biased estimates.

Even with a set of leading empirical determinants from the EWM literature, several of which are highly statistically significant in first stage regressions, the induced variation in the banking and twin crisis variables in the second stage regression is simply insufficient to ensure unbiased estimation of the treatment effect of interest.

5.3 Persistence of Crises

To address the issue of weak instruments, in particular for banking crises, we estimate a set of dynamic IV models (Arellano and Bond, 1991; Roodman, 2009) on the dataset that includes all years spent during crisis episodes, in addition to the initial year of the crisis. To make the notation concise we denote FC_{it} = Financial Crisis$_{it}$. In particular, we estimate the equation

$$\text{Leader Change}_{it} = \boldsymbol{\alpha}^{LC} + \text{FC}_{it} \cdot \phi + \text{Leader Change}_{i,t-1} \cdot \kappa + \mathbf{X}_{it}^{\prime LC} \boldsymbol{\beta}^{LC} + \boldsymbol{\eta}_t^{LC} + \boldsymbol{\nu}_i^{LC} + \boldsymbol{\varepsilon}_{it}^{LC}. \quad (3)$$

The model contains an additional endogenous variable Leader Change$_{i,t-1}$. We construct a matrix of excluded instruments $\mathbf{Z}_{it}^{\prime excl}$ that includes early warning model indicators (as in the previous exercises) plus lags of Leader Change$_{it}$ and lags of FC_{it}. We formulate the Arellano-Bond model in such a way that it carries over many of the assumptions of our core specification, including country and time fixed effects. The added benefit, of this specification is that it allows us to use crisis persistence as a shifter of FC_{it} with indicators for financial crisis persistence.

(Insert Table 4)

The results of this exercise can be found in Table 4. In columns (1), (3) and (5) we only use lagged leader change and crisis years indicators as instruments, whereas in columns (2), (4) and (6) we use the full set of instruments. Default crises states are particularly persistent as compared to other types of crises, and thus naturally suited to this approach. While most of the results are not statistically significant, consistent with Table 3, we do find that being in the midst of a banking crisis appears to significantly increase the probability of executive job loss, by around 6.9%, in the model where we only instrument the banking crises state dummy with its own lags.

In general, the results show that the effect of default on the probability of exit of the head-of-state in the same year is positive and significant, consistent with theory (Chang, 2010), but also less precise than suggested by previous literature that did not consider the issues of endogeneity (Borensztein and Panizza, 2009; Malone, 2011). While instruments drawn from the EWM literature are weaker for other types of financial crises than for default, our results suggest that the effect of crisis onset on leadership transitions is muted. However, a modest amount of crisis fatigue on the part of voters may plague leaders mired in the midst of ongoing banking crises.

5.4 Partial Role of Growth

In our exercises so far we have sidestepped a discussion of the possible role played by economic growth as a common cause of both financial crises and leadership transitions. Growth is a crucial determinant of both leadership transitions (Burke, 2012; Cáceres and Malone, 2015) and financial crises (Demirgüç-Kunt and Detragiache, 1998, 2005). The yearly rate of growth is a transparent indicator of economic performance that can be used by market participants and the electorate to asses the state of the economy and judge the head of state's performance. However, these additional sources of endogeneity raise potential issues for our identification strategy.

We perform growth-related robustness checks on our main results. Specifically, we include contemporaneous and lagged values of growth in our previous models as additional controls, and we repeat these exercises after instrumenting growth itself with a set of plausibly exogenous explanatory variables. We draw the set of instruments for growth, which are based on country-specific commodity price indices, export partner growth indices, and weather variations, from the work of Burke (2012). Crucially, after accounting for the role of economic growth, we find that our main results from Tables 2 and 3 remain unchanged, but that exogenous, negative shocks to growth raise the probability of both financial crises and leadership transitions in our setup.

