

# Death by debt? Fiscal deficits and the political survival of finance ministers across regime types. \*

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*"He who is in debt is not free"*

Göran Persson, finance minister and later prime minister of Sweden, 1997

*"And of that which is neither yours nor your subjects' you can be a ready giver"*

Niccolo Machiavelli, The Prince

Past research demonstrated that autocracies and democracies differ in their ability to access credit. In this article, we argue that they also differ regarding their preferences for using credit to cover state expenditures, which results in diverging patterns of finance minister removal. Using data on finance ministers in 174 countries from 1981 until 2021, we find robust evidence that higher fiscal deficits increase the likelihood that finance ministers in democracies are removed from office, while no such pattern exists for finance ministers in autocracies. We argue that this reflects fundamental differences in the credit access, principal-agent relationships, time-horizons and consequently the political logic of deficit financing in democracies versus autocracies. Our findings have important implications for the political economy of regime types and indicate that democracies are better at providing their top economic policymakers with personal incentives to prioritize sustainable budgets.

Word count: 8800

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\*This project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation program (grant agreement No 863486). We would like to thank Jacob Nyrup, Mark Hallerberg, Ruth Carlitz, Fulya Apaydin, Carl Henrik Knutsen & Abel Escribà for insightful feedback and criticism. We also thank the participants at the workshops, seminars, and conferences where we have presented this research, including the University of Oslo's CIR workshop 2023, the Centre for Advanced Study DemIndex workshop 2023 & APSA 2023.

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## Intro

All governments, be they autocratic or democratic, run on money. The ability to finance government expenditures through either taxation, borrowing and/or money creation, while attempting to minimize the negative fallout in the forms of economic dead-weight costs, taxpayer protests, risk of sovereign defaults and inflation, is perhaps the most crucial part of statecraft in all regime types.<sup>1</sup> However, while both democratic and autocratic regimes need to finance themselves, a long research tradition discusses whether democracies and autocracies have equal access to a crucial form of government financing - especially in times of crisis - namely, credit through borrowing. That democracies possess an "advantage" with regards to being able to borrow (more cheaply) from both domestic and foreign creditors and the origins and extent of this "advantage" have been studied for decades (Ballard-Rosa, Mosley and Wellhausen 2021; Biglaiser and Staats 2012; Schultz and Weingast 2003).

However, this literature on the fiscal differences between democracies and autocracies has so far focused on how the *ability* to borrow differs between regime types, but has largely ignored how regime type affects *preferences* towards borrowing. Our study is the first to systematically study the aspect of regime preferences, by making use of a second aspect of government borrowing that has hitherto largely been ignored in existing research: the persons responsible for actually accessing and handling government borrowing, chief among them the finance minister.

The position of finance minister usually ranks among the most important government portfolios, and is often considered to be second-in-rank only to the head of government (Alexiadou, Spaniel and Gunaydin 2022; Blondel 1991*a,b*; Schmid and Nyrup 2023). Finance ministers are responsible for the creation of the public budget and manage the distribution of funds between ministries. They are responsible for governments' long-term fiscal planning (or lack here-off), and they are usually involved in policy-making and administration regarding government tax and rev-

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<sup>1</sup>Of course, autocracies and democracies might differ in the extent to which public expenditures consist of incumbent rents, the repressive apparatus, public goods and government transfers (and whether these are programmatic or clientelistic) (Bueno de Mesquita et al. 2003).

enue collection as well as the issuing of government debt and relations with government creditors. All heads of government - be they democratic or non-democratic - thus need a working finance minister to rule. However, the tenure of finance ministers varies dramatically both in democracies and non-democracies. While Anders Borg held the position of finance minister in Sweden for almost eight years during the entire Reinfeldt government from 2006 to 2014, Poland had ten different finance ministers from 2000 to 2007 (Hallerberg, Strauch and von Hagen 2009, 158). This startling variation also exists in non-democratic states. While Richard Hu served as finance minister in Singapore for over 16 years during both the Lee and Goh governments, in Algeria, Abderrahmane Raouya was replaced as finance minister by President Tebboune in the Summer of 2022, having served in office for less than four months. However, the causes of this variation remain largely unknown. While a recent literature has looked at the selection (and to some extent retention) of finance ministers and their characteristics (Alexiadou and Gunaydin 2019; Alexiadou, Spaniel and Gunaydin 2022; Hallerberg and Wehner 2020; Jochimsen and Thomasius 2014), this literature, with the exception of Schmid and Nyrup (2023), has almost exclusively focused on a (relatively) small number of democracies and - in the absence of reliable data - mostly ignored autocracies.

In this article, we dig into the role of the finance minister in both democracies and autocracies and investigate whether the extent of government borrowing - a key fiscal policy aggregate within the portfolio of the finance minister - is associated with finance ministers' survival in office.

Following Schmid and Nyrup (2023), we argue that different patterns in the removal of finance ministers between democracies and autocracies are indicative of specific, structural differences between regime types. In democracies, structural constraints limit the attractiveness of financing the state with excessive borrowing to incumbent governments, so fiscal deficits typically arise from collective action problems. In contrast, autocratic incumbents face fewer such domestic restrictions but face greater external restrictions in lending market access. Consequently, we argue that in democracies, increased government borrowing is associated with a higher risk of finance minister removal, since it is a sign that the finance minister has failed in her capacity as a champion of fiscal

restraint and/or lacks political support within the government. In autocracies on the other hand, the ability to actually borrow money is much more (short-term) valuable from the viewpoint of the incumbent regime. Consequently, a finance minister who presides over an increase in government borrowing is valuable in the eyes of the autocrat and does not face an increased chance of removal.

We test our arguments using WhoGov data on individual finance ministers in all the world's countries from 1980 until 2021 (Nyrup and Bramwell 2020), and IMF data on government borrowing (IMF 2022). The results provide robust support for our theoretical argument. There is no relationship between government borrowing and finance ministers' political survival in autocracies, but each percentage point increase of government borrowing as a share of GDP ( $< 1/4$  of a standard deviation in the democratic sample) predicts around a one percentage point increase in the risk that a democratic finance minister is removed from office. This is a considerable effect, as the baseline risk of removal for finance ministers in the relevant sample is only 22.9%.

These findings imply that besides differences in the ability to access credit, democracies and autocracies differ considerably in their preference regarding the use of credit to finance state expenditures.

Our results are robust to a broad range of specifications using country- and year-fixed effects, as well as a wide set of control variables. They further stand up to a large set of robustness tests. Among other thing, these tests address alternative measures of democracy, government borrowing and finance minister removal, different functional forms and estimators, and non-random missing data. We further run three main additional analyses to substantiate that the patterns we find capture the specific differences we theorize, but are not driven by broader differences between autocracies and democracies. First, we use a randomization analysis, to show that the effect of government borrowing on finance minister survival is more different between autocracies and democracies than between any of 10,000 randomly split samples. Second, we show that the difference is limited to finance ministers, and that neither ministers of foreign affairs, nor ministers of defense are affected by government borrowing in any regime type. Third, we show that the effect in democracies is limited to government borrowing measured in the current year, and that neither past nor future

government borrowing affects finance ministers in either regime.

Finally, we run a series of additional analyses to investigate different scope conditions of our theory. Notably, we find that the effect in democracies does not systematically differ between different types of institutional and political settings, and that it is not significantly influenced by leader ideology. However, we find that only male finance ministers are adversely affected by additional borrowing, while we find no association for women in the same position. In autocracies, we find no effect for electoral autocracies, but find that in closed autocracies, government borrowing significantly and substantially decreases the risk that the finance minister is removed from office, reflecting the higher value of short-term credit in less institutionalised regimes.

These findings hold substantial implications for understanding differences in economic policy-making between democracies and autocracies (Knutsen 2021) as well as the scholarly discussion about the relative importance of policymakers' characteristics in autocracies versus democracies (Jones and Olken 2005).

## **Theory: Government borrowing and finance ministerial turnover in democracies and autocracies**

In this section, we develop a theory of how changes in government borrowing affect the replacement risk of finance ministers and how this might differ between democracies and autocracies. It builds on the core assumption that while government borrowing can be economically short-term beneficial in the short term - especially during times of economic recession - sustained fiscal deficits can create risks of longer-term problems including problems with fiscal sustainability - e.g., the ability to roll over existing debt which may lead to sovereign defaults and dramatic fiscal austerity programs - as well as macroeconomic stability. Additionally, across all regimes, we consider the finance minister the central cabinet actor with regards to managing government borrowing, including providing access to government lending in the first place, and fiscal policy in general, including (attempting) to managing the balance between public revenue and public expenditures (Alexiadou, Spaniel and Gunaydin 2022, 387). Additionally, individual finance ministers

can exert a great deal of influence on their country's ability to access international loans, as their individual negotiation skills often crucially shape the outcome of negotiations with international creditors (Kray and Haselhuhn 2007). As an example, Schmid and Nyrup (2023) cite the case of Zaire, securing a \$120 million loan from the African Development Bank, predominantly due to the skill and personal connections of then minister of finance Cleophas Kamitatu (Wrong 2000). On the other hand, finance minister personal characteristics may also spoil a country's chance to access international loans, as is illustrated by the case of former Greek minister of finance Yan-nis Varoufakis, whose failure to build an adequate support network can, at least partly, be blamed for Greece's lack of success in pushing through its demands at international lending institutions (Dikaios and Tsagkroni 2021).

However, as we shall argue, the incentives to keep finance ministers in their positions given large fiscal deficits differ between regime type.

### **Related literature and theoretical contribution**

The previous academic literature on finance ministers has tended to focus on democracies and primarily addressed the selection rather than the replacement of finance ministers, including the determinants of their educational and personal characteristics (Alexiadou and Gunaydin 2019; Hallerberg and Wehner 2020), as well as the role of finance ministers' characteristics in shaping fiscal outcomes (Alexiadou, Spaniel and Gunaydin 2022; Jochimsen and Thomasius 2014).

As discussed earlier, a rather large literature deals with the so-called "democratic advantage" for government credit access, addressing both its existence and components (Ballard-Rosa, Mosley and Wellhausen 2021; Biglaiser and Staats 2012; Cormier 2023; Hansen 2023; Schultz and Weingast 2003), and how autocratic states might overcome their "disadvantage" (Aaskoven 2022; Arias, Hollyer and Rosendorff 2018). Yet, this literature rarely deals with the potentially different roles and incentives of the finance minister, and the government's preferences regarding credit in democracies versus autocracies.

In the next subsections, we lay out in greater detail how increases in government borrowing affect the replacement risks of finance ministers in democracies and autocracies.

## **Government borrowing and finance minister replacement in democracies**

In democracies, keeping fiscal deficits under control is a "common pool problem" (Weingast, Shepsle and Johnsen 1981) for the members of the political coalition, be they political parties or factions within the same party. With few exceptions, parties have a general interest in keeping deficits low. This holds especially for established political parties and coalitions which might later "inherit" the problem of public debts and deficits (Bäck and Lindvall 2015; Hanusch and Keefer 2014) but also often holds for less established parties, due to the potential electoral costs of sustained fiscal deficits and debt accumulation (Brender and Drazen 2008). However, parties and factions, as well as cabinet ministers (Wehner 2010) may disagree among themselves how the "costs" (tax increases, fiscal restraints and specific budget priorities) should be shared (Alesina and Drazen 1991). E.g., should fiscal discipline be achieved through spending cuts or tax increases and in which areas? Additionally, (short-term) electoral concerns might increase the incentive to run deficit-financed political budget cycles (Aaskoven and Lassen 2017).

Thus, in democracies, finance ministers act as agents of the (common) goal of fiscal prudence and their prestige/success are partially measured by their ability to keep fiscal deficits under control, including through the ability to overrule their fellow spending ministers (Hallerberg, Strauch and von Hagen 2009, 28-33). A finance minister unable to do so will either have failed as an agent of the coalition partners and will thus be more likely to be removed by the chief executive. Or the failure to (for an extended period of time) to keep fiscal deficits under control will reflect a lack of political support from the chief executive which might make the finance minister more likely to resign, as was the case with Polish finance minister Marek Belka, who resigned his position in 2002 over lack of cabinet support for his spending limits (Hallerberg, Strauch and von Hagen 2009, 35-36, 158). Consequently, in democracies, increases in government borrowing will be associated with an increased risk of finance minister replacement.

## **Government borrowing and finance minister replacement in autocracies**

In autocracies, the finance minister is an agent of the autocrat and/or the (small) ruling coalition whose principal goal is political survival (Bueno de Mesquita et al. 2003). Targeted public spending, for patronage and/or repression, can be a key tool for political survival, and the ability to finance these can be crucial for autocratic survival. One such source of financing is increased government borrowing, which enables spending without raising taxes,<sup>2</sup> and which will be reflected in increased deficits. However, as autocracies tend to face greater obstacles to lending market access (Schultz and Weingast 2003), their ability to actually run lending-based fiscal deficits is not given. Therefore, the core concern of the leader(s) of an autocratic regime compared to that of a democratic regime with regards to fiscal deficits is not the long-term negative effects of fiscal deficits but the ability to actually run them. Consistent with this view, research has found that autocratic leaders benefit more from credit market access than democratic leaders in terms of political survival (DiGiuseppe and Shea 2016).

Increased government borrowing in autocracies - like in democracies - may have long-term costs for the incumbent government, such as macroeconomic instability and the increased risk of sovereign default and thus the jeopardizing of future credit ratings and lending market access. However, in autocracies these cost are outweighed by the short-term benefits of increased government borrowing. That is because autocrats must cling on to power in the short-term to experience the long-term, whereas political elites (and parties) in democracies can alternate in power through elections and thus may return to power in a time where the long-term negative consequences of unsustainable fiscal deficits in a previous term are borne out. Consequently, countering immediate threats to political survival - including through increased government borrowing - is a much higher priority relative to fiscal discipline in autocracies compared to democracies.

Additionally, many of the longer-term costs and risks associated with high fiscal deficits including those resulting from macroeconomic instability and the inability to finance public services (e.g., following a sovereign default) are less likely to be directly borne by members of the ruling

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<sup>2</sup>Which might also alleviate democratizing pressures (Ross 2004).



coalition in small-coalition autocratic regimes, whose welfare depend on narrowly targeted private goods as opposed to public goods<sup>3</sup> (Bueno de Mesquita et al. 2003, 77-126). All of this should make autocrats less adverse to large fiscal deficits compared to democratic incumbents.

Following the literature on institutionalisation and internal constraints in autocracies (e.g. Gehlbach and Keefer 2012; Wright 2008), one might argue that this should not be the case for autocracies where stable institutions constrain the dictator and lengthen the time-horizon of the regime, increasing the relative importance of long-term costs. While we recognize the merit of this argument, we argue that while the long-term costs in institutionalized regimes may be more important than in less institutionalized regimes, they still do not outweigh regimes' short-term needs. As illustrations, consider the case of Eastern Germany. Arguably one of the most institutionalized autocratic regimes in recent history, it incurred such high amounts of debt that - on several occasions - it was only able to escape sovereign default due to emergency credit granted by Germany (Graf 2020). In a similar vein, the PRC - another textbook example of a highly institutionalised regime - has incurred debt to an extent where it poses a considerable risk to its own economy (Huang 2023).

Consequently, since autocracies mainly face a supply rather than a demand constraint with regards to public borrowing, the more important skill for economic policymakers in autocracies is to secure access to borrowing, rather than keeping it in check. Therefore, a finance minister, who is able to access lending markets and/or other sources of (external) borrowing such as the IMF's lending programs<sup>4</sup> and is thus able to run substantial fiscal deficits is very valuable for an autocratic ruler.

Therefore, finance ministers preceding over large increases in government borrowing in autocracies have not "failed" their principal(s) but rather (if anything) the opposite. Consequently, in an autocracy, increases in government borrowing will not be associated with a higher risk of finance minister replacement.

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<sup>3</sup>Which fiscal sustainability could be considered an example of.

<sup>4</sup>Which autocracies might also be less likely to be able to access after the end of the Cold War (Dreher, Sturm and Vreeland 2009, 749)

## **Data and research design**

This section describes our data and methodological approach to studying the effect of fiscal deficits on finance minister replacement across regime types.

