# (How) Do Electoral Surprises Drive Business Cycles? Evidence from a New Dataset

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## Abstract

This paper documents that surprise election outcomes – measured as deviations between realised vote shares and expected vote shares based on a newly constructed dataset of opinion polls and party and candidate vote shares close to election day – are causing non-negligible short-term contractions in economic activity. We find that, on average, a percentage point higher surprise is associated with a 0.37 percentage point lower year-on-year growth rate one year after the election. These effects are only present in countries with strong democracies and seem to operate mainly through increased economic policy uncertainty and lower investment growth over a window of up to eight quarters after an election. In addition, surprise performances of left-wing political parties and in elections with transitions to left-wing governments (pre-defined from the Parlgov Database) are associated with the largest effects on the economy.

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# 1   Introduction

Do surprise election results have an impact on the economic cycle? If so, are these effects economically relevant? Through what economic channel do effects materialise? There are good reasons to believe that surprise election results may impact the economic cycle. Unexpected changes in the incumbent government, the structure of the governing coalition, or even changes in the balance of powers in parliament may each increase uncertainty over the policy preferences of a newly constituted government after an election, at least in the short term. As a result, firms and consumers may adjust their behaviour in the wake of an electoral surprise. For example, firms anticipating policy changes may defer capital investment due to heightened economic policy uncertainty (Bloom et al., 2012; Baker et al., 2016) or perceived political risk (Hassan et al., 2019). Consumers are also known to anticipate policy changes, which can have effects on business cycles.[1] Given the importance of the expectation channels for economic decisions of individuals (Roth and Wohlfart, 2020) and firms (Link et al., 2023) and given the relevance of information shocks shaping expectations (Coibion and Gorodnichenko, 2012, 2015; Coibion et al., 2018), it is not surprising to expect that a surprise election result may impact the economic cycle.

How can one measure the extent to which an election result contained an element of surprise? We build a new dataset that combines data from around 13,600 opinion polls, covering 233 elections in 51 countries around the world with actual election results down to the individual party or candidate level. The resulting data cover more than 100,000 party- or candidate-level estimates of voting intentions matched to the respective actual party- or candidate-level election result. This allows us to construct an election-specific surprise measure as a *residual*: the difference between the *ex-ante expected* vote shares of parties or candidates in polls just prior to the day of the vote with the *actual* vote share that parties or candidates achieved.[2] We aggregate this party- or candidate-level measure of the *amount of surprise* into an election-level measure of the average absolute difference between poll forecasts and actual election results. We use this measure in a flexible difference-in-differences and event-study

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[1]The effects of (un)anticipated policy changes on economic behaviour has been studied in a variety of contexts. Mertens and Ravn (2012, 2013) analyse the economic effects of tax policy changes in the US. Browning and Collado (2001) use Spanish data on *anticipated* income changes and find evidence consistent with standard consumption smoothing. Hsieh (2003) reaches a similar conclusion in his study of Alaska's Permanent Fund, but also finds evidence that household consumption is sensitive to smaller and irregular income tax rebates.

[2]The nature of polling errors across countries and over time has been studied in the literature (see Jennings and Wlezien, 2018; Shirani-Mehr et al., 2018). To the best of our knowledge we are not aware of literature that has studied the explicit impact on the economic cycle.

framework to study a range of macro-economic outcomes. Furthermore, we analyse in detail the mechanisms through which this measure of the extent of an election surprise affects the economic cycle.