To fix ideas, let us rewrite equations (1) and (2) after including an additional term for growth, and add a third equation for growth to the original pair of equations defining our system, as follows

$$\mathrm{FC}_{it} = \alpha^{FC} + \mathrm{LC}_{it} \cdot \gamma + \mathrm{Growth}_{i,t-j} \cdot \theta^{FC} + \mathbf{X}_{it}^{\prime FC} \boldsymbol{\beta}^{FC} + \eta_t^{FC} + \nu_i^{FC} + \varepsilon_{it}^{FC} \tag{4}$$

$$\mathrm{LC}_{it} = \alpha^{LC} + \mathrm{FC}_{it} \cdot \phi + \mathrm{Growth}_{i,t-j} \cdot \theta^{LC} + \mathbf{X}_{it}^{\prime LC} \boldsymbol{\beta}^{LC} + \eta_t^{LC} + \nu_i^{LC} + \varepsilon_{it}^{LC} \tag{5}$$

The variable $\mathrm{Growth}_{i,t-j}$ corresponds to growth in GDP-per-capita lagged j periods. Here $j \in \{0, 1\}$, depending on whether we consider contemporaneous or lagged growth, respectively. To estimate ϕ we instrument Financial Crisis_{it} and Growth_{it} using a set of excluded instrument $\mathbf{Z}_{it}^{\prime FC,excl} = [\mathbf{X}_{it}^{\prime FC}, \mathbf{X}_{it}^{Growth}]$, which combines instruments for financial crises with a vector of exogenous determinants of growth. Conceptually, the first stage separately regresses Financial Crisis_{it} and Growth_{it} on $\mathbf{Z}_{it}^{\prime FC,excl}, \mathbf{X}_{it}^{\prime LC}$ and a set of country and year dummies. The second stage plugs-in the predicted regressors into (5) to estimate the model. We follow an analogous procedure to estimate γ, but instead use $\mathbf{Z}_{it}^{\prime LC,excl} = [\mathbf{X}_{it}^{\prime LC}, \mathbf{X}_{it}^{Growth}]$.

We consider five alternative specifications of the system in (5) and (4) in Table 5. Column (1) corresponds to the baseline models from Tables 2 and 3. In column (2) we include $g_{i,t-1}$ in the first and second stage regressions. In column (3) we include g_{it} in the first and second stages. These last two specifications follow the same methodology as in Tables 2 and 3, except that we include growth as an additional regressor, with no special considerations for endogeneity. Columns (4) and (5), instrument lagged and contemporaneous growth, respectively.

(Insert Table 5)

The results of the growth-related exercises are displayed in Table 5. We confirm that defaults increase the probability of leadership transitions. However, this is only true for specifications (1), (3), and (4), which involve no growth variable or contemporaneous growth. When we run the models including lagged growth (instrumented and non-instrumented), the estimated effect of Financial Crisis_{it} on Leader Change_{it} becomes insignificant at conventional levels. This is likely because, to some extent, exogenous shocks to previous-year growth drive both leadership transitions and financial crises in the current year.

Table 5 strongly supports the conclusions of Table 2 that leadership transitions increase the probability of banking and twin crises. The estimated coefficients are very similar across specifications, and are significant at the 1% level and 5% levels for banking and twin crises, respectively, as before. The coefficients for growth in the models of Table 5 are not reported. However, we find that a one percent increase in lagged growth decreases the probability of leadership transitions by around 1%–in line with previous literature (Burke, 2012; Burke and Leigh, 2010; Cáceres and Malone, 2015)–although the coefficient is non-significant across specifications. Conversely, when we look at the models of financial crises, we find that a one percent increase in lagged growth decreases the probability of default by 1.3%, and this effect is significant at the 5% level.

Overall, Table 5 reaffirms the result that exogenously induced leadership transitions significantly increase the probability of banking and twin crises in the same year, while negative shocks to economic growth increase the probability of both leadership transitions and sovereign defaults in the year that follows. Simultaneous inclusion of fixed effects and multiple endogenous variables in the models of Table 5 reduces somewhat the efficiency of estimation of the treatment effects of interest, but does not alter our core conclusions.