### **Identifying finance ministers and their political fates.**

To globally identify finance ministers and to track their political careers, we rely on the WhoGov dataset (Nyrup and Bramwell 2020), which contains data on all cabinet members worldwide for every July between 1966-2021 in all countries with a population of more than 400,000 citizens. WhoGov categorizes ministerial portfolios into 43 types. Among these, the ministers of several portfolios, such as "Finance, Budget & Treasury" or "Tax, Revenue & Fiscal Policy" can in theory be considered to be the minister of finance. Most country-years do not have a minister for each portfolio but only one of these portfolios is assigned to a minister in any given year. However, in many cases multiple ministers may be in charge of the same portfolio or several cabinet posts may be tied to very similar portfolios. To avoid the inclusion of several finance minister per country-year, we again rely on WhoGov, which also indicates the main finance minister for each country-year. For the time-frame of our analysis - 1981-2020 - WhoGov identifies 2175 distinct finance ministers across 174 countries.

To track the political careers of finance ministers, we create a binary variable indicating whether (1) or not (0) they were removed from cabinet or demoted to a lower ranking position within cabinet by the next year. Due to the high prestige of finance ministers, demotions include reshuffles to any cabinet portfolio except for the positions of leader, HOG, HOS, and the portfolios "Defense, Military & National Security", and "Government, Interior & Home Affairs" (Nyrup and Bramwell 2020). We include both demotions and removals in our dependent variable to more broadly capture negative consequences for the finance ministers. However, in appendix G we use a more restrictive approach and repeat our main analysis with a dependent variable only looking at whether or not a finance minister was removed from cabinet altogether. This does not meaningfully alter our results.

One shortcoming of WhoGov is that it does not allow us to determine why exactly a minister

is no longer a member of cabinet or holds a lower-ranking portfolio than before. Some may leave cabinet voluntarily for private reasons or switch to a lower ranking portfolio because it is more in line with their personal interest and not because they were removed involuntarily by the incumbent. However, the ministry of finance is among the highest-ranking and most influential positions in cabinet. Holding such a position entails access to considerable spoils and policy influence (Meng 2019), and losing such an influential position clearly signals that this particular minister will have lost considerable political influence. Therefore, we believe that it is reasonable to assume that the vast majority of finance ministers are not removed voluntarily.<sup>5</sup> More, even if many of them left voluntarily, voluntarily resignations would have to be systematically correlated with both regime type and government borrowing to affect our findings.

As our theory is concerned with the removal of finance ministers by the hands of the incumbent, we exclude finance ministers who are simultaneously coded as finance minister and government leader by WhoGov.

### **Measuring government borrowing**

To measure government borrowing we rely on fiscal data from the The World Economic Outlook (WEO) database (IMF 2022). Specifically, we use WEO variable *General government net lending/borrowing*. *General government net lending/borrowing* indicates the gap between government revenue and government expense, and is equal to the net result of transactions in financial assets and liabilities. Positive values indicate that the government revenue exceeds government expenses, thus that the government is lending money. Negative values indicate that government spending is higher than government revenue, thus that the government is borrowing money (IMF 2022). As absolute values for net lending/borrowing are not available, we include government net lending/borrowing as a share of GDP in our analysis.

Unfortunately, the IMF time-series does not reach as far back as WhoGov, limiting our period of analysis to 1980-2020.

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<sup>5</sup>Or, as stated in the theoretical section, have clearly lost so much political capital within their government that they are de-facto forced to resign.

As is often the case with IMF data, a potential issue for our analysis is that our sample contains a fairly large number of missing observations. In total about 25% of country-years in our sample have missing information, with 15% of democratic and 35% of autocratic country-years lacking information on government borrowing. If missingness is non-random, and inversely related to potential outcomes in democracies and autocracies, this could drive the divergent patterns we find across regime types. We address this concern in appendix E. There, we exploit the almost complete absence of missing values in the post-2005 period and show that our results are consistent when we exclude the earlier time-period with potentially systematic missingness.

### **Identifying democracies and autocracies**

We identify democracies and autocracies using the Boix-Miller-Rosato dichotomous coding of democracy (BMR) (Boix, Miller and Rosato 2013), which was recently updated to 2020 (Miller, Boix and Rosato 2022). BMR distinguish democracies and autocracies based on whether they meet minimal conditions for both contestation and participation. Specifically, for a country to be considered democratic, they require that a) the executive to be elected directly or indirectly in popular elections and to responsible either directly to voters or to a legislature; b) the legislature to be elected in free and fair elections; c) suffrage is extended to a majority of adult men (Boix, Miller and Rosato 2013). We lag BMR's democracy coding by one year, as it is measured at the end of the year, while WhoGov codes the cabinet in July.

When measuring democracy, it is important to bear in mind that there are a broad range of conceptualisations and measures, and that alternative measures can lead to very different conclusions (Coppedge et al. 2011; Gerring, Thacker and Alfaro 2012; Munck and Verkuilen 2002). To account for this, we replicate our main analysis using alternative measures of democracy. Specifically, we replicate our main analysis splitting democracies and autocracies using the Lexical Index of Electoral Democracy (Skaaning, Gerring and Bartusevičius 2015), the Democracy and Dictatorship data by Cheibub, Gandhi and Vreeland (2010), and the V-Dem Polyarchy index (Coppedge et al. 2022; Pemstein et al. 2022; Teorell et al. 2019), dichotomized at .4 following Baltz, Vassalai and Hicken (2022) and their analysis of optimal cut-offs for the Polyarchy index. Our results are

consistent across all alternative measures and can be found in appendix F.

### Statistical analysis

To systematically analyse the impact of government borrowing on the political survival of finance ministers across regime types, we separately analyse finance ministers in autocracies and democracies as identified by BMR. The units of analysis in each sample are finance-minister years (which is equivalent to country-years).

As we are interested in minister and not government survival more broadly, we exclude all country-years in which the leader of the country -as identified by WhoGov- changes. Including these years would lead us to estimate a compound effect of government borrowing on two separate things. First, an effect on the government as whole. Second, an effect specific for the minister of finance. The effects of fiscal and economic performance on government survival are well-documented (Djuve, Knutsen and Wig (2020); Gasiorowski (1995); Lucardi (2019); Maeda (2010, e.g.,)) but not relevant for our theoretical argument. Thus, to isolate the effect we are interested in, we drop all years experiencing a change in leadership.

On both the democratic and the autocratic samples, we then run linear probability models (LPMs) defined by:

$$R_{i,j,t} = \varphi G_{i,j,t} + \gamma G_{i,j,t-1} + \beta \mathbf{X}_{i,j,t-1} + \alpha_j + \lambda_t + \varepsilon_{i,j,t} \quad (1)$$

for  $i = 1, \dots, I$  ministers,  $j = 1, \dots, J$  countries, and  $t = 1, \dots, T$  years, where the outcome  $R_{i,j,t}$  denotes whether (1) or not (0) a finance minister is removed from or demoted to a lower ranking position within cabinet.

$G_{i,j,t}$  represents our main independent variable: *General government lending/borrowing*. To ease interpretation, the variable is included as a simple linear predictor <sup>6</sup>. In all specifications, we

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<sup>6</sup>As this may raise concerns about potential bias in our results, e.g. due to non-linearity or extreme values driving our results, we conduct additional analyses in appendix D to address these concerns. Specifically, we run alternative specifications using logistic regressions instead of LPMs, add squared and cubic terms of our independent variable, and use a truncated version of our independent variable to deal with extreme values. Our results are consistent across

also include  $G_{i,j,t-1}$ , a one-year lag of our independent variable. We include  $G_{i,j,t-1}$  for several reasons. First, including the one-year lag of the independent variable closes controls for unobserved confounders affecting a country's overall ability to access credit and its political stability. Second, by keeping  $G_{i,j,t-1}$  constant,  $\varphi$  effectively estimates the effects of changes to a country's level of borrowing. This is preferable to estimating the effect of its overall level of borrowing on the political survival of finance ministers, as it allows us to take into account that states may have different acceptable levels of borrowing they strive to achieve, and because changes in the independent variable are more likely to be attributable to the finance minister than its overall level. To address concerns that the inclusion of the lagged independent variable may lead to bias due to over-controlling, we show in appendix H that our results are robust to excluding it from the analysis.

The error term is given by  $\varepsilon_{i,j,t}$ , and all standard errors are clustered by country.

Further, we take a range of measures to address endogeneity concerns inherent in the use of observational data. First, all models include both country fixed effects,  $\alpha_j$ , and year fixed effects  $\lambda_t$ . We include country fixed effects to ensure that our results are not driven by time-invariant country-specific factors - such as particular historical legacies - that drive both government instability and government borrowing, and year fixed effects to address any factors affecting our independent and dependent variables across all countries simultaneously, such as general time trends or global economic or financial shocks. Because we include these fixed effects, our models explicitly only compare finance minister survival *within* regime types and in a particular country, reducing the risk of comparing fundamentally different units and mitigating potential endogeneity concerns.

Yet, even when controlling for global trends and country-specific time-invariant confounders, many factors that vary over time within countries remain as potential sources of confounding. To address this issue, we include a broad range of relevant control variables in  $\mathbf{X}_{i,t-1}$ , representing a  $k \times 1$  vector of all control variables.

We present models with different sets of controls to account for more immediate confounders.

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all alternative specifications.

If not stated otherwise, all controls are measured in year t-1 to avoid post-treatment bias:

In the *Economic Controls*-specifications we control for the overall strength of a country's economy by including the level of GDP per capita and its GDP per capita growth based on the Penn World Table (Feenstra, Inklaar and Timmer 2015).<sup>7</sup> We further control for a country's general gross debt (as share of GDP) according to the WEO (IMF 2022). We include these variables, as general economic and fiscal performance affects a country's need and capacity to borrow money, and may simultaneously affect government stability and finance minister survival. Moreover, as our main independent variable is government borrowing as share of GDP, controlling for the overall size and growth of the economy, ensures that fluctuations in our main independent variable are not primarily due to changes to its denominator but changes to the amount of money borrowed by the government. We also control for the GDP share of natural resource rents as measured by the World Bank (World Bank 2023), as large resource endowments may affect a country's ability to access international credit, while simultaneously affecting general government stability (Krishnarajan 2019). Lastly, large-scale financial or fiscal crises may impact a country's capacity to borrow money, and cause severe economic distress that increases the risk of the finance minister being removed from office. To account for this, we use recent data by Nguyen, Castro and Wood (2022), to control for the presence of systemic banking crises, currency crises, and sovereign debt crises.

In the *Electoral controls*-specification, we take into account the confounding effects of elections which may simultaneously influence government and cabinet stability (Knutsen, Nygård and Wig 2017), as well as their well-established effects on government borrowing and economic outcomes (Baber and Sen 1986; Chauvet and Collier 2014). To block out such confounding influences, we include dummies for national executive and legislative elections based on the NELDA dataset (Hyde and Marinov 2012).

Next, in our *Instability Controls*-specifications we account for a broad range of controls related to general political instability and fiscal stability, as these are likely to simultaneously impact

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<sup>7</sup>Which might also independently affect the removal of the finance minister (Schmid and Nyrup 2023).

government stability and state's need for and capacity to access loans. Specifically, we control for three direct sources of political instability: 1) for successful and attempted coups according to Powell and Thyne (2011), 2) the onset of intra- and interstate wars according to the UCDP/PRIO dataset (Davies, Pettersson and Öberg 2022; Gleditsch et al. 2002), 3) the extent and frequency of public mass mobilization, such as demonstrations, strikes, and sit-ins using V-Dem's *v2cagenmob* measure (Coppedge et al. 2022; Pemstein et al. 2022). Moreover, we control for a source of institutional stability that can affect both the finance minister and a government's ability to access credit, the presence and strength of independent central banks. To account for this, we control for Garriga's weighted index of central bank independence (Garriga 2016). In this specification, we also include the share of high-ranking ministers other than the finance minister and the leader that are removed from cabinet in year  $t$ . This captures any general cabinet instability, and thereby closes any confounding paths that run through general instability. Finally, the instability controls include the base, squared and cubic terms of ministers' years in office.

We also run a specification that includes all controls at once (the *All Controls*-specification). All models use panel-adjusted standard errors clustering by country.

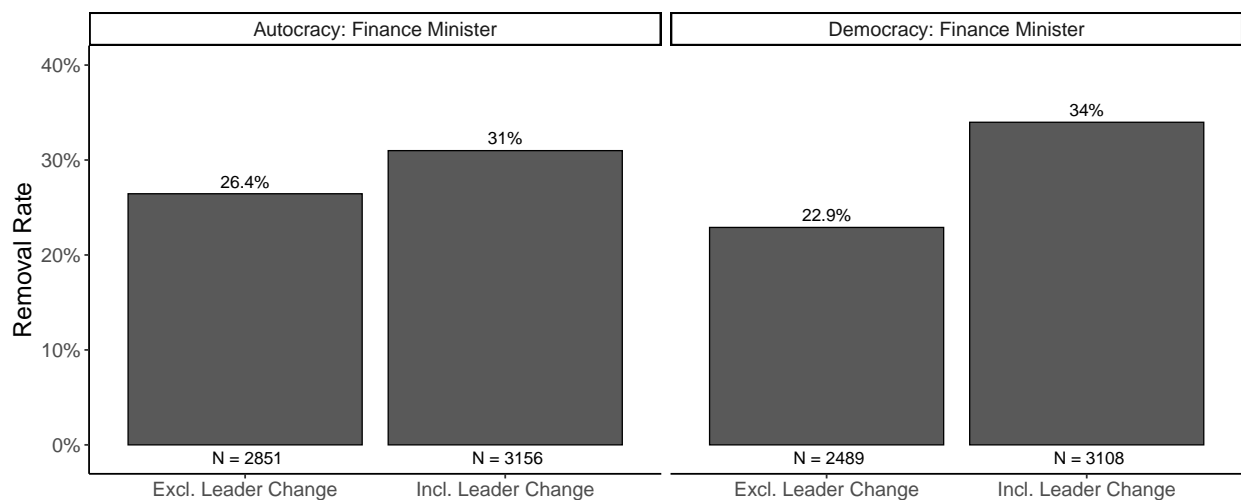
## **Can finance ministers live on borrowed money?**

### **Descriptive patterns**

Before moving to our main analysis, we present some basic patterns in our dependent and independent variables. Figure 1 shows the average yearly rates at which finance ministers in democracies and autocracies are removed from or demoted to a lower-ranking position, both in the full samples and the samples without country-years that experience a change of the leader. The survival rates of finance ministers in both regime types are quite similar but the relative threat of being removed by the incumbent is stronger for finance ministers in dictatorships. In the full samples, the removal risk of autocratic finance ministers is 31% compared to 34% in democracies. When removing years during which the leader changes, thus focusing on ministers' risk of being removed by the incumbent, finance minister in democracies face only a 23% risk of being removed while their

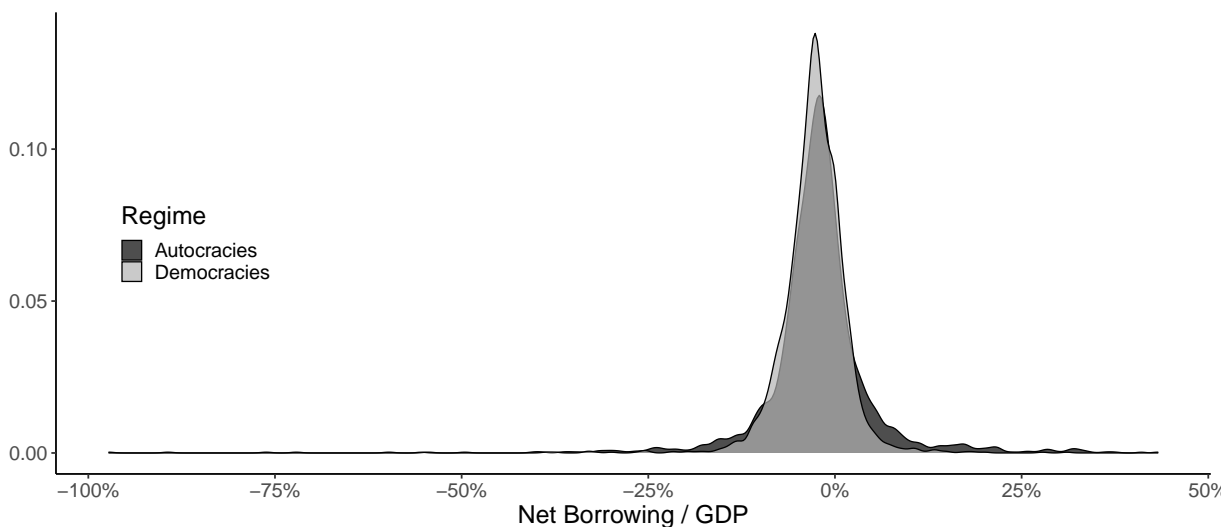


autocratic counterparts face a 26% risk of being removed or demoted by the incumbent.