We highlight four key findings. First, the extent of a surprise election outcome has a noticeable negative short-term impact on economic activity. Using an event-study framework leveraging data from quarterly national accounts in a large sample of countries, we show that GDP growth declines in the quarters following an election, and the maximum effect of an election surprise occurs around one year after the vote. Our empirical estimate suggest that a one percentage point increase in the average polling surprise is associated with a 0.37 percentage point lower year-on-year growth rate one year after the election. Second, we show that this effect is only present in strong democracies. We do not detect an impact of surprise election results on economic performance in countries that hold elections that are considered to be weak democracies or autocracies. This is not surprising and may also be seen as a natural *placebo test* to the main hypothesis we are testing. The information shock that a surprise election result has on the economy should only be materially relevant in countries where policy-making is based on informed processes that would generally be considered to be democratic. Third, we explore the potential channels behind this finding for strong democracies. We show that election surprises are associated with significant short-term declines in investment growth and simultaneous *increases* in economic policy uncertainty. This result is consistent with the growing literature that documents the close link between (economic) policy uncertainty and firm-behaviour (Bloom, 2009; Bloom et al., 2012; Baker et al., 2016; Ahir et al., 2018). Fourth, going further into the mechanisms, we classify parties as left-wing and right-wing and construct ideology-specific election surprises. This allows us to test whether the extent of the election surprise has a heterogeneous effect on economic activity by political orientation. Indeed, we show that left-wing electoral surprises drive our main results. In addition, we show that the effects of election surprises are strongest for political transitions from right-wing to left-wing parties. We find that around such transitions, the likelihood that the new government enacts legislation that could improve investor protection and broaden access to credit is decreasing in the extent of the electoral surprise. This points to an indirect channel through which election surprises of left-leaning parties may effectively impose a constraint limiting the feasibility of often important structural reforms.

The results are robust to a wide array of checks. We can drop elections whose timing may not be exogenously determined and control for the standard deviation

of election polls. In addition, we show the results are not driven by any individual country in our sample and also robust to iteratively dropping decades of elections from our sample.

This paper contributes to several strands of the literature. There is by now a broad literature that studies how economic policy uncertainty impacts firms and stock markets (see Bloom et al., 2012; Baker et al., 2016). Bialkowski et al. (2008), for example, use data from a sample of 27 OECD countries to study the effects of national elections as a driver of return volatility. In a similar fashion, Boutchkova et al. (2012) show that election uncertainty is associated with higher idiosyncratic volatility. Julio and Yook (2012) document that firm-level investment drops prior to an election, and recovers in the post-election period. Redl (2020) identifies macro uncertainty shocks for 11 countries using narrative sign restrictions around close elections. These shocks can explain a large share of GDP fluctuations, particularly acting through an investment channel. Baker et al. (2020), which is closely related, show that economic policy uncertainty (EPU) peaks around national elections and particularly, around close elections. This paper extends their work by constructing a poll-based continuous measure of the *amount* of the surprise in a large panel of countries and using this in a linked exercise, studying the impact not only on EPU but also on the actual economic outcomes, along with providing some characterisation of the mechanism through the composition and characterisation of the election surprise.

This paper is also related to the literature that studies in detail some of the recent most notable surprise election results – often benefiting populist platforms – and their economic consequences. This literature most notably focuses around the surprise vote for Brexit in the United Kingdom in 2016 and the election of Donald Trump in the United States in the same year. In both cases, (trade) policy uncertainty shot up sharply and produced policy changes that exacerbated many of the existing cleavages that have been identified as drivers of populist success (for the Brexit case, see Hassan et al., 2019; Born et al., 2019; Fetzer and Wang, 2020; and Fajgelbaum et al., 2020; Amiti et al., 2019; Fetzer and Schwarz, 2021; Born et al., 2021 for the case of Trump). This paper is different in that it does not perform a specific country case study. Rather, it more generally asks, across a large sample of countries and elections, whether the *extent of the election surprise* is an important factor driving both the increases in policy uncertainty, and negatively affecting real output through its impact on capital formation. Funke et al. (2022) provide some cross-country evidence documenting the large economic cost burden of populist leaders. The underlying data points to the more widespread prevalence of left-wing populist surprises, at least

in the historical data. Our analysis of the mechanisms suggests that the extent of a surprise around transitions to left-wing governments are particularly adverse for the economic cycle. Our analysis of reforms data is suggestive of the underlying mechanism: the bigger the electoral surprise win of a left-leaning incoming government, the less likely is that government to enact structural reforms that improve the functioning of capital markets. Focusing on a specific important policy area, for example, Ramelli et al. (2021), show how the surprise election of Donald Trump in the 2016 caused an unexpected climate policy shift. We further contribute to this research by documenting a systematic relationship between surprise elections, economic policy uncertainty, and declines in investment. We further dig into some of the details of the underlying mechanism studying the (lack of) reforms.