5.5 Regime Type Matters

As a final robustness check, we segment the dataset by regime type based on classification into one of two electoral rules: presidential or parliamentary . For this purpose, we use the

World Bank electoral rule classification (Beck et al., 2001).

(Insert Table 6)

Table 6 shows that the effect of banking crises and twin crises on leader change is still significant at the 5% level, but confined primarily to presidential regimes. Different types of regimes have distinct mechanisms for removing their rulers, and such differences may mediate our findings. Frankel (2005), for example, found in his study that the effect of BOP crises on leadership transitions was more pronounced in presidential regimes. Despite the fact that we find no significant effect from BOP crises in the current paper, Frankels finding can be explored in greater detail for other types of crises.

6 Conclusion

In this work, we exploit plausibly exogenous drivers of leadership transitions and financial crises to estimate the effect each of these events has on the other for four distinct types of financial crises. We find that sovereign defaults increase the probability of a leadership transition in the same year. In contrast, banking crises, BOP crises, and twin crises appear to have no effect on the probability of leadership transitions. Most importantly, we find robust evidence that an exogenously induced leadership transition increases the odds of experiencing a banking or twin crisis in the same year. This effect of leadership changes on crises is limited to presidential regimes.

Our results are consistent with the idea that leadership transitions surrounding elections can generate loss of confidence in markets and therefore lead to banking (or twin) crises, as in the theoretical model of Vaugirard (2007). The limitation of the effect to presidential, as opposed to parliamentary, regimes is consistent with the work of Jones and Olken (2005) demonstrating that leaders matter more for economic outcomes when they act in an environment of fewer constraints. To our knowledge, we are the first to document empirically a robust causal role for political forces in precipitating financial crises, which cannot be explained away as the byproduct of recent negative shocks to economic growth. Further work is needed to tease out why leadership matters more for banking crises than default, and what preventative measures countries might take to ensure their banking systems are on sound footing prior to periods of political change.

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7 Tables

Outcome	Treatment	Coef	(1) Fixed Effects	N
Default_{it}	$\text{Leader Change}_{it}$	γ	0.178	
			(0.019)	
Banking_{it}	$\text{Leader Change}_{it}$	γ	0.004	
			(0.034)	
BOP_{it}	$\text{Leader Change}_{it}$	γ	0.007	
			(0.036)	
Twin_{it}	$\text{Leader Change}_{it}$	γ	0.033*	
			(0.020)	
$\text{Leader Change}_{it}$	Default_{it}	ϕ	0.052	
			(0.038)	
$\text{Leader Change}_{it}$	Banking_{it}	ϕ	-0.033	
			(0.034)	
$\text{Leader Change}_{it}$	BOP_{it}	ϕ	-0.021	
			(0.714)	
$\text{Leader Change}_{it}$	Twin_{it}	ϕ	0.042	
			(0.083)	
Instruments for Growth			–	

Table 1: (**LPM Fixed effects models, including Growth**) * Significant at 10%. ** Significant at 5%. *** Significant at 1%. We estimate the coefficients ϕ and γ in (2) and (1) for 8 models (4 types of crisis x 2 directions of causality). The cells only report the coefficient for the treatment variable (Financial Crisis or Leader Change). We include time-variant controls, country fixed effects, time fixed effects.