**Figure 1:** Average removal/demotion rates of finance ministers in autocracies and democracies including and excluding years with leader changes.

Figure 2 shows the distribution of government net borrowing as a share of GDP in our sample. Figure 2 is cropped at -100%, meaning that it excludes all years during which a country borrows more than 100% of their GDP. These observations are still included in our statistical analysis.<sup>8</sup>



**Figure 2:** Density plot of government net borrowing / GDP in autocracies and democracies.

<sup>8</sup>The only country-years with such extensive borrowing are Kuwait in 1991 after the Iraqi occupation ended, and Equatorial Guinea during twelve of the years between 1981 and 1995

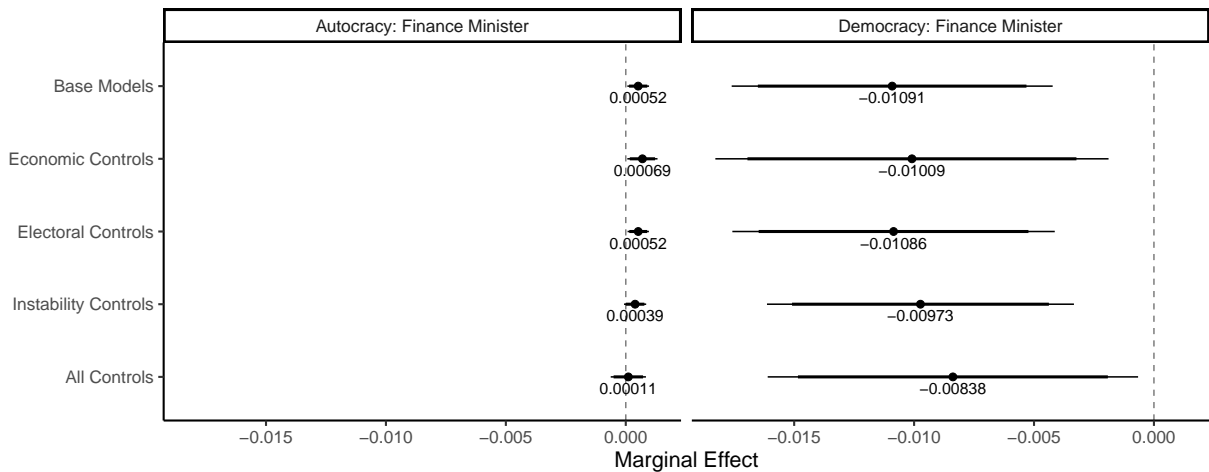
Autocracies and democracies show quite similar distributions of government borrowing, with the median democracy borrowing 2.5% and the median autocracy borrowing 2.2% of its GDP. While the bulk of the distributions overlap, there are considerable differences at the extremes, where both the countries that lend, and the countries that borrow the most are autocracies.

### **Are ministers of finance punished for borrowing money?**

We now move to the results of our main analysis. Overall, we find strong empirical support for our theoretical expectations. We find robust evidence that increased government borrowing increases the removal/demotion risk of finance ministers in democracies. In autocracies, we find no evidence for such a relationship. For autocratic finance ministers, we even find weak but non-robust evidence pointing to a positive effect of increased borrowing on their chances of remaining in office.

Figure 3 shows our main results for the effect of government borrowing on the removal of finance ministers across regimes. It reports the point estimates and confidence interval for our main independent variable in each of our specifications across regimes. As the point estimates result from LPMs, we can interpret them directly as the marginal effect of a one unit increase in the independent variable on the probability that the finance minister will be removed from or demoted within cabinet. Since negative values on our independent variable indicate that the government is borrowing and positive values indicate that the government is lending money, the coefficient estimates can be interpreted as the marginal effect of one percentage point less borrowing/more lending as a share of GDP. A coefficient estimate of 0.01 thus indicates that for each percentage point increase of government borrowing/GDP (or each percentage point decrease of government lending/GDP), the probability of the finance minister being removed from or demoted within cabinet increases by one percentage point.

In autocracies, there does not appear to be a clear effect of government borrowing on the removal/demotion risk of the finance minister. While the coefficients are consistently positive, indicating that more borrowing decreases their removal/demotion risk, only the *base-* and *electoral control-*specifications are significant, while the inclusion of economic and instability controls renders the coefficients insignificant. Moreover, the marginal effect of government borrowing is



**Figure 3:** Results show the coefficient estimates for our main independent variable. The point estimates indicate the marginal increase in the probability of being removed from or demoted within cabinet for a one unit increase on the independent variable (one percentage point less borrowing/more lending of net borrowing / GDP). The bars indicate 95% (thin) and 90% (bold) confidence intervals. For autocracies  $N = 1,792$  and for democracies  $N = 2,046$ . The full corresponding tables are reported in appendix A.

extremely weak, with a one percentage point increase in government borrowing / GDP being associated with a 0.007 percentage point decrease in finance ministers removal/demotion risk according to our economic controls model - which is the specification indicating the strongest marginal effect. This means that even if a country switches from lending 100% of its GDP in year  $t-1$  to borrowing 100% of its GDP in year  $t$ , this would at the most be associated with a 1.4 percentage point decrease in the finance minister's removal/demotion risk. Thus, even though some specifications show a significant effect, we conclude that there is no substantively relevant effect of government borrowing on finance minister removal/demotion in autocracies.

By contrast, we find robust evidence that democratic finance ministers' risk of being removed/demoted is substantially impacted by government borrowing. Across all our specifications we find that higher levels of government borrowing significantly impact the removal/demotion risk of democratic finance ministers. Moreover, the impact of government borrowing on the finance minister's removal/demotion risk is considerably large in substantive terms. Our models consistently indicate that for each percentage point increase in the amount of money a government borrows, the finance

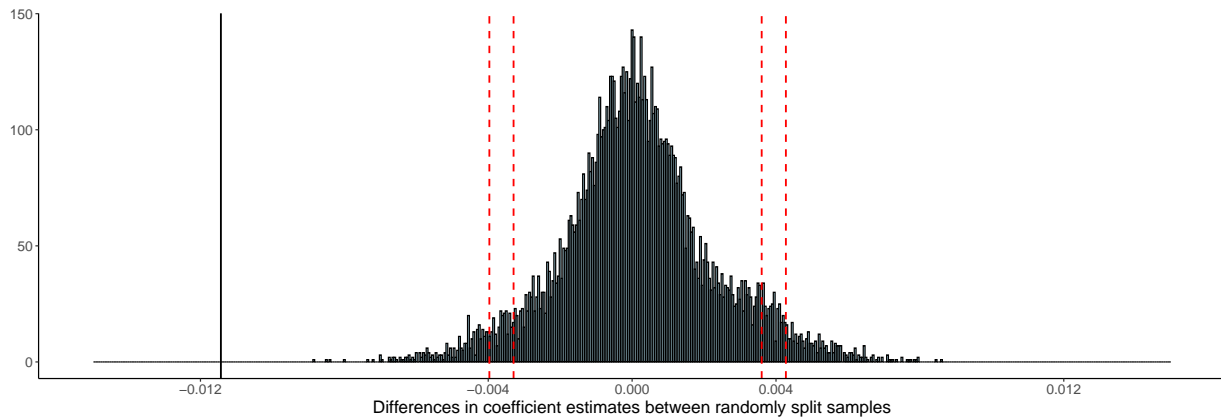
minister's risk of removal or demotion increases by about one percentage point. This means that increasing government borrowing by 5 percentage points - a not uncommon yearly change - increases the minister's removal/demotion risk by about 5 percentage points. Considering that the average risk for removal/demotion is only 22.9% for democratic finance ministers in the relevant sample(see Figure 1), this is a considerable effect size.

### **Significant differences between autocracies and democracies?**

Thus far, we separately analysed the democratic and autocratic samples and found strong evidence for an effect of government borrowing on minister removal/demotion in the former but not the latter. Yet, as we analyse the two samples separately, our main analysis could not directly assess whether the effects of government borrowing in the two samples are significantly different from each other. To assess this directly, we conduct a randomization analysis. This means that we compare the difference between the coefficient estimates in the democratic and autocratic samples to the differences between coefficient estimates for sub-samples that have been split randomly. By randomly splitting our pooled sample 10,000 times, and running our base models from Figure 3 on the random sub-samples and calculating the difference between them in each iteration, we can assess how likely the difference between the effects for democracies and autocracies samples could be produced by a random split.

Figure 4 plots the distribution of the differences between the randomly split samples, the 95% and 90% CIs of the distribution, and the difference between democracies and autocracies in our base models.

Figure 4 shows clearly that the difference between coefficient estimates in the democratic and autocratic samples is far outside the 95% CI of the distribution of differences between randomly split samples. In fact, not a single of our 10,000 iterations produces a difference between the coefficient estimates in the randomly split sub-samples that is as large as the difference between democracies and autocracies. It is thus extremely unlikely that the different patterns we find in democracies and autocracies are random and unrelated to the different scope conditions within the two regime types.



**Figure 4:** Histogram showing the distribution of differences between coefficients of net government borrowing in 10,000 randomly split sub-samples. The dotted red lines mark the 95% CI, the black line marks the differences between democracies and autocracies in our main models without leader-change years.

#### *Robustness tests and additional analyses*

While our main results provide strong evidence for our theoretical expectations and our main conclusions prove robust to the inclusion of a broad range of potential confounding variables, we conduct a series of additional tests to address potential concerns regarding the robustness of our results. We describe these tests here and all results are reported in the appendix. Briefly summarized: none of our extensive robustness checks meaningfully alter our results.

First, we test how robust our findings are to alternative estimators and model specifications. We address concerns that the true relationship between government borrowing and finance ministers survival could be non-linear, in which case our models would model the relationship incorrectly and our results could be biased. To address this, we 1) re-run our main analysis using logistic regressions instead of LPMs. These relax the linearity assumption inherent in LPMs and address potential concerns about our results being driven by our choice to model a binary outcome with an inadequate estimator. 2) We replicate our main analysis including squared and cubic terms of our independent variable to specifically allow for non-linear relationships between borrowing and finance minister survival. Lastly, to address concerns that some extreme values of the independent variable, such as the observations omitted in Figure 2 may drive our results, we also re-code the

independent variable so that all country-years with values below -25 and above 25 are re-coded to -25 and 25 respectively. None of these alternative model specifications alters our substantive conclusions. Their results are reported in detail in appendix D.

Second, we address concerns about systematic missingness on the independent variable driving our results. We show that missing data on government borrowing is almost non-existent after 2005, and show that replicating our analysis using only the post-2005 period of our sample does not alter our results. This is reported in appendix E.

Third, we replicate our main analysis splitting the samples following alternative measures of democracy. We use the Lexical Index of Electoral Democracy (Skaaning, Gerring and Bartusevičius 2015), the Democracy and Dictatorship data by Cheibub, Gandhi and Vreeland (2010), and the V-Dem Polyarchy index (Coppedge et al. 2022; Pemstein et al. 2022; Teorell et al. 2019), dichotomized at .4 following Baltz, Vasselai and Hicken (2022) and their analysis of optimal cut-offs for the Polyarchy index. Our results are consistent across these measures and we report this in appendix F.

Fourth, in appendix G, we re-code our dependent variable, so that we only assess the impact of government borrowing on the likelihood that a finance minister will be removed from cabinet, ignoring intra-cabinet reshuffling. This does not alter our results.

Fifth, we check alternative ways of assessing whether the differences in coefficient estimates between the autocratic and democratic samples are significant. We do this in two ways. First, bootstrap the sample 10,000 times, split each bootstrap in democracies and autocracies, run our main models without leader-change years and calculate the differences between the coefficient estimates for the samples. Second, we repeat our main analysis on a pooled sample of democratic and autocratic finance ministers and interact our independent variable with our democracy measure. Both analyses confirm that the differences between the samples are highly significant. Moreover, despite being more restrictive than our main analysis, the latter test also confirms that while there is no effect in autocracies, the effect of government borrowing is significant and substantial.

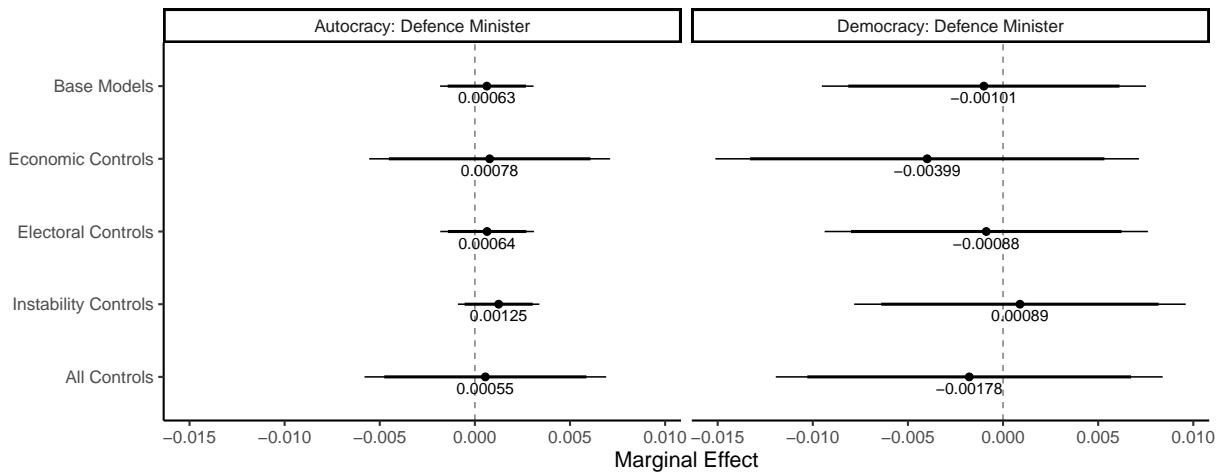
Sixth, in appendix M, we repeat our main analysis using only changes to central government

debt instead of general government borrowing as our independent variable. This addresses the potential argument that one finance ministers should only be held accountable for central but not general government borrowing. When looking at central government borrowing, we find similar, albeit less pronounced effects in democracies, and a null-effect in autocracies. This supports our main findings but illustrates that finance minister accountability in democracies is not limited to central government borrowing.

*Placebo test: Finance ministers and only finance ministers*

In addition to our robustness tests, we conduct a placebo analysis to increase our confidence that we do in fact find a specific effect on the minister of finance and not a more general effect on government stability that differs between autocracies and democracies. To this end, we replicate our main analysis but instead of finance ministers, we look at the minister of defence and if government borrowing affects their risk of removal/demotion. Our theoretical mechanisms only relate to finance ministers but not other types of ministers. Accordingly, we should not be able to replicate our findings for ministers of defence, as this would indicate that our analysis may primarily be capturing broader patterns of differences between regime types and not the particular mechanism we theorize. Figure 5 shows the results of this placebo analysis.

The results reported in Figure 5 show that government borrowing does not affect the political survival of defence ministers in either democracies or autocracies. None of our specifications is significant in either of the regimes and the point estimates further indicate similarly negligible associations in both regime types. Overall, our placebo analysis thus indicates that our main analysis does indeed capture a theoretical mechanism that specifically affects the minister of finance and does not simply proxy a broader difference in the political economies of autocracies and democracies. In appendix L, we show that an alternative placebo test using the minister of foreign affairs leads to identical conclusions.