Third, this paper relates to a wide literature studying the economic consequences of partisan election victories. Snowberg et al. (2007) document how a higher likelihood of a George W. Bush re-election in 2004 was associated with higher equity prices, potentially reflecting expectations over an expansionary fiscal policy in the future. Generally, in the study of partisan victories, a key concern is the simultaneity between economic and election outcomes. It is well-documented that economic factors affect voter behaviour (Lewis-Beck and Stegmaier, 2000). A common approach has been to use regression discontinuity (RD) design, comparing economic outcomes in 'close' elections (see de la Cuesta and Imai, 2016 for a review of the regression discontinuity based literature). Most of this literature studies individual country case studies. For example, Gouvea (2020) study fiscal policy in Brazilian municipalities; Beland (2015) studying labour market outcomes in US states; Ferreira and Gyourko (2009) studying partisan effects of elections in US cities; and Pettersson-Lidbom (2008) on Swedish local governments. A recent exception is Girardi (2020) and Marx et al. (2022) who study larger samples and find contrasting results. Similar to the findings in this paper, Girardi (2020) finds that left-wing victories are associated with short-term decreases in stock markets, while Marx et al. (2022) find *positive* effects of electoral turnover on economic activity. While we share a cross-country approach studying a large set of elections across many countries, this paper is different. We study to what extent the *surprise* associated with the vote relative to ex-ante expectations may by itself have an independent effect on subsequent economic performance and economic reforms. We present some evidence on the *absence of structural reforms* pertaining to capital market functioning that is increasing in the extent of the surprise performance.

Finally, our paper relates to the literature on economic reforms around the elec-

tion cycle. A recent paper to address precisely this topic is Alesina et al. (2020). The authors introduce a new dataset of structural reforms for 90 countries over a 40 year period. Their results suggest voters punish incumbents for liberalisation reforms in the year ahead of the election, likely due to the long lag between implementation of reforms and their economic effects. In addition, Alesina et al. (2020) argue that voters struggle to separate the effects of the business cycle from those of reforms, often with negative consequences for incumbents. Another interesting paper is Conconi et al. (2014), which studies the effects of election timings on support for trade liberalisation by US Congressmen. Near the end of their mandate, congressmen display a significantly higher protectionist stance, likely to help their re-election chances. In the current paper, we provide an additional dimension to this literature. In particular, we use Business Ready (formerly Doing Business) data to show that surprise polling errors influence the policies implemented in the post-election period. We find that electoral surprises in right-wing to left-wing transitions are associated with lower likelihood of reforms which protect investors and support access to credit.

The rest of the paper is structured as follows: Section 2 introduces the data sources, and our new measure of electoral surprises. Section 3 discusses our empirical approach and presents the main results. Section 4 presents further evidence on the underlying mechanisms and some exploration of heterogeneity of effects. Finally, Section 5 concludes.

## 2   Data

We present a visual representation of the dataset assembly in Appendix Figure A1. We next walk through each of the data components and explain how they are integrated.

### 2.1   Elections dataset

We compile a new dataset that combines election results with voting intentions from polls carried out prior to each election. The combined data allow us to construct an election surprise measure. This dataset covers 233 elections across 51 countries over the period 1980-2020.[3] For each country, we focus on elections that determine *executive power*. For example, in the case of Germany or the UK, we consider elections for the national parliament, while in the United States it would be the presidential election. For each election, information on the voting intentions for individual parties is collected in the weeks and months leading up to the vote. In total, we collect data

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[3]The most recent election in our data is from January 2020 (Taiwan), so our results do not cover the Covid-19 pandemic period.

from around 13,600 opinion polls and more than 100,000 voting intention estimates for individual parties or candidates.