Outcome	(1) Default$_{it}$	(2) Banking$_{it}$	(3) BOP$_{it}$	(4) Twin Crisis$_{it}$
Leader Change$_{it}$	0.0088	0.0901***	0.0563	0.0764**
	(0.0345)	(0.0326)	(0.0734)	(0.0353)
Banking Supervision$_{i,t-1}$ (1)		-0.0689*		-0.0408*
		(0.0369)		(0.0243)
Banking Supervision$_{i,t-1}$ (2)		-0.0861**		-0.0617*
		(0.0394)		(0.0334)
Banking Supervision$_{i,t-1}$ (3)		-0.1528***		-0.0361
		(0.0524)		(0.0368)
Growth Domestic Credit$_{i,t-2}$/GDP$_{i,t-2}$		0.0074		-0.0000
		(0.0076)		(0.0002)
Inflation: GDP deflator$_{i,t-1}$		0.0000		-0.0000
		(0.0000)		(0.0000)
Short-term debt over reserves$_{i,t-1}$	0.0002***		0.0000**	-0.0000
	(0.0000)		(0.0000)	(0.0000)
Debt$_{i,t-1}$/GDP$_{i,t-1}$	0.0008*			
	(0.0004)			
Growth in Fixed Asset to GDP$_{i,t-1}$	-0.0040**			
	(0.0016)			
Capital Account Liberaliz.$_{i,t-1}$ (1)			-0.0075	-0.0350**
			(0.0221)	(0.0155)
Capital Account Liberaliz.$_{i,t-1}$ (2)			0.0105	0.0111
			(0.0304)	(0.0221)
Capital Account Liberaliz.$_{i,t-1}$ (3)			0.0076	0.0000
			(0.0366)	(0.0216)
M2 multiplier$_{i,t-1}$			0.0000	-0.0000
			(0.0000)	(0.0000)
Annual percent. growth in exports$_{i,t-1}$			-0.0013	-0.0002
			(0.0008)	(0.0007)
Net foreign assets to GDP$_{i,t-1}$			-0.0028**	0.0003
			(0.0011)	(0.0004)
Benchmark beta with no controls	0.00811	0.0741	0.0307	0.0466
F-statistic	6.406	8.651	32.53	187.0
No. Observations	1469	1740	753	815
Countries	78	84	51	49
Overid. restrictions Hansen J-test	0.927	5.674	3.839	8.098
Hansen Test p-value	0.921	0.225	0.428	0.0880
Underidentification Test p-value	3.93e-05	4.36e-06	0.00142	0.000928
Kleibergen-Paap Statistic	211.8	319.9	170.4	286.1
SY, 10% maximal LIML size	4.840	4.840	4.840	4.840
SY, 15% maximal LIML size	3.560	3.560	3.560	3.560

Table 2: (**LPM IV Fixed effects model of Financial Crises on Leader Change**) * Significant at 10%. ** Significant at 5%. *** Significant at 1%. Each column presents the coefficients of (1), including time and country fixed effects. Leader Change$_{it}$ is instrumented with elections, term-limits, leader age and tenure. Banking supervision is an index from 0 (low supervision) to 3 (high supervision). Capital account liberalization is an index from 0 (low liberalization) to 3 (high liberalization). In both cases we drop the base case 0 (low) due to co-linearity. All control variables are winsored. Robust standard errors in parentheses.

Outcome	(1) Leader Change	(2) Leader Change	(3) Leader Change	(4) Leader Change
Financial Crisis Type				
Default crisis	0.2642*			
	(0.1364)			
Banking crisis		0.7118		
		(0.7177)		
BOP crisis			0.1215	
			(0.2454)	
Twin crisis				0.7028
				(1.9755)
Time varying controls				
Leader Age	-0.0011	0.0007	-0.0027	-0.0024
	(0.0018)	(0.0027)	(0.0031)	(0.0040)
Leader Tenure	0.0028**	0.0031	0.0035*	0.0029
	(0.0012)	(0.0021)	(0.0018)	(0.0025)
Executive Election$_{it}$	0.2070***	0.1953***	0.2266***	0.1999***
	(0.0408)	(0.0413)	(0.0466)	(0.0459)
Lagged Executive Election$_{it}$	0.0294	0.0523	0.0390	0.0619
	(0.0224)	(0.0323)	(0.0376)	(0.0631)
Term Limit Flag$_{it}$	0.8128***	0.7471***	0.8033***	0.7752***
	(0.0508)	(0.0700)	(0.0466)	(0.1599)
Benchmark beta with no controls	0.214	0.806	0.128	0.879
F-statistic	75.34	57.19	126.8	551.8
No. Observations	1469	1740	753	815
Countries	78	84	51	49
Overid. restrictions Hansen J Test	2.115	7.926	4.775	9.763
Hansen Test p-value	0.347	0.0943	0.573	0.552
Underidentification Test p-value	0.000129	0.0290	0.0896	0.283
Kleibergen-Paap Statistic	8.047	2.319	3.718	1.407
SY, 10% maximal LIML size	6.460	4.840	4.180	3.500
SY, 15% maximal LIML size	4.360	3.560	3.180	2.690