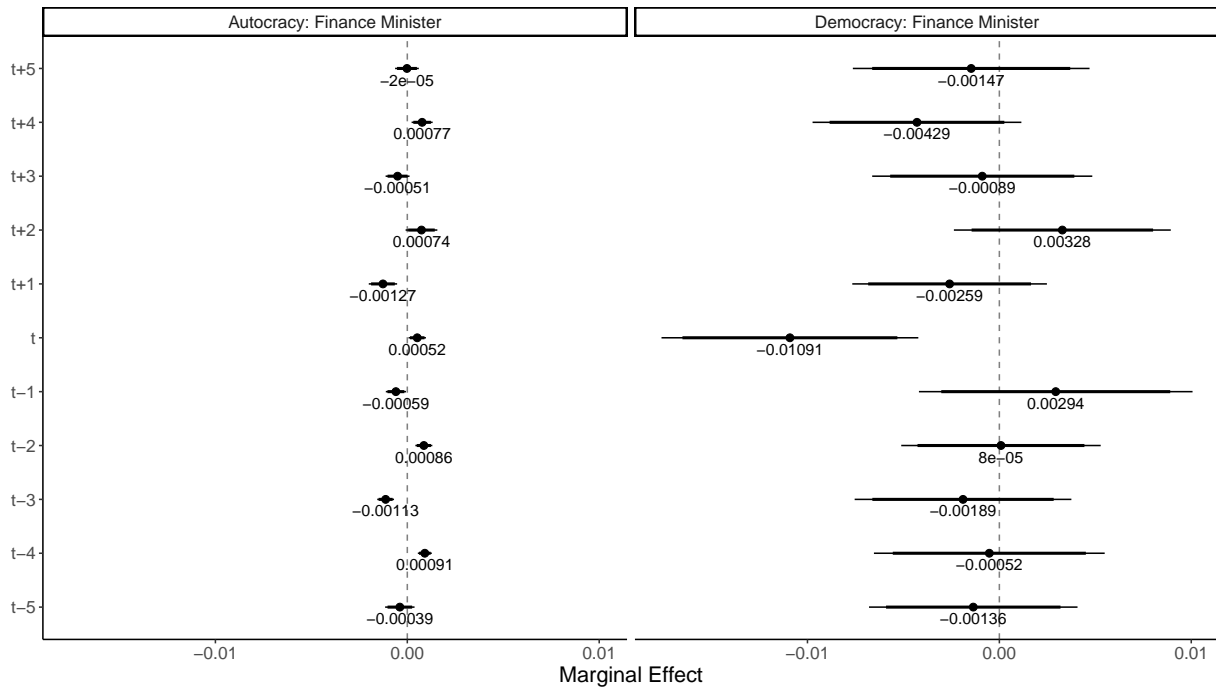
**Figure 5:** Results show the coefficient estimates for our main independent variable on defence ministers' risk of removal/demotion. The point estimates indicate the marginal increase in the probability of being removed from or demoted within cabinet for a one unit increase on the independent variable (one percentage point less borrowing/more lending of net borrowing / GDP). The bars indicate 95% (thin) and 90% (bold) confidence intervals. For autocracies  $N = 1,801$  and for democracies  $N = 1,433$ . The corresponding tables are reported in appendix A.

*Timing: Only the present counts*

We further exploit the panel structure of our data further to show that the effect of government borrowing on finance minister survival is limited to government borrowing in the current year. To this end, we re-run our base models from 3, but change the timing of the measurement of the independent variable is measured. We now run models where we measure increases to government borrowing in  $t+5$  to  $t-5$  years. Figure 6 shows the results of these models, demonstrating that in autocracies, none of the measures yield a substantial effect and that the effect in democracies only occurs when government borrowing is measured in year  $t$ .

This finding is instructive in several ways. First, the specific timing of the effect increases our confidence that we are only picking up the effect of government borrowing. If our results were to merely capture broader differences between autocracies and democracies, or were driven by unobserved confounders, these should also be picked up when the independent variable is measured at other times. Accordingly, remaining sources of confounding, are those that coincide precisely with increases to government borrowing, limiting the risk that they have a substantial impact on





**Figure 6:** Results show the coefficient estimates for replications of the base models from Figure 3 with the main independent variable measured at t+5 to t-5. The bars indicate 95% (thin) and 90% (bold) confidence intervals.

our results. Second, the null-effects of lags of the independent variable strengthens our confidence that finance ministers are being directly punished for increased borrowing that occurred under their responsibility, and not for the economic consequences of increased borrowing. As such economic consequences do not always occur immediately, and often last longer than a single year, we would expect to see substantial effects of the lagged independent variables if they were drive our results. Third, the findings indicate that our results are likely not driven by reverse causality, as we would expect to find an association between the outcome and the treatments measured after the outcome, if our results were driven by finance minister removals increasing government borrowing.

#### *Exploring sub-regime differences*

We further explored whether there are differences between different types of autocracies and democracies. Specifically, when exploring sub-regime differences in autocracies, we analyse the effects of government borrowing in closed and electoral autocracies as classified by LIED (Skaan-

ing, Gerring and Bartusevičius 2015). As for democracies, we compared the effects of government borrowing in democracies with single-party and coalition governments, and in democracies where the leader and finance minister belong to the same vs. where they belong to a different party. The results for different autocracies are detailed in appendix J, those for democracies in appendix K. To summarize the results briefly however: we do not find any systematic differences between different types of democracies. Regarding autocracies, we find no effect in electoral autocracies, but find that increased government borrowing increases the likelihood of finance ministers to stay in office in closed autocracies. This is in line with the literature on autocratic elections, which demonstrates that elections considerably stabilize autocracies in non-election years, and increase their overall resilience Knutsen, Nygård and Wig (2017); Lucardi (2019). Our interpretation of these results is that this stabilizing effect of elections decreases immediate threats to the incumbent, and therefore also decreases the value of immediate access to credit, while increasing the value of long-term sustainable budgets - relative to closed autocracies. Therefore electoral autocrats have less reason to reward their finance ministers for government borrowing. Additionally, closed autocracies with no multiparty legislatures and low to no executive constraints are probably much more likely to suffer from lack of access to credit than electoral autocracies (Biglaiser and Staats 2012; Wright 2008), making finance ministers in these regimes, who can access international lending, much more valuable in the eyes of the autocratic leader.

Also in appendix K, we test whether the effect in democracies is contingent upon governments' ideologies. This analysis indicates that leftist leaders (as measured by Herre (2023)) are more sensitive to increased borrowing, and are slightly more likely to dismiss their finance minister in response to it. However, this difference is not statistically significant.

#### *Gendered patterns of finance minister removal*

Finally, in appendix N we explore whether the effects differ between male and female finance ministers. While we find null effects for both men and women in autocracies, we find that in democracies, only male finance ministers are negatively affected by increased government borrowing, while this effect does not extend to women in the same position. While this result may be

due to special characteristics of the few countries with female finance ministers, the small share of female minister (see appendix N), suggest that the pattern could also be explained by the *Jackie (and Jill) Robinson Effect* (Anzia and Berry 2011). Woman considerably less likely to become finance ministers, because they have to overcome stronger obstacles than men to attain this position, and likely require a considerably higher level of competence to even attempt it than male politicians (Fox and Lawless 2004, 2011). Thus, similar to the congresswomen studied by Anzia and Berry (2011), they are likely to be more popular and effective politicians, and thus more difficult to remove from office than their male counterparts. However, within the limited scope of this article, we cannot systematically analyse the causes of these gendered patterns, and are restricted to pointing the gendered patterns of finance minister removal out for future research to study.

## **Conclusion**

Ability and incentive to run borrowing-financed fiscal deficits vary between autocracies and democracies. In this article, we have argued that this also has different implications for the careers of finance ministers in democracies as opposed to autocracies. Finance ministers in democracies who run large fiscal deficits have lost intra-governmental political struggles and/or the support of their principals and are thus more likely to lose office. On the contrary, finance ministers in autocracies who are able to run large fiscal deficits face no increased risk of replacements, since running large deficits show that they are able to access scarce lending opportunities and are thus more valuable in the eyes of their autocratic principal. An analysis of data on individual finance ministers from all around the world from 1966-2021 shows substantial evidence in favor of this argument. Finance ministers in democracies running substantial fiscal deficits experience a large increase in the likelihood of leaving office, whereas finance minister replacement in autocracies are hardly affected by fiscal deficits.

These findings hold substantial implications for the study of policy differences between democracies and autocracies. While most of the existing research on this topic focuses on aggregate economic outcomes (Knutsen 2021), this article shows that the institutional (and subsequent incentive)

differences between democracies and autocracies also affect how key policymakers are evaluated with regards to their performance. As such it raises the question about whether the apparent lack of interest in replacing deficit-accumulating finance ministers (and the incentives given to finance ministers and other economic ministers through this dynamic) in autocracies<sup>9</sup> is one of the reasons why economic performance of autocracies seems to deteriorate over time (Papaioannou and van Zanden 2015)? Future research should dig deeper into these questions and also assess whether (economic) performance affects other types of ministerial careers differently in democracies and autocracies.

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<sup>9</sup>Where personal characteristics of policymakers might matter more than in democracies (François, Panel and Weill 2020; Jones and Olken 2005).

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## Appendix: For Online Publication

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A Full regression tables for models in main analysis

**Table A1: Finance Ministers**

Dependent Variable: Sample	Finance Minister: Autocracy					Minister removed or demoted				
	Finance Minister: Democracy									
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>Variables</i>										
Net Borrowing / GDP	0.0005** (0.0002)	0.0007** (0.0003)	0.0005** (0.0002)	0.0004 (0.0002)	0.0001 (0.0004)	-0.011*** (0.003)	-0.010** (0.004)	-0.011*** (0.003)	-0.010*** (0.003)	-0.008** (0.004)
Net Borrowing / GDP (t-1)	-0.0006** (0.0002)	-0.0004* (0.0002)	-0.0006** (0.0002)	-0.0003 (0.0003)	-0.0004 (0.0003)	0.006** (0.003)	0.007 (0.004)	0.006* (0.003)	0.007** (0.003)	0.005 (0.005)
Government Gross Debt / GDP (t-1)		0.0007 (0.0004)			0.0006 (0.0005)			-0.0001 (0.0004)		9.84 × 10 <sup>-5</sup> (0.0004)
GDP/PC (t-1)		-0.0005 (0.0008)			-0.0003 (0.001)			-0.0004 (0.003)		0.0006 (0.005)
GDP/PC Growth (t-1)		0.0006 (0.001)			-0.0004 (0.001)		9.41 × 10 <sup>-5</sup> (0.003)			0.001 (0.003)
Banking Crisis (t-1)		0.062 (0.097)			0.021 (0.115)			0.074 (0.046)		0.052 (0.051)
Currency Crisis (t-1)		-0.037 (0.070)			-0.033 (0.088)			-0.071 (0.058)		0.009 (0.066)
Debt Crisis (t-1)		-0.058 (0.039)			-0.097 (0.059)			-0.023 (0.046)		-0.052 (0.058)
Natural Resource Rents / GDP (t-1)		-0.005** (0.003)			0.001 (0.003)			-0.001 (0.004)		0.0007 (0.006)
Legislative Election (t-1)			-0.016 (0.028)		-0.026 (0.037)			-0.062*** (0.020)		-0.033 (0.023)
Executive Election (t-1)			-0.038 (0.035)		-0.021 (0.045)			0.025 (0.031)		0.035 (0.039)
Time in Office				0.028** (0.011)	0.014 (0.013)				0.031* (0.018)	0.039** (0.018)
Time in Office (squared)				-0.002* (0.0008)	-0.0005 (0.0010)				-0.002 (0.003)	-0.003 (0.003)
Time in office (cubic)				2.63 × 10 <sup>-5</sup> * (1.43 × 10 <sup>-5</sup> )	7.07 × 10 <sup>-6</sup> (1.57 × 10 <sup>-5</sup> )				4.19 × 10 <sup>-5</sup> (9.96 × 10 <sup>-5</sup> )	0.0001 (0.0001)
High Ranking Ministers Removal Rate				0.600*** (0.061)	0.627*** (0.066)				0.348*** (0.051)	0.339*** (0.050)
Successful Coup (t-1)				0.138 (0.089)	0.092 (0.100)				-0.162** (0.066)	-0.124* (0.071)
Failed Coup (t-1)				-0.002 (0.085)	-0.019 (0.118)				-0.174 (0.117)	-0.433*** (0.096)
Mass mobilization (t-1)				-0.007 (0.024)	-0.024 (0.032)				0.048** (0.022)	0.036 (0.026)
Onset Interstate Conflict (t-1)				0.115 (0.171)	0.090 (0.086)				0.133 (0.233)	0.130 (0.245)
Onset Intrastate Conflict (t-1)				-5.88 × 10 <sup>-5</sup> (0.061)	-0.020 (0.068)				0.118 (0.104)	0.093 (0.119)
Weighted CBI Index (t-1)				-0.150 (0.160)	-0.333* (0.179)				-0.034 (0.103)	-0.046 (0.119)
Single-Party Government				0.021 (0.049)	-0.008 (0.045)				-0.036 (0.048)	0.006 (0.047)
Leader endyear dropped	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Fixed-effects</i>										
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Fit statistics</i>										
Observations	1,792	1,316	1,792	1,262	932	2,046	1,747	2,046	1,460	1,264

Clustered (Country) standard-errors in parentheses  
 Signif. Codes: \*\*\*, 0.01, \*\*, 0.05, \*, 0.1

**Table A2: Defence Ministers**

Dependent Variable: Sample	Minister removed or demoted									
	Defence Minister: Autocracy					Defence Minister: Democracy				
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>Variables</i>										
Net Borrowing / GDP	-0.001 (0.004)	-0.004 (0.006)	-0.0009 (0.004)	0.0009 (0.004)	-0.002 (0.005)	0.0006 (0.001)	0.0008 (0.003)	0.0006 (0.001)	0.001 (0.001)	0.0006 (0.003)
Net Borrowing / GDP (t-1)	-0.0005 (0.005)	0.0005 (0.005)	-0.0009 (0.005)	-0.0009 (0.004)	-0.003 (0.005)	0.001 (0.001)	0.0005 (0.003)	0.001 (0.001)	0.0007 (0.001)	-0.0004 (0.003)
Government Gross Debt / GDP (t-1)		0.0001 (0.0004)			0.0007 (0.0006)			0.0006* (0.0004)		0.0004 (0.0004)
GDP/PC (t-1)		0.005* (0.003)			0.009* (0.005)			0.0004 (0.002)		0.0009 (0.002)
GDP/PC Growth (t-1)		6.49 × 10 <sup>-5</sup> (0.002)			0.002 (0.002)			0.0009 (0.001)		0.001 (0.001)
Banking Crisis (t-1)		-0.037 (0.049)			-0.021 (0.052)			0.068 (0.068)		0.009 (0.080)
Currency Crisis (t-1)		0.025 (0.092)			0.002 (0.087)			-0.037 (0.067)		-0.089 (0.101)
Debt Crisis (t-1)		0.099* (0.053)			0.047 (0.072)			-0.035 (0.055)		-0.061 (0.065)
Natural Resource Rents / GDP (t-1)		0.0004 (0.005)			0.003 (0.006)			-0.002 (0.002)		0.002 (0.002)
Legislative Election (t-1)			-0.053** (0.025)		-0.011 (0.029)			0.018 (0.029)		0.100*** (0.037)
Executive Election (t-1)			-0.005 (0.032)		-0.018 (0.038)			-0.004 (0.039)		-0.005 (0.053)
Time in Office				0.065*** (0.021)	0.071*** (0.024)				0.023 (0.014)	0.028* (0.016)
Time in Office (squared)				-0.005* (0.003)	-0.005 (0.003)				-0.001 (0.0008)	-0.002* (0.001)
Time in office (cubic)				0.0001 (8.82 × 10 <sup>-5</sup> )	0.0001 (9.95 × 10 <sup>-5</sup> )				2.28 × 10 <sup>-5</sup> * (1.25 × 10 <sup>-5</sup> )	2.87 × 10 <sup>-5</sup> * (1.49 × 10 <sup>-5</sup> )
High Ranking Ministers Removal Rate				0.479*** (0.061)	0.485*** (0.062)				0.424*** (0.077)	0.455*** (0.094)
Successful Coup (t-1)				-0.123 (0.137)	0.015 (0.093)				0.031 (0.158)	0.002 (0.147)
Failed Coup (t-1)				0.037 (0.196)	0.510*** (0.161)				-0.0004 (0.124)	-0.103 (0.101)
Mass mobilization (t-1)				-0.008 (0.024)	-0.007 (0.029)				0.002 (0.021)	-0.009 (0.023)
Onset Interstate Conflict (t-1)				-0.588*** (0.065)	-0.580*** (0.068)				0.109 (0.142)	0.054 (0.080)
Onset Intrastate Conflict (t-1)				-0.061 (0.098)	0.020 (0.129)				0.093 (0.069)	0.112* (0.066)
Weighted CBI Index (t-1)				-0.096 (0.093)	-0.127 (0.119)				0.156 (0.145)	-0.045 (0.234)
Single-Party Government				-0.042 (0.035)	-0.039 (0.041)				0.026 (0.053)	0.056 (0.059)
Leader endyear dropped	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Fixed-effects</i>										
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Fit statistics</i>										
Observations	1,927	1,642	1,927	1,379	1,200	1,309	935	1,309	946	685

Clustered (Country) standard-errors in parentheses

Signif. Codes: \*\*\*: 0.01, \*\*: 0.05, \*: 0.1

## *B Description of variables in main analysis*

### **Variables determining samples**

**Democracy** A dummy indicating whether (1) or not (0) a country was democratic according the Boix-Miller-Rosato dichotomous coding of democracy (BMR) (Boix, Miller and Rosato 2013; Miller, Boix and Rosato 2022). BMR distinguish democracies and autocracies based on whether they meet minimal conditions for both contestation and participation. Specifically, for a country to be considered democratic, they require that a) the executive to be elected directly or indirectly in popular elections and to responsible either directly to voters or to a legislature; b) the legislature to be elected in free and fair elections; c) suffrage is extended to a majority of adult men (Boix, Miller and Rosato 2013). We lag BMR's democracy coding by one year, as it is measured at the end of the year, while WhoGov codes the cabinet in July.