(Figure 1)

**Election characteristics** We collect further information on a range of election characteristics. First, naturally, we track whether the election is a parliamentary or presidential vote. Around two-thirds of the elections (152 of 233) in our sample are parliamentary elections. Second, we record whether the election is predetermined with respect to the constitutional term limits of the country, or whether it is a 'snap election'. This way we can carry out a robustness check dropping elections for which there may be concerns that the timing of the election is endogenous to the economic cycle. These may also influence the polling accuracy, if agencies do not have time to conduct enough surveys. In total, there are 46 'snap elections' in our dataset. Third, we collect data on voter turnout for each election. The majority of these data are taken from the IDEA Voter Turnout Database.[4] For the remaining elections, we code these using a variety of sources. We also collect data on the name of the incumbent and election winner, both at the individual level (i.e. chief executive) and the party-level. This will enable us to study the extent to which surprises associated with turnover events and specific types of transitions have differential effects on the economic cycle.

**Political orientation** Finally, we encode the political orientation of parties in our sample. In particular, we focus on the ideological position on the left-right spectrum. We test whether election surprises have different economic impacts depending on whether they originate from left-wing or right-wing parties.[5] We use party orientation data from the Parliaments and governments (Parlgov) Database, and link it to our elections data.[6] This database contains party classifications across a number of dimensions for most European and OECD countries. The left-right classification is on a 0-10 scale, where a higher number is associated with a more right-wing leaning. We make a binary distinction between parties, treating those with a score above five as right-wing, and those below five as left-wing.[7]

**Election and polling data characteristics** We next characterise the sample of countries and elections that we use to build our balanced panel. In terms of geographic

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[4]Data accessed from here: https://www.idea.int/data-tools/data/voter-turnout.

[5]Indeed, this has been explored in the literature. For example, Girardi (2020) shows that in 'close' elections, left-wing surprises have negative short-term effects on stock market outcomes.

[6]The Parlgov data are accessed from here: http://www.parlgov.org/

[7]A small number of elections are not covered in Parlgov dataset. For these, we refer to multiple online sources to identify the ideology of the political parties.

coverage (see map in Figure 1, Panel A) our data cover countries in each continent. The map also classifies countries into 'strong democracies' and 'weak democracies/autocracies' based on data from Polity IV using our coding strategy defined below. Overall, not surprisingly, the data are skewed with particular dense coverage of Europe, North America, and South America. Countries in Europe are mostly classified as strong democracies, whereas countries in South America have weaker institutional quality over the sample period. Appendix Table A1 tabulates the number of elections in the dataset for each country. In terms of temporal coverage, most elections for which we have granular polling data as well as election results data is coming from the most recent decade, for both classes of institutional quality (see Figure 1, Panel B). These features of our dataset are primarily explained by two factors: (i) data on election polls are not readily available for many countries in Africa and Asia and difficult to find for elections further in the past and (ii) a number countries in the latter continents do not hold regular democratic elections. Nevertheless, in robustness exercises, we show that the results are not driven by any specific country (Figure A7) and are also robust to dropping the 2010s from our estimation sample (Table A11).

**Balanced panel construction** We construct a balanced panel dataset that allows an event-study estimation. As panel identifier we consider each country $\times$ election pair. That is, we centre the data around each election event specific to each country. Around each election event we construct a time indicator that measures the number of quarters relative to the quarter in which the election is held. We focus mostly on an eight-quarter time window around an election event. The result is a balanced election $\times$ time-to-election panel. This election identifier serves as a fixed effect in our main specification. This means that for countries for which we have multiple elections in our sample, we allow the country fixed effect to be a different one around each election that is contested. This is a reasonable since its hard to make a convincing case that country fixed effects would remain stable across elections. Naturally, each time-to-election time indicator matches to an actual year and quarter pair by country. This is used to merge the economic data pertaining to each country and quarter.

As indicated, we focus mostly on an eight-quarter time window around every election, and populated with economic data and the *constant* election surprise, as calculated in Equation 1 and described in detail next. The result is a balanced election $\times$ time-to-election panel. In two cases, there is an overlap in event windows. First, whenever an election is in two rounds. Second, whenever there are multiple elections within a year. Both of these occur only a few times in our sample, and the results are

robust to dropping these elections.