Table 3: (**LPM IV Fixed effects model of Leader Change on four different Financial Crises**) * Significant at 10%. ** Significant at 5%. *** Significant at 1%. In each column we present the coefficients for models of leadership transitions on financial crises, which include time and country fixed effects, with the additional political controls presented in the table. Financial crises are instrumented with determinants from the EWM literature. Robust standard errors are in parentheses.

Outcome	(1) Leader Change$_{it}$	(2) Leader Change$_{it}$	(3) Leader Change$_{it}$	(4) Leader Change$_{it}$	(5) Leader Change$_{it}$	(6) Leader Change$_{it}$
Debt Crisis$_{it}$	0.007	0.037				
	(0.033)	(0.033)				
Bank Crisis$_{it}$			0.069**	0.044		
			(0.034)	(0.043)		
BOP Crisis$_{it}$					-0.006	0.123
					(0.168)	(0.277)
Leader Change$_{i,t-1}$	0.008	0.014	0.008	-0.018	0.001	0.012
	(0.022)	(0.023)	(0.023)	(0.023)	(0.024)	(0.030)
Executive election$_{it}$	0.166***	0.157***	0.176***	0.157***	0.163***	0.161***
	(0.028)	(0.029)	(0.026)	(0.030)	(0.026)	(0.031)
Executive election$_{i,t-1}$	-0.014	-0.014	-0.019	-0.016	-0.020	-0.034
	(0.021)	(0.020)	(0.018)	(0.022)	(0.019)	(0.025)
Term Limit Flag$_{it}$	0.814***	0.804***	0.803***	0.804***	0.808***	0.784***
	(0.025)	(0.026)	(0.026)	(0.029)	(0.024)	(0.027)
Leader Tenure$_{it}$	-0.003***	-0.004***	-0.004***	-0.005***	-0.004***	-0.006***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age$_{it}$	0.002***	0.002**	0.003***	0.003***	0.002***	0.002***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Constant	-0.043	0.029	-0.045	-0.019	0.058	0.001
	(0.047)	(0.050)	(0.047)	(0.058)	(0.059)	(0.054)
Observations	3,392	3,392	3,547	3,547	3,394	3,394
Number of countries	117	117	127	127	149	149
Additional FC Instruments	No	Yes	No	Yes	No	Yes
No. of Lags GMM Instruments	8	8	8	No	3	1
Total number of Instruments	58	61	58	1	48	55
Hansen test	16.75	16.59	13.24	63	3.995	11.19
Hansen p-value	0.402	0.618	0.655	32.68	0.677	0.595

Table 4: (**LPM IV Fixed effects models, with lagged crisis years as instruments**) * Significant at 10%. ** Significant at 5%. *** Significant at 1%. This model uses year dummies, two-step robust errors, orthogonal deviations and collapsed GMM instruments. When additional excluded instruments are missing they are not included as part of a moment restriction, this is why the number of observations does not diminish. For these cases the lags alone work as instruments, to take full advantage of the information in the sample.