**Leader endyear** A dummy variable indicating whether the leader of a country changes between July of year  $t$  and July of year  $t+1$ . Source: WhoGov (Nyrup and Bramwell 2020).

### **Dependent variable**

**Minister removed or demoted** A dummy variable indicating whether (1) or not (0) a minister was removed from cabinet or demoted within cabinet between July of year  $t$  and July of year  $t+1$ . Demotions include reshuffles to any cabinet portfolio except for the positions of leader and the portfolios "Defense, Military & National Security", "Government, Interior & Home Affairs" and "Foreign Relations". Source: WhoGov (Nyrup and Bramwell 2020).

### **Independent variable**

**General government borrowing / GDP** Indicates the amount of government borrowing/lending as a percentage of GDP. "Net lending (+)/ borrowing (–) is calculated as revenue minus total expenditure. This is a core GFS balance that measures the extent to which general government is either putting financial resources at the disposal of other sectors in the economy and nonresidents (net lending), or utilizing the financial resources generated by other sectors and nonresidents (net borrowing). [...] Net lending (+)/borrowing (–) is also equal to net acquisition of financial assets minus net incurrence of liabilities.". Source: WEO (IMF 2022).

### **Control variables**

#### ***Economic controls***

**GDP/PC (t-1)** A variable indicating the absolute GDP/PC in year  $t-1$  (based on expenditure-side real GDPs at chained PPPs). Source: Penn World Table (Feenstra, Inklaar and Timmer 2015).

**GDP/PC growth (t-1)** A variable indicating GDP/PC growth in year  $t-1$  (based on expenditure-side real GDPs at chained PPPs). Source: (Feenstra, Inklaar and Timmer 2015).

**General government gross debt / GDP (t-1)** Variable indicating the government's gross debt as a percentage of GDP. "Gross debt consists of all liabilities that require payment or payments of interest and/or principal by the debtor to the creditor at a date or dates in the future. This includes debt liabilities in the form of SDRs, currency and deposits, debt securities, loans, insurance, pensions and standardized guarantee schemes, and other accounts payable". Source: WEO (IMF 2022).

**Banking Crisis (t-1)** A variable indicating whether (1) or not (0) a dummy experienced a systemic banking crisis in year  $t-1$ . Systemic banking crisis are defined as "events that meet two conditions: (1)



significant signs of financial distress in the banking system, as reflected by significant bank runs, losses in the banking system, and/or bank liquidations; (2) significant government policy interventions in response to significant losses in the banking sector." Source: (Nguyen, Castro and Wood 2022).

**Currency Crisis (t-1)** A variable indicating whether (1) or not (0) a dummy experienced a currency crisis in year t-1. Currency crisis are coded "when the nominal depreciation of a domestic currency against the US dollar is at least 30% a year and higher than the previous year's change by at least 10% ". Source: (Nguyen, Castro and Wood 2022).

**Debt Crisis (t-1)** A variable indicating whether (1) or not (0) a dummy experienced a sovereign debt crisis in year t-1. Sovereign debt crises are coded when "either of the two following conditions holds: (1) total sovereign defaults exceed 1% of GDP in at least three consecutive years, or (2) total sovereign defaults exceed 7% of GDP. The first year in which either of these conditions meets is the onset of a sovereign debt crisis. A debt crisis ends when total sovereign defaults, including debt restructuring or rescheduling, are smaller than 1% of GDP". Source: (Nguyen, Castro and Wood 2022).

**Natural Resource Income / GDP (t-1)** A variable indicating Total natural resources rents (% of GDP). Total natural resources rents are the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents. Source: (World Bank 2023).

### *Electoral controls*

**Legislative election (t-1)** A dummy indicating whether (1) or not (0) a country held an executive election in year t-1. Source: Hyde and Marinov (2012).

**Executive election (t-1)** A dummy indicating whether (1) or not (0) a country held a legislative election in year t-1. Source: Hyde and Marinov (2012).

### *Instability controls*

**Single-party government** A dummy indicating whether (1) or not (0) the less than two parties are represented in cabinet in year t. Source: WhoGov (Nyrup and Bramwell 2020).

**Time in office** A variable indicating the number of years a minister has held office in year t. Source: Nyrup and Bramwell (2020).

**High-ranking minister removal rate** A variable indicating the share of high-ranking cabinet ministers other than the minister of finance that are removed from cabinet in year t. Source: Nyrup and Bramwell (2020).

**Successful Coup (t-1)** A dummy variable indicating whether (1) or not (0) a country experienced a successful coup in year t-1. Source: Powell and Thyne (2011).

**Failed Coup (t-1)** A dummy variable indicating whether (1) or not (0) a country experienced a failed coup attempt in year t-1. Source: Powell and Thyne (2011).

**Mass mobilization (t-1)** VDem's *v2cagenmob* variable, indicating extent and frequency of public political mass mobilization, such as demonstrations, strikes, and sit-ins in year t-1. Source: VDem Dataset V12 (Coppedge et al. 2022; Pemstein et al. 2022).

**Onset interstate Conflict (t-1)** A dummy variable indicating whether (1) or not (0) a country experienced the onset of an interstate conflict (>25 battle deaths) in year t-1. Source: UCDP Onset Dataset (Davies, Pettersson and Öberg 2022; Gleditsch et al. 2002).

**Onset intrastate Conflict (t-1)** A dummy variable indicating whether (1) or not (0) a country expe-

rienced the onset of an intrastate conflict (>25 battle deaths) in year t-1. Source: UCDP Onset Dataset (Davies, Pettersson and Öberg 2022; Gleditsch et al. 2002).

**Weighted CBI Index (t-1)** A weighted index of central bank independence, ranging from 0 (lowest) to 1 (highest). Source: (Garriga 2016).

*C Descriptive statistics of variables in main analysis*

**Table C1**

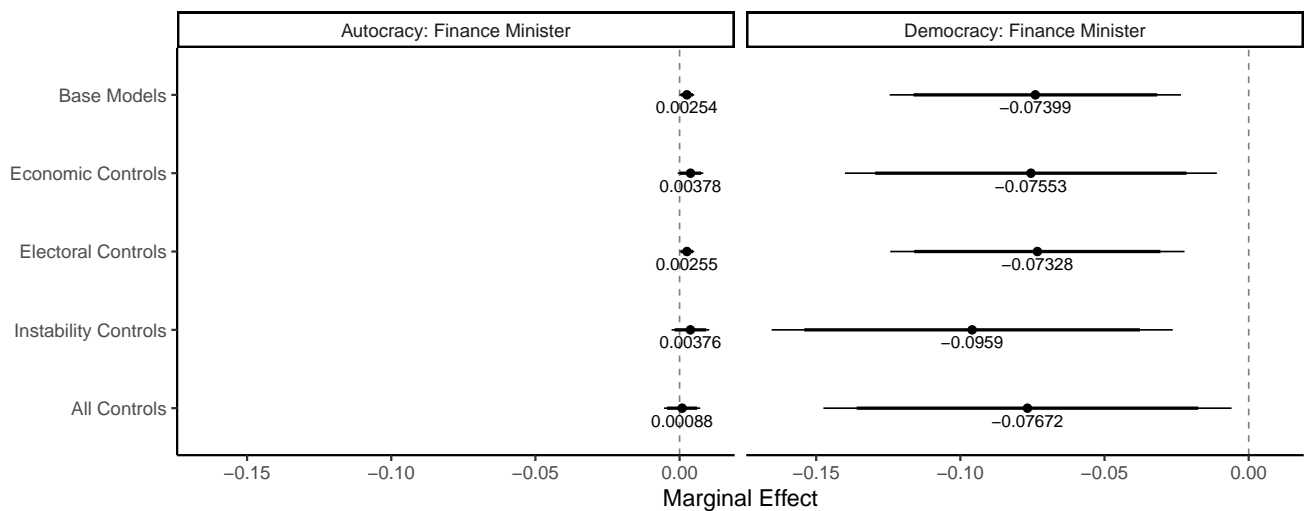
Statistic	N	Mean	St. Dev.	Min	Max
Democracy (BMR)	6,997	0.418	0.493	0	1
Minister removed or demoted	6,997	0.245	0.430	0	1
General government borrowing / GDP	3,972	-3.180	16.303	-557.499	37.411
General government gross debt / GDP	3,520	55.223	43.733	0.000	543.399
GDP/PC	6,519	13.145	19.804	0.251	279.349
GDP/PC growth	6,503	2.569	9.027	-80.971	142.630
Legislative election	6,997	0.223	0.416	0	1
Executive election	6,997	0.113	0.317	0	1
Single-party government	6,997	0.580	0.494	0	1
Time in office	6,997	4.601	4.340	1	49
High ranking ministers removal rate	6,910	0.198	0.287	0.000	1.000
Failed coup	6,997	0.018	0.135	0	1
Successful coup	6,997	0.017	0.130	0	1
Mass Mobilization	6,817	-0.213	1.328	-3.565	3.935
Weighted CBI Index	4,556	0.469	0.194	0.017	0.979
Banking Crisis	6,216	0.063	0.243	0	1
Currency Crisis	6,432	0.071	0.256	0	1
Debt Crisis	6,437	0.292	0.455	0	1
Natural Resource Income / GDP	5,860	8.261	11.552	0.000	88.592

### D Alternative specifications of main analysis

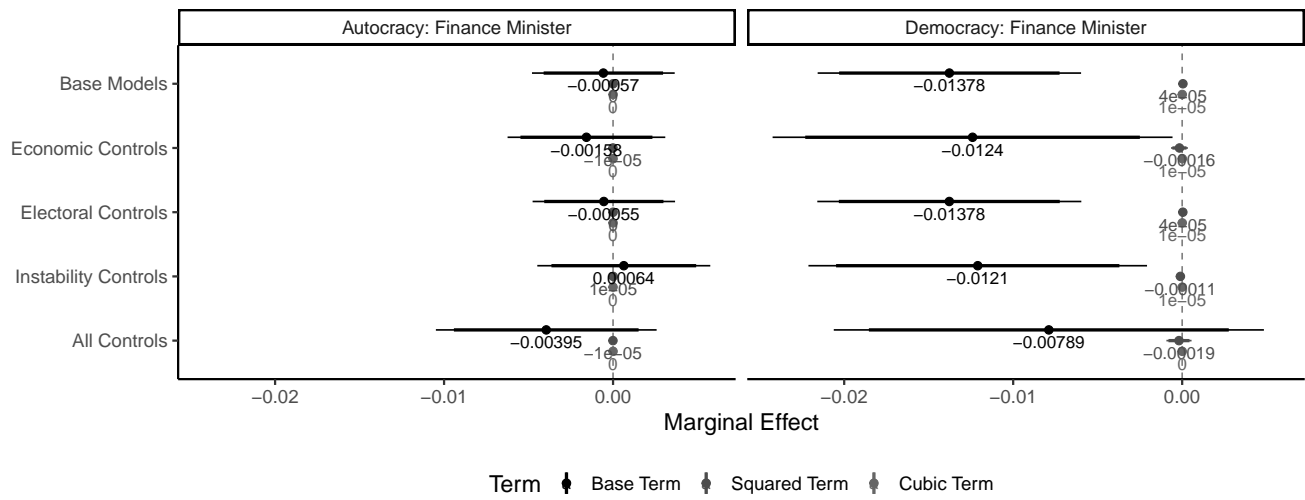
Our main analysis uses government borrowing as a linear predictor and LPMs as estimators. This may raise concerns about potential bias in our results, e.g., due to non-linearity or extreme values driving our results. We conduct three additional analyses to mitigate these concerns and find that our main results do not change when we account for them.

First, we run alternative specifications of our main analysis using logistic regressions instead of LPMs. The results are shown in Figure D1. Next, to account for non-linear effects, we re-run our main models but include squared and cubic terms of our independent variable. Figure D2 depicts the results. Lastly, to address concerns about a few extreme values on the independent variable driving our results, we re-run our main analysis but re-code the independent variable, so that all observations with borrowing higher than 25% of GDP are re-coded to borrowing 25% of GDP, and all observations with lending higher than 25% of GDP are re-coded to lending 25% of GDP. The results are shown in Figure D3.

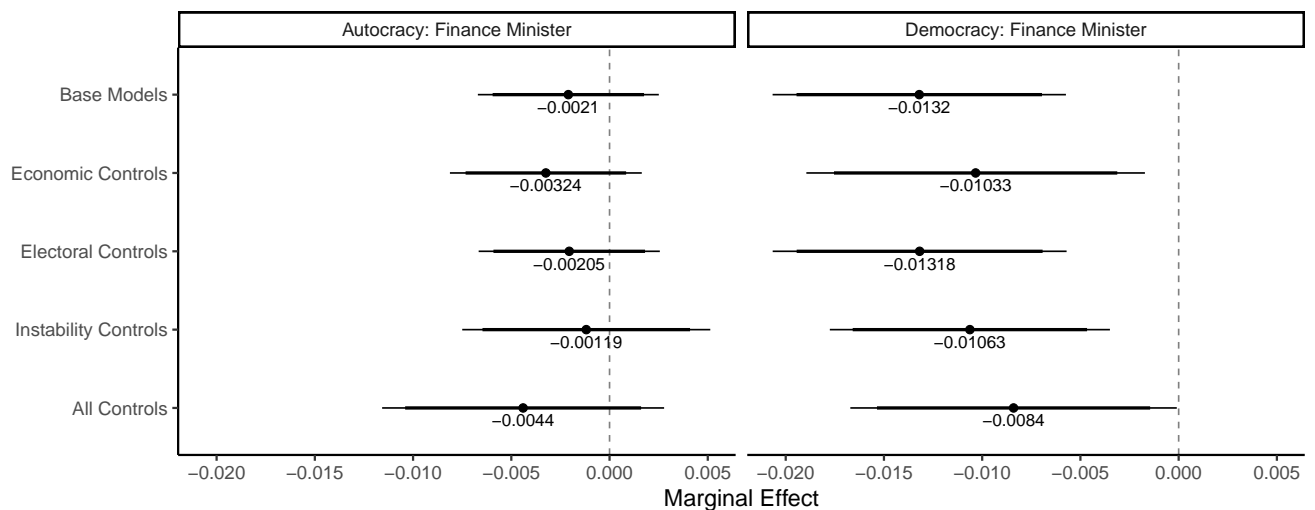
Overall, none these alternative specifications change our substantive results and find no effect of net borrowing in autocracies but a considerable effect in democracies. Specifically regarding the results when including polynomials, none of the polynomial terms is significant, indicating that the effect of government borrowing is quite linear. The base term of government borrowing remains insignificant in all autocracy specifications, and significant in all democracy specifications except for the *All controls*-specification. However, even in this specification base and polynomial terms are jointly significant.