Outcome	Treatment	Coef	(1) No Growth Model	(2) $\text{Growth}_{i,t-1}$ Model	(3) Growth_{it} Model	(4) $\text{Growth}_{i,t-1}$ IV Model	(5) Growth_{it} IV Model
Leader Change_{it}	Default_{it}	ϕ	0.264*	0.212	0.248*	0.089	0.358**
			(0.136)	(0.133)	(0.142)	(0.232)	(0.172)
Leader Change_{it}	Banking_{it}	ϕ	0.712	0.756	0.832	0.730	0.828
			(0.718)	(0.771)	(0.998)	(1.160)	(1.214)
Leader Change_{it}	BOP_{it}	ϕ	0.121	0.101	0.165	0.397	0.171
			(0.245)	(0.248)	(0.275)	(0.618)	(0.235)
Leader Change_{it}	Twin_{it}	ϕ	0.703	0.458	0.302	5.011	-0.053
			(1.975)	(1.295)	(2.208)	(81.717)	(1.875)
Default_{it}	Leader Change_{it}	γ	0.009	0.010	0.003	0.015	-0.004
			(0.035)	(0.034)	(0.035)	(0.034)	(0.037)
Banking_{it}	Leader Change_{it}	γ	0.090***	0.090***	0.080**	0.090***	0.076**
			(0.033)	(0.033)	(0.034)	(0.033)	(0.036)
BOP_{it}	Leader Change_{it}	γ	0.056	0.056	0.028	0.062	0.057
			(0.073)	(0.074)	(0.074)	(0.075)	(0.083)
Twin_{it}	Leader Change_{it}	γ	0.076**	0.077**	0.076**	0.078**	0.084**
			(0.035)	(0.034)	(0.037)	(0.033)	(0.036)
Instruments for Growth			–	No	No	Yes	Yes

Table 5: (**LPM IV Fixed effects models, including Growth**) * Significant at 10%. ** Significant at 5%. *** Significant at 1%. We estimate the coefficients ϕ and γ in (5) and (4) for 40 models (4 types of crisis x 2 directions of causality x 5 specifications of growth). The cells only report the coefficient for the treatment variable (Financial Crisis or Leader Change), using the same instruments as before. The models in (a) are those the coefficients from Tables 4 and 5 the core models. Models (b) and (c) include lagged growth and contemporaneous growth, respectively, simply as additional regressors. Models (d) and (e) include lagged growth and contemporaneous growth, modeled as endogenous variables with their respective excluded instruments. All the models include the additional controls of the core specification with country and year fixed effects. We define growth as growth in GDP per capita growth. Robust standard errors clustered by country are in parentheses.

Outcome	Treatment	Coef	(1) Presidential Regimes Effect	(2) N	Parliamentary Regimes Effect	N
Leader Change$_{it}$	Default$_{it}$	ϕ	0.185	912	0.206	248
			(0.174)		(0.544)	
Leader Change$_{it}$	Banking$_{it}$	ϕ	-0.09	877	2.739	675
			(0.479)		(2.458)	
Leader Change$_{it}$	BOP$_{it}$	ϕ	-0.204	551	0.714	122
			(0.174)		(0.616)	
Leader Change$_{it}$	Twin$_{it}$	ϕ	0.048	605	-0.474	117
			(0.981)		(0.351)	
Default$_{it}$	Leader Change$_{it}$	γ	0.016	912	-0.052	248
			(0.040)		(0.084)	
Banking$_{it}$	Leader Change$_{it}$	γ	0.097***	877	0.046	675
			(0.036)		(0.063)	
BOP$_{it}$	Leader Change$_{it}$	γ	0.045	551	0.093	122
			(0.078)		(0.111)	
Twin$_{it}$	Leader Change$_{it}$	γ	0.086**	605	0.15	117
			(0.036)		(0.129)	

Table 6: (**LPM IV Fixed effects models, including Growth**) * Significant at 10%. ** Significant at 5%. *** Significant at 1%. We estimate the coefficients ϕ and γ in (5) and (4) for 16 models (4 types of crisis x 2 directions of causality x 2 types of regimes). The cells only report the coefficient for the treatment variable (Financial Crisis or Leader Change), using the same instruments as before. We omit the results for assembly-elected regimes because there were two few observations, which explains the discrepancy in sample sizes with respect to Tables 2 and 3.