**Figure D1:** Replication of Figure 3 using Logistic Regression Models instead of LPMs. The bars indicate 95% (thin) and 90% (bold) confidence intervals. Marginal effects represent marginal effects on the log-odds of a finance minister being removed from or being demoted within cabinet.



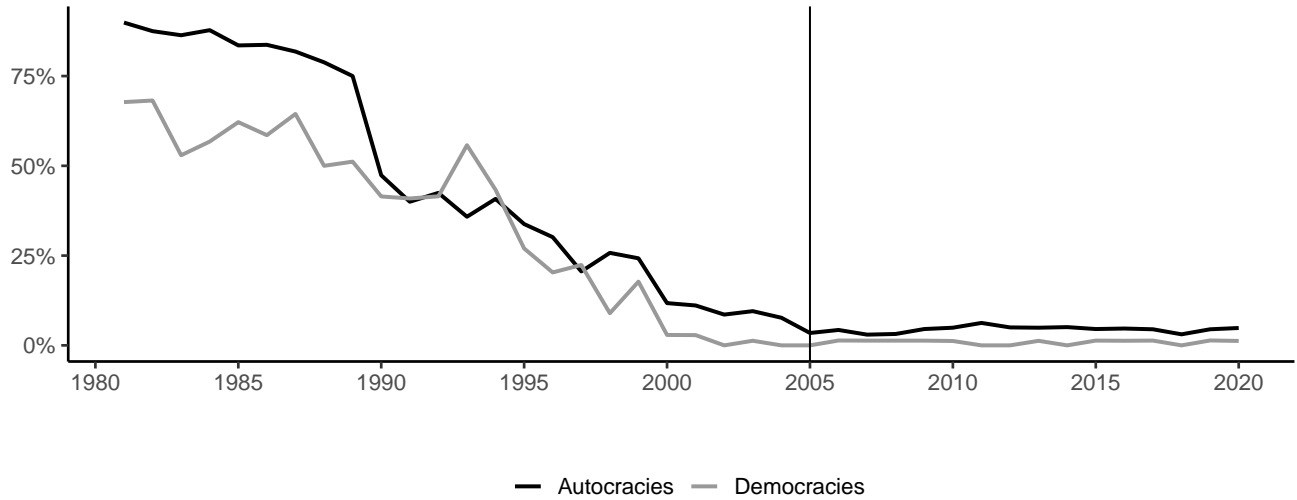
**Figure D2:** Replication of Figure 3 including squared and cubic terms of the independent variable. The bars indicate 95% (thin) and 90% (bold) confidence intervals.



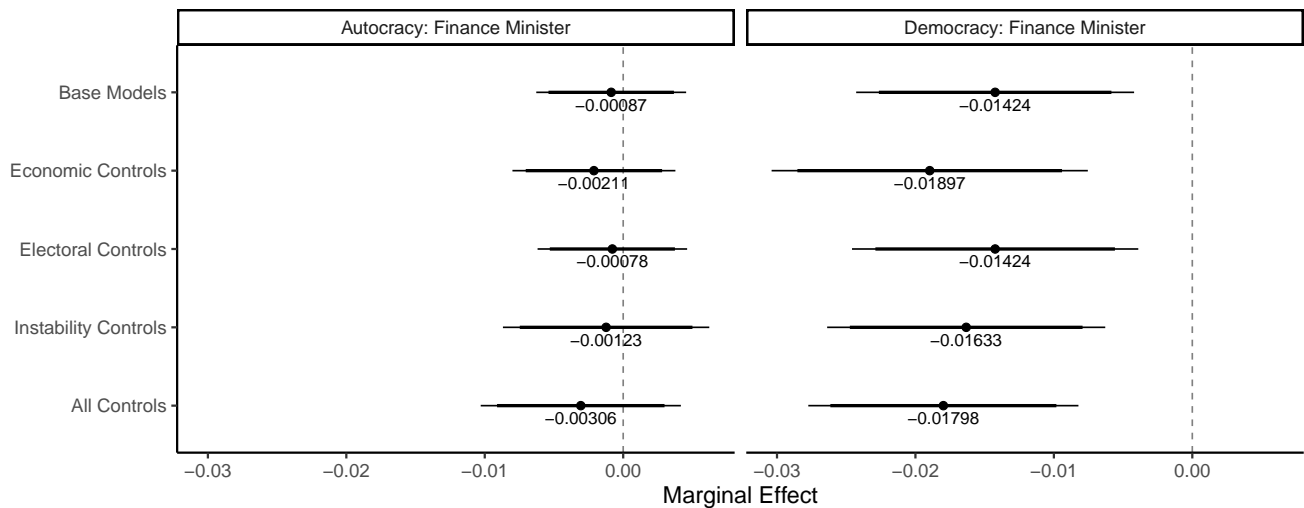
**Figure D3:** Replication of Figure 3 recoding all net borrowing of more than 25% of GDP to 25% and all net lending above 25% of GDP to 25%. The bars indicate 95% (thin) and 90% (bold) confidence intervals.

*E Missing observations and main analysis on adjusted sample*

Given that IMF fiscal data can have notoriously high levels of missing data, one concern is that our results may - at least partially - be driven by systematic missingness in the data. To address this concern, we exploit missing data - while prevalent in the pre-2005 period- is very limited for both regime types after 2005 (see Figure E1). This allows us to re-run our main analysis on a sample with almost complete data, ensuring that results are not driven by systematic missingness. As Figure E2 illustrates, the results analysing only the post-2005 period are consistent with our main analysis. We find no effect in dictatorships but a consistently significant effect in democracies. The effect size in democracies are even larger than in our main analysis, increasing our confidence that our results are not driven by systematic missingness.



**Figure E1:** Shares of missing observations of our main independent variable *government net borrowing / GDP* by regime type and over time.

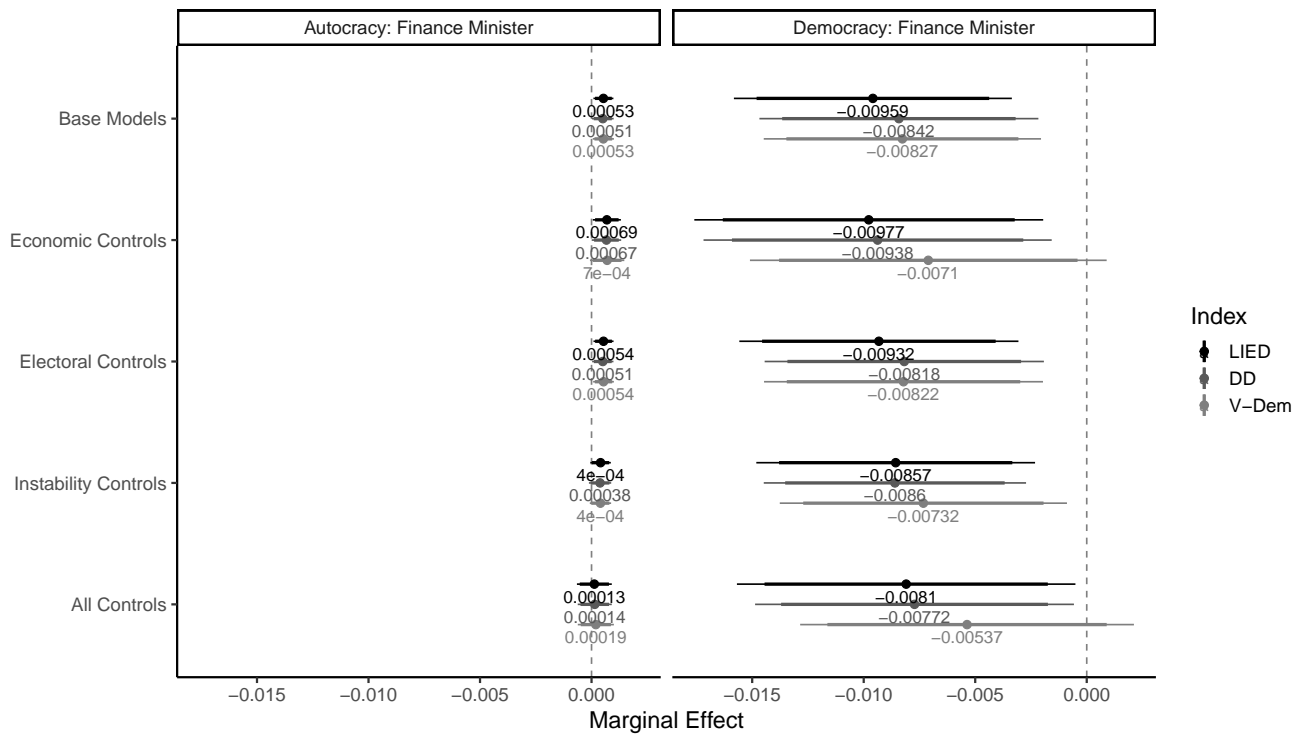


**Figure E2:** Replication of our main analysis in Figure 3 limiting the sample to post-2005 years. The bars indicate 95% (thin) and 90% (bold) confidence intervals.

*F Main analysis using alternative democracy measures*

To show that our findings are robust to the use of alternative ways of measuring democracy, we replicate our main analyses from Figure 3 using alternative indices to distinguish democracies from autocracies. Specifically, we use the Lexical Index of Electoral Democracy (LIED) (Skaaning, Gerring and Bartusevičius 2015), and the Democracy and Dictatorship Data (DD) by (Cheibub, Gandhi and Vreeland 2010). Finally, we dichotomize the V-Dem Polyarchy index (Coppedge et al. 2022; Pemstein et al. 2022; Teorell et al. 2019) to identify democracies and autocracies, using a cut-off at 0.4 following Baltz, Vasselai and Hicken (2022). Figure F1 reports the results.

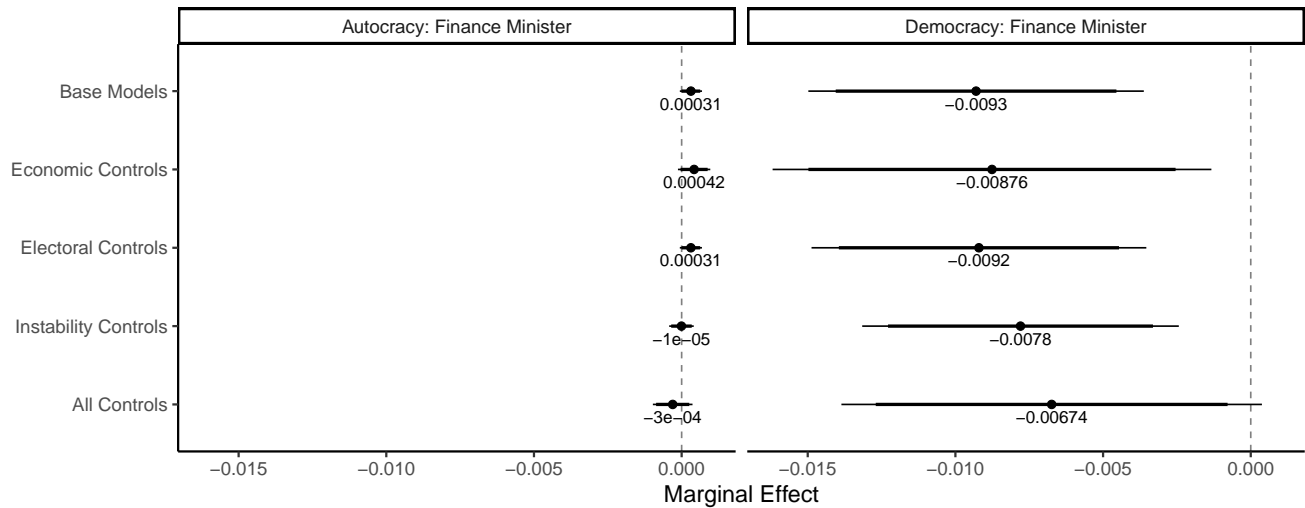
The results for all alternative measures support our main findings. We generally find a weak but not robustly significant positive effect of more borrowing on the survival of autocratic finance ministers and a strong and consistently significant negative effects of more borrowing on the survival of democratic finance ministers. The only models which do not show a conventionally significant effect in democracies are the specifications with economic and all controls the dichotomized V-Dem. However, even the former is still significant at the 90% level.



**Figure F1:** Replication of our main analysis in Figure 3 splitting democracies and autocracies according to alternative democracy indices. The bars indicate 95% (thin) and 90% (bold) confidence intervals.

*G Excluding reshuffles from the dependent variable*

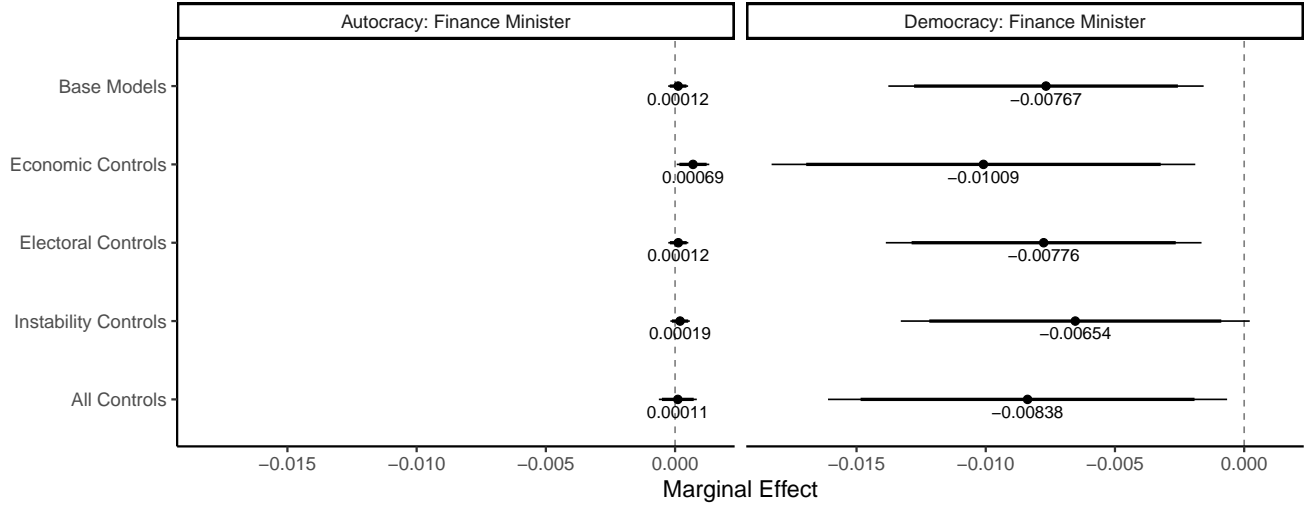
It may be seen as controversial to include intra-cabinet reshuffles as parts of our dependent variable as even lower ranking cabinet posts still imply substantial benefits and may thus not be perceived as a punishment or negative turn in a political career. To address such concerns, we repeat our main analysis using a re-coded version of the dependent variable. Figure G1 shows the results when we use an independent variable that only indicates whether (1) or not (0) a minister was removed from cabinet, ignoring reshuffles within cabinet. This does not substantially alter our results.



**Figure G1:** Replication of our main analysis in Figure 3 using removal from cabinet instead of removal from or demotion within cabinet as the dependent variable. The bars indicate 95% (thin) and 90% (bold) confidence intervals.

### H Main results not controlling for lagged net borrowing.

To address concerns that our main models are over-controlling and inducing bias by including the lagged dependent variable in all specifications, we repeat our main analysis dropping this variable from all models. Figure H1 shows the results of our main analysis when we do not control for the one-year lag of our independent variable. This does not substantially alter our results.



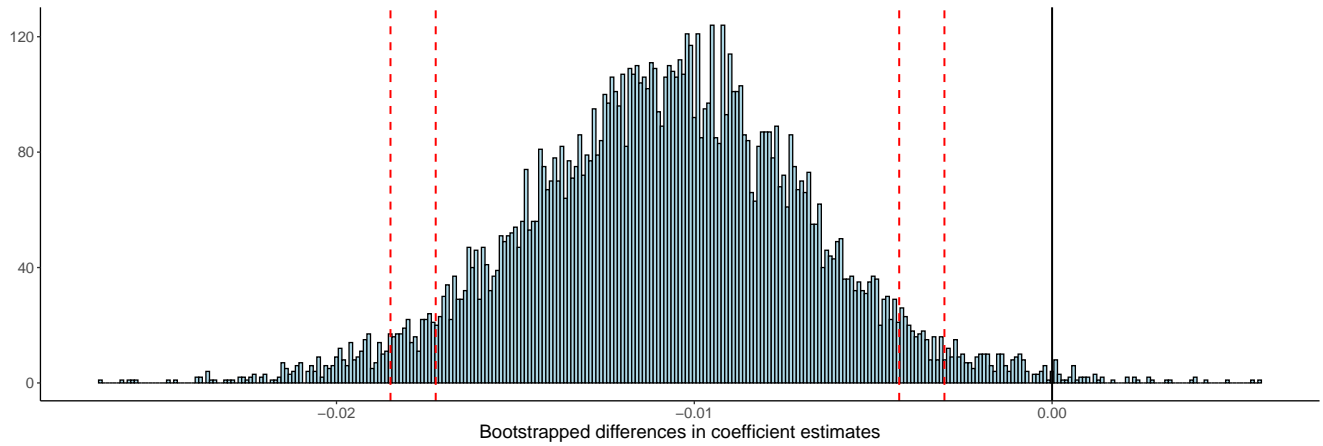
**Figure H1:** Replication of our main analysis in Figure 3 dropping the one-year lag of net borrowing / GDP from the models. The bars indicate 95% (thin) and 90% (bold) confidence intervals.

### I Between sample differences

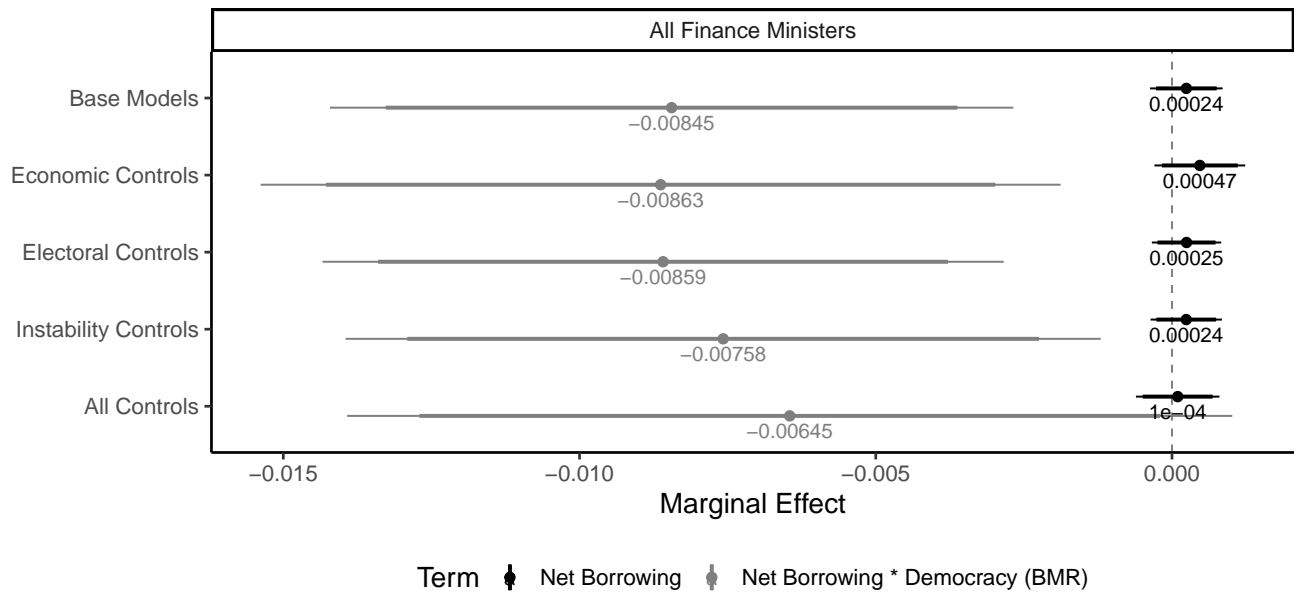
In addition to our randomization analysis, we investigate two alternative ways of testing whether the influence of government borrowing on finance minister removal/demotion is significantly different in democracies and autocracies. Both analyses confirm that the effects in democracies and autocracies are significantly different from each other. First, we conduct a bootstrap analysis to assess how robust the differences between the coefficient estimates in democracies and autocracies are. To do this, we bootstrap our full sample 10,000 times, split each bootstrapped sample in democracies and autocracies, re-run our base models from Figure 3 and calculate the differences between the coefficient estimates in the democratic and autocratic samples. Figure I1 shows the distribution of bootstrapped differences and the 95% and 90% CIs. As 0 lies far outside the 95% CI of the distribution, we can infer that random changes to the sample are extremely unlikely to eliminate the difference between the effects in democracies and autocracies, increasing our confidence that the different patterns in democracies and autocracies are systematic and significant.

Second, we also re-run our main analysis on a pooled sample of autocracies and democracies, add a democracy dummy, and interact it with our independent variable. Figure I2 shows the results of this test. The reason we did not use interaction effects and pooled samples in our main analysis is that they are extremely restrictive when combined with country fixed effects. When country FE are included interaction coefficients are estimated using only countries which experiences both democratic and autocratic rule. This excludes many countries in our sample and thus substantially limits statistical power. Yet, the results are quite similar to our main results, showing no effect in autocracies and an effect in democracies that is significantly different from the effect in autocracies and similar in magnitude to the effect we find in our main analysis.





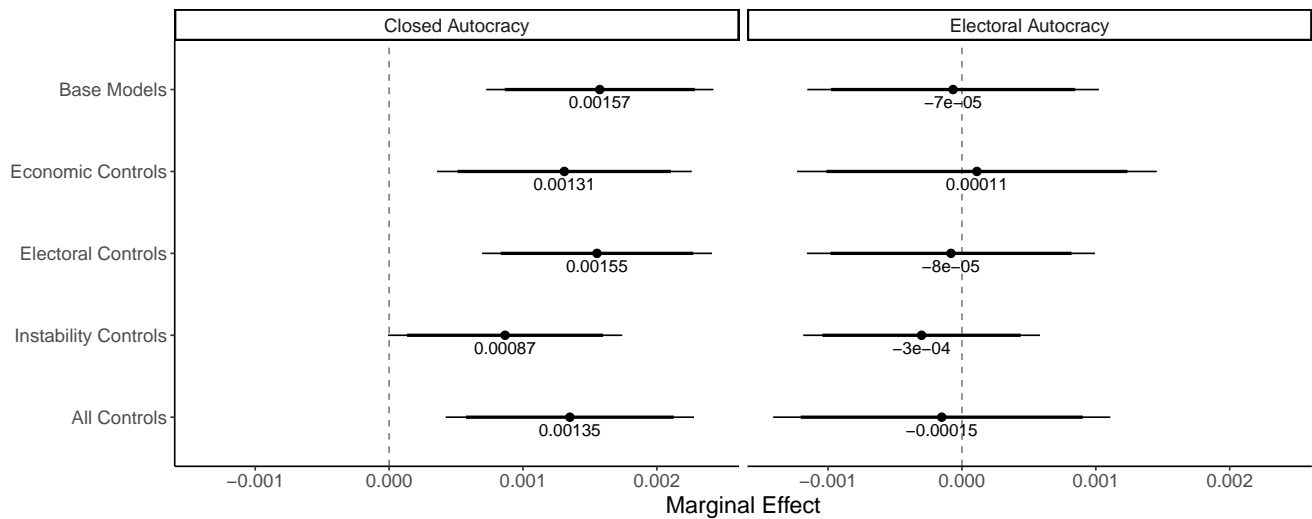
**Figure I1:** Histogram showing the distribution of coefficient differences in 10,000 bootstraps of the full sample. The dotted red lines mark the 95% and 90% CIs.



**Figure I2:** Replication of our main analysis in Figure 3 but using a pooled sample of democracies and autocracies, and interacting our independent variable with our binary democracy measure. The bars indicate 95% (thin) and 90% (bold) confidence intervals.

### J Differences between autocratic regime types

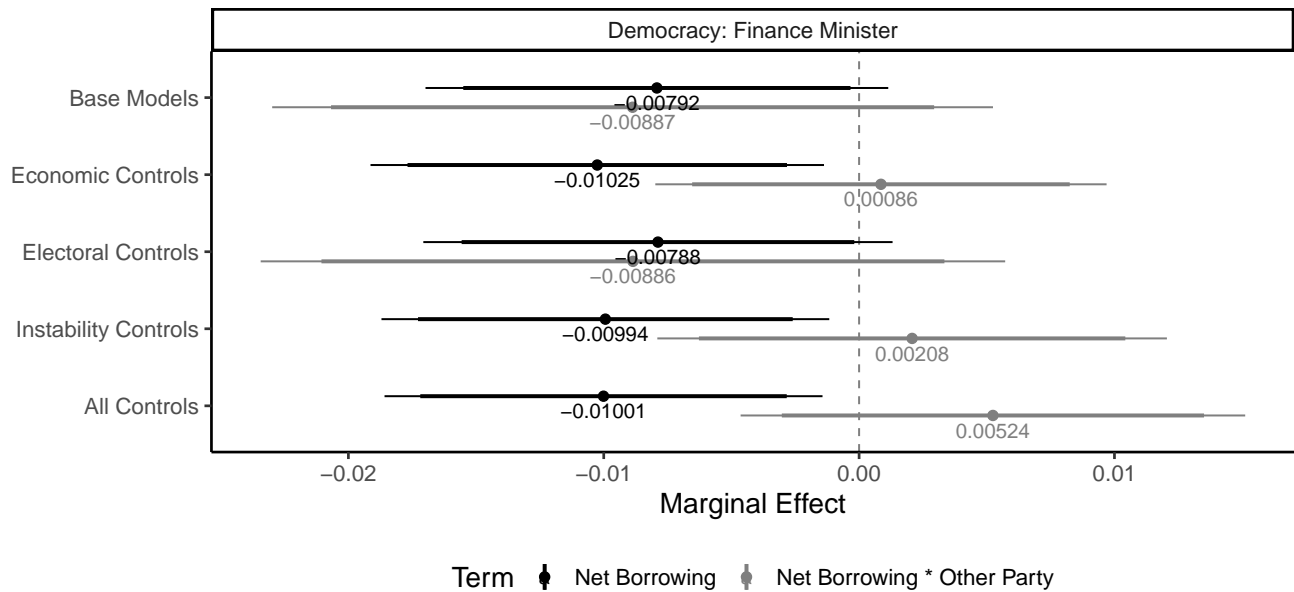
We further explored whether different types of autocracies differ regarding the relationship between government borrowing and finance minister survival. Specifically, we replicated our main analyses separately analysing samples of closed and electoral autocracies. We distinguish those using the Lexical Index of Electoral Democracy (Skaaning, Gerring and Bartusevičius 2015), classifying all autocracies (below level 6 on the lexical index) that have multi-party elections for the executive and the legislature as electoral, and those do not as closed autocracies. As Figure J1 illustrates, we find that in electoral autocracies there is no relationship between government borrowing and finance minister survival in office, while in closed autocracies, finance ministers are more likely to remain in office when they increase government borrowing. This is in line with the literature on autocratic elections, which demonstrates that elections considerably stabilize autocracies in non-election years, and overall increase the duration of autocratic regimes Knutsen, Nygård and Wig (2017); Lucardi (2019). We theorize that this stabilization decreases immediate threats to the incumbent, thus decreasing the value of immediate access to credit, while increasing the value of long-term sustainable budgets. By contrast, in closed autocracies, immediate threats are more pressing, which makes access to credit - and thus finance ministers who can secure it - more valuable. Additionally, closed autocracies probably suffer more from lack of access to lending markets compared to electoral autocracies (Biglaiser and Staats 2012; Wright 2008), making a finance minister, who can actually run fiscal deficits, much more valuable in closed autocracies.



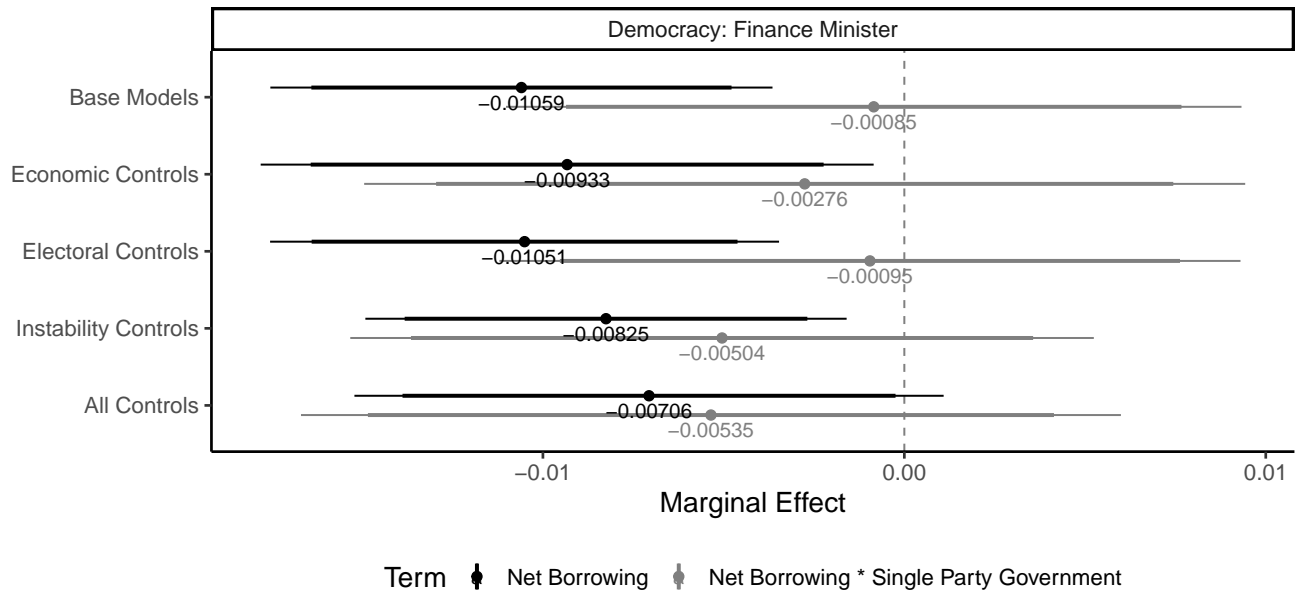
**Figure J1:** Replication of our main analysis in Figure 3 separating closed and electoral autocracies according to LIED (Skaaning, Gerring and Bartusevičius 2015). The bars indicate 95% (thin) and 90% (bold) confidence intervals.

*K Differences within democracies*

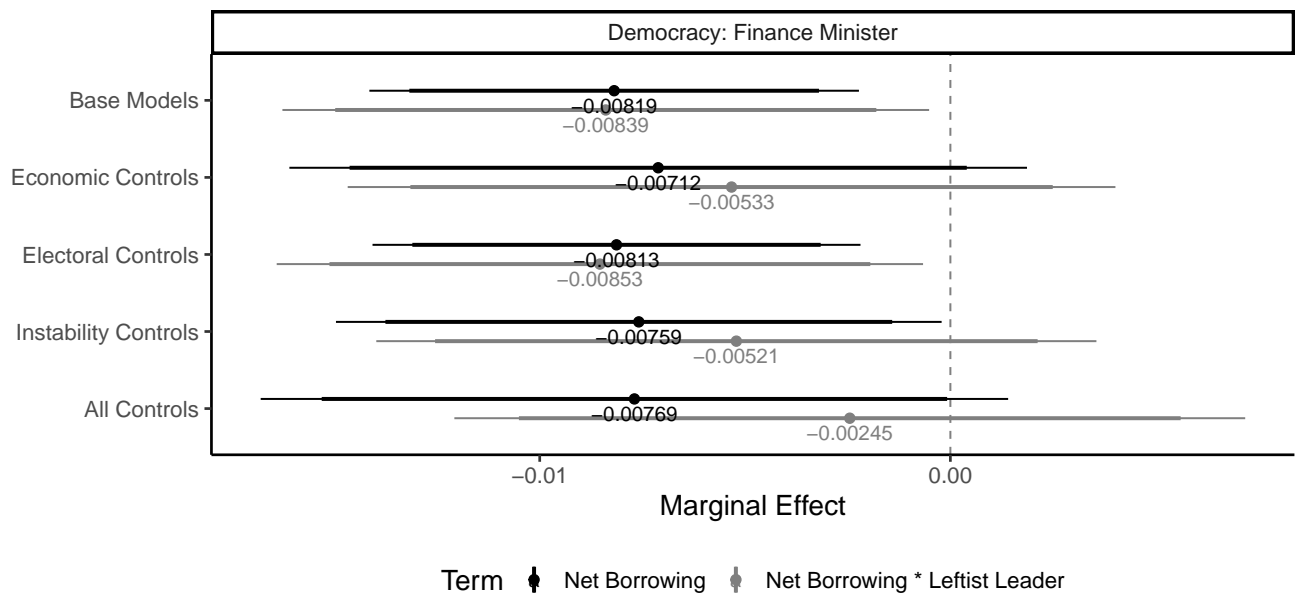
Finally, we investigate whether different political constellations in democracies change the relationship between government borrowing and finance minister removal. Specifically, we are interested in whether the presence of coalition vs. single-party governments, whether the finance minister belongs to the same or to a different party than the leader, and whether the leader's ideology affect the relationship between government borrowing and finance minister removal/demotion. To test this, we created dummy variables indicating whether (1) or not (0) the finance minister and the leader belong to different parties, and whether (1) or not (0) the government consists only of one party according to WhoGov. Moreover, we use the "Identifying Ideologies" dataset (Herre 2023) to identify whether the leaders' ideology is leftist (1) or centrist/rightist (0). We then repeated our main analysis on the democratic sample and interacted the respective dummies with government borrowing. Figure K1 shows the results for the dummy indicating whether finance minister and leader belong to the same party, Figure K2 for the dummy indicating whether one or multiple parties are in government, Figure K3 shows the results for leaders' ideologies.



**Figure K1:** Replication of our main analysis in Figure 3 restricted to democracies and interacting net borrowing with a dummy indicating whether (1) or not (0) leader and finance minister belong to the same party. The bars indicate 95% (thin) and 90% (bold) confidence intervals.



**Figure K2:** Replication of analysis in Figure 3 restricted to democracies and interacting net borrowing with a dummy indicating whether (1) or not (0) multiple parties are represented in government. The bars indicate 95% (thin) and 90% (bold) confidence intervals.



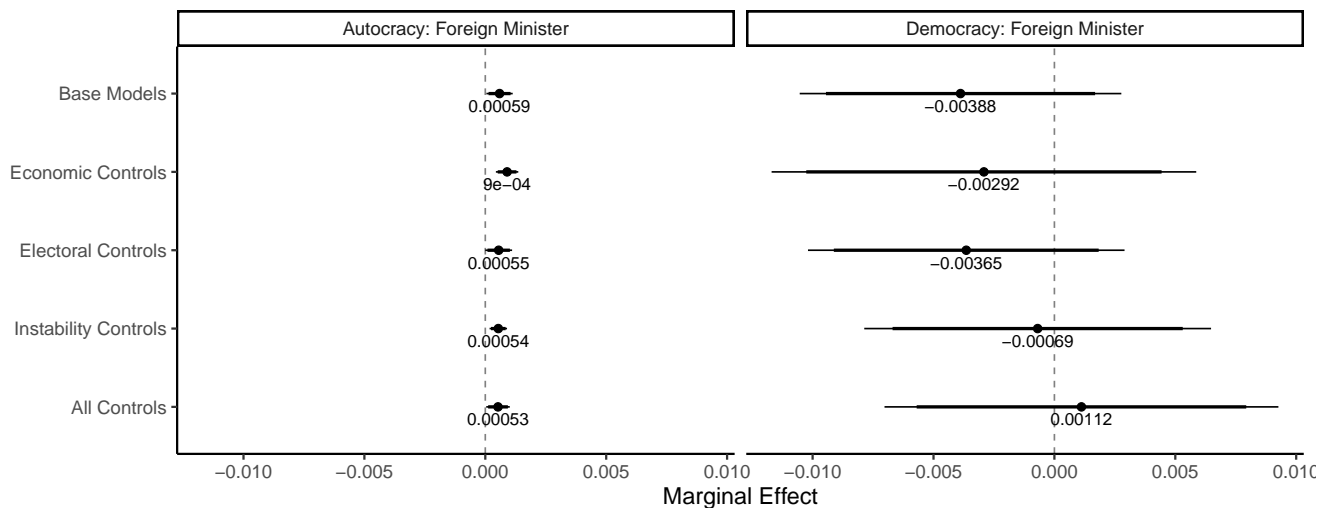
**Figure K3:** Replication of our main analysis in Figure 3 restricted to democracies and interacting net borrowing with a dummy indicating whether the ideology of the leader is leftist (1) or either centrist or rightist (0) according to (Herre 2023). The bars indicate 95% (thin) and 90% (bold) confidence intervals.

For the first two analyses, neither of the interaction terms is significant in any of the specifications, indicating that there is no moderating effect of coalition vs. single-party governments or the finance minister and the leader belonging to different vs. the same party. Regarding the ideology of the leader, we find that the interaction term is negative but insignificant, indicating that leftist leaders - on average - are more likely to punish their finance ministers for increased borrowing, but that the difference to centrist and rightist leaders is insignificant.

Analysing the effect of single-party vs. multi-party government, and the leader and the finance minister being in the same vs. in different parties also proxies the differences between presidential and parliamentary systems. This is because they represent main structural factors through which democratic regimetype could moderate our relationship of interest. We would predominantly expect parliamentary systems to differ from presidential systems because they differ regarding their propensity to have coalition governments and to have key ministers who are in different parties than the country's leader.

*L Placebo Analysis: Minister of foreign affairs*

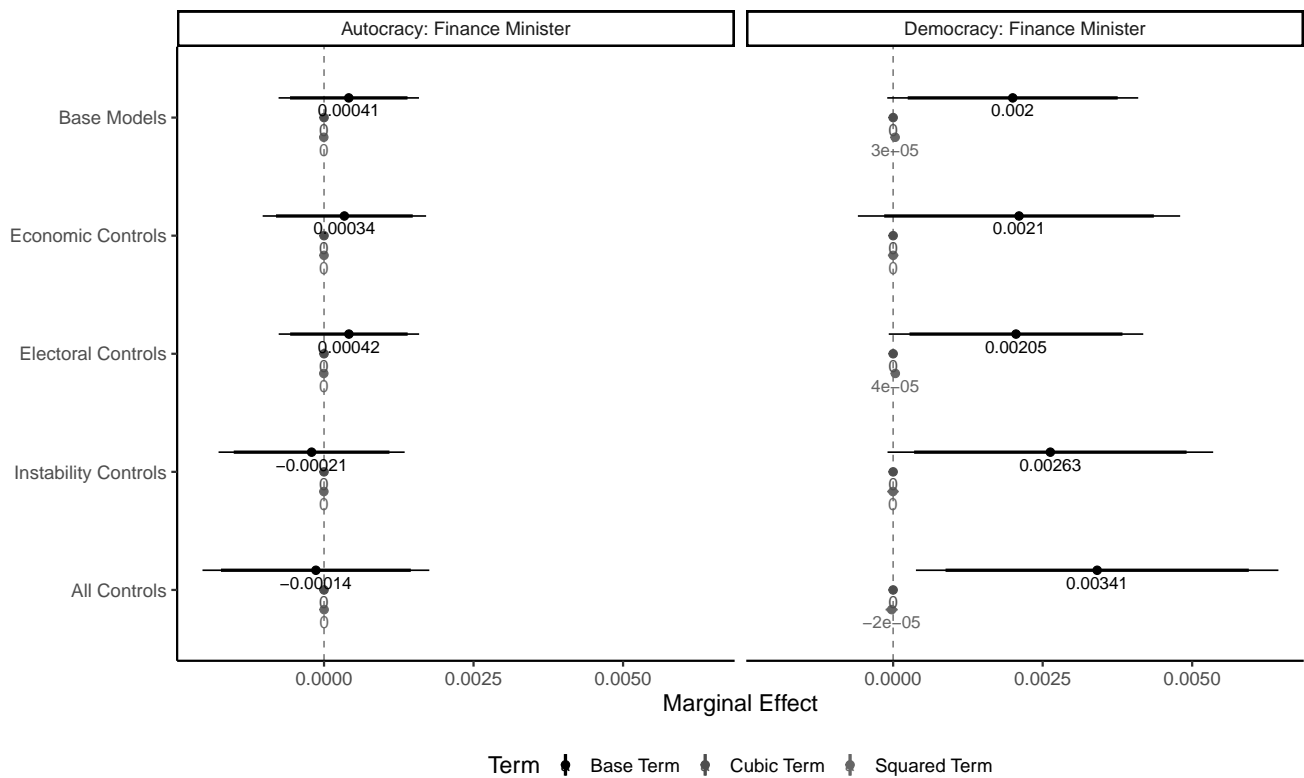
Figure L1 shows the results when we replicate our placebo analysis from Figure 5 using the ministers of foreign affairs instead of defence ministers. Similar to defence ministers, we find no systematically different patterns in autocracies and democracies. In democracies, we find that none of our models indicates an effect on the survival of the minister of foreign affairs in office. In autocracies, we do find a consistently significant effect, however, the effect size is about as small and substantively irrelevant as as the effects of net borrowing on finance ministers in autocracies. We thus interpret our findings as a (substantive) null-effect of net borrowing on the political survival of foreign ministers in both autocracies and democracies.



**Figure L1:** Results show the coefficient estimates for our main independent variable on foreign ministers' risk of removal/demotion. The point estimates indicate the marginal increase in the probability of being removed from or demoted within cabinet for a one unit increase on the independent variable (one percentage point less borrowing/more lending of net borrowing / GDP). The bars indicate 95% (thin) and 90% (bold) confidence intervals. A.

*M Changes in central government debt*

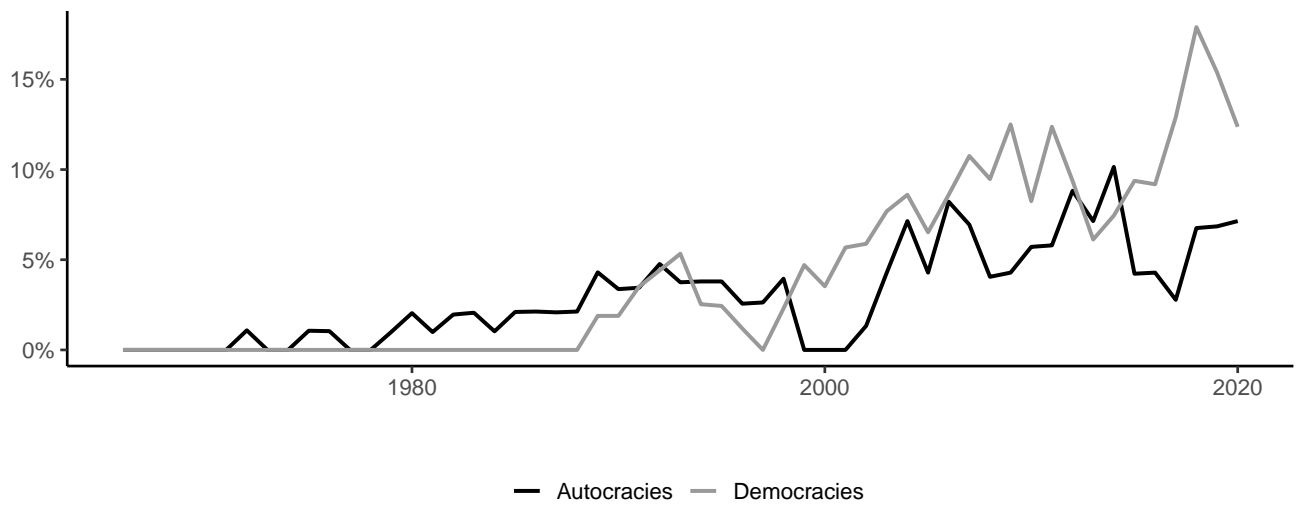
One might argue that the finance minister should not be held accountable for the level of general government borrowing but only for borrowing by the central government. To address this, we repeat our main analysis using changes to central government debt as our main independent variable. We use the central government as percent of GDP variable from the IMF’s Global Debt Database (Chae 2018). To calculate changes to central government debt, we subtract central government as percent of GDP at t-1 from central government as percent of GDP at t. Higher values thus indicate higher central government borrowing. Figure M1 shows the results. The results are in line with our original findings, showing a similar significant (though only at the 90%-level in most specifications) positive effect of central government borrowing on finance minister removal/demotion in democracies, but no effect in autocracies. However, this variable is somewhat more sensitive to functional form issues, showing no clear-cut linear effects when the models are run without polynomials, likely due to the impact of extreme values.



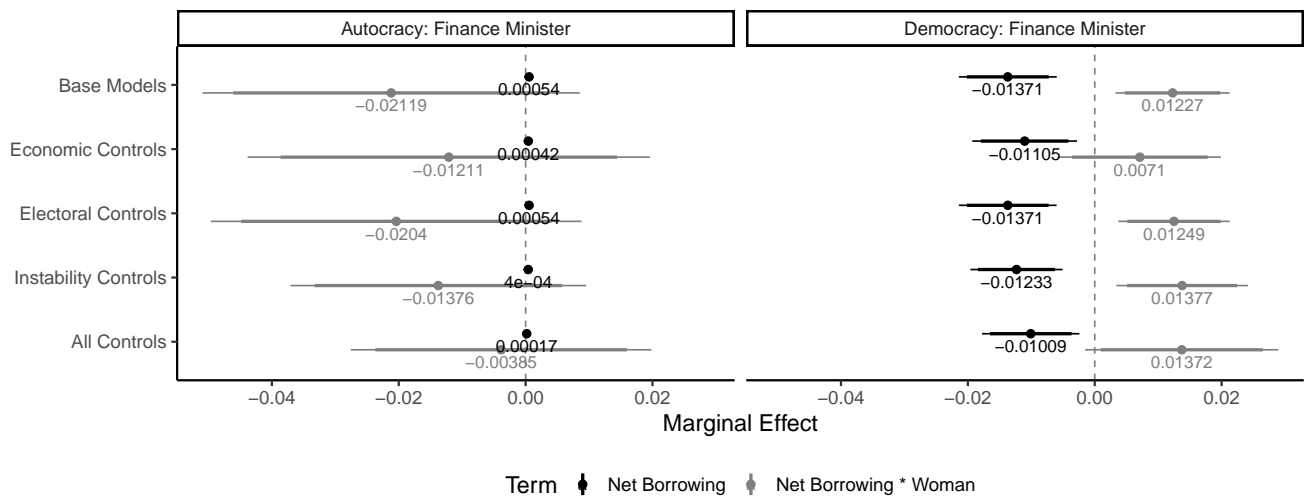
**Figure M1:** Replication of our main analysis in Figure 3 using changes to central government debt (and its squared and cubic term) as the independent variable. The bars indicate 95% (thin) and 90% (bold) confidence intervals.

*N Gender-specific effects*

While this is outside the main scope of our analysis, we explored whether our effects differ across finance minister’s gender, and added an interaction with a dummy variable indicating whether (1) or not (0) the finance minister is a woman to our main analysis. As Figure N2 shows, gender has no significant impact on the results in autocracies. However, for democracies, we find a fairly consistently significant interaction that indicates that there is no negative effect of government borrowing on the survival of female finance ministers in office. While this finding should be taken carefully, given the small sample of female finance ministers it is based on (see Figure N1), and needs to be properly investigated by future research. While this result may be due to special characteristics of the few countries who have female finance ministers, it may also be the case that female politicians only reach this level of governmental responsibility, when they are particularly well connected and popular, and are thus more likely to survive politically than their male counterparts, who need to overcome lower hurdles to become finance minister.



**Figure N1:** Shares of female finance ministers in autocracies and democracies over time.



**Figure N2:** Replication of our main analysis in Figure 3, interacting the main independent variable with a dummy variable indicating whether (1) or not (0) the finance minister is a woman. The bars indicate 95% (thin) and 90% (bold) confidence intervals.

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