## 2.2 Election surprise measure

To construct an election surprise measure, we proceed in several steps. First, we narrow the number of polls to consider around each election. Since this measure is intended to capture a deviation from expectations, it is sensible to focus only on surveys in proximity to the election date. Therefore, for our main measure, we consider polls within 15 days of the election.[8] Our election surprise measure is calculated as:

$$Election\_Surprise = \frac{1}{P}\sum_{i=1}^{P}\left\{\frac{1}{N}\sum_{j\in\mathcal{M}_{15d}}^{N}|Election\_Outcome_i - Election\_Poll_{ij}|\right\} \quad (1)$$

For each political party, $i$, and election poll, $j$, within the 15-day interval $\mathcal{M}_{15d}$, we calculate the average absolute deviation. These deviations are then averaged across the $P$ parties contesting the election. In this way, we capture the aggregate polling error without taking a stand on whether the polls under-estimate or over-estimate the outcome for individual parties. Finally, we winsorise our measure at the 5th and 95th percentiles in order to control for the influence of very large polling errors in our estimation. The measure presented in Equation 1 closely follows the literature that produces macroeconomic surprise measures based on forecast-errors of macroeconomic aggregates (see Scotti, 2016; Rossi and Sekhposyan, 2015).

**Characterisation of election surprise measure** The average election surprise in our full sample is 2.2%. Figure 1, Panel C shows the average surprise based on our methodology across the four decades of our data, also splitting the sample also across strong versus weak democracies/autocracies. The average polling error has decreased over time for both subsets, from 2.5% (3.3%) in the 1980s to around 1.7% (2.6%) in the 2010s for strong democracies (weak democracies/autocracies), respectively. This is consistent with the findings in Jennings and Wlezien (2018). The largest election surprise across all elections is 5.1%, while the smallest is 0.7%.

To provide a specific example of our measure, consider Figure A2, which shows the election polls leading up to the second round of the 2017 French presidential election between Emmanuel Macron and Marine Le Pen.[9] The election was held on 7 May 2017. It is clear from the figure that there was little to no uncertainty regarding the eventual winner of the presidency. Nevertheless, polls significantly

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[8]In the very few cases where no poll is available in the last 15 days before the election, the last available poll is used.

[9]As a side note, this election also resulted in an ideology transition, from the *Parti socialiste* of François Hollande to *La République En Marche!* led by Macron.

undervalued Macron's victory, even in the last days before the vote. The average prediction in the polls in the last 15 days was around 61%, whereas Macron ultimately won 66.10%. Based on the definition presented above, the value of the electoral surprise for this election is 5.1%. In Section 3 we systematically analyse whether such electoral surprises can have short-term economic effects.

In Table A4 we conduct a simple correlation exercise to characterise what drives the variation in our election surprise measure. We focus on a range of election characteristics, such as turnout, government system, and incumbent change. Two results stand out: first, countries categorised as 'strong democracies' (defined below) have significantly smaller electoral surprises. This may be due to fewer number of polls available in less democratic countries, or less developed polling methodologies. Indeed, as shown in Figure A3, election surprises are much more dispersed in less democratic countries. The second result is that presidential elections have higher election surprise measures, on average, compared with parliamentary votes. This result has also been discussed in the literature, for example by Jennings and Wlezien (2018). The authors argue that polling errors tend to be smaller in legislative elections, on average, because voters' preferences become fixed earlier in the election cycle compared with presidential elections. We find that election surprises are around 0.5 percentage points larger in presidential election compared with legislative votes. Interestingly, our election surprise measure does not vary significantly with any of the other election characteristics we collect, including whether it is a 'snap election' and the voter turnout.

**Politically signed election surprise** In addition to the main election surprise measure, the categorisation of political parties by ideology allows us to create *separate* left-wing and right-wing election surprise measures using the approach from Equation 1. Figure A4 presents the distribution of the left-wing and right-wing surprises and Figure A5 is a binned scatter plot demonstrating the relationship between these surprise measures. Clearly the two are positively related, but left-wing and right-wing surprises are not perfectly collinear. In Section 4.3 we study the effects of elections surprises stemming from right-wing and left-wing parties separately.

The various election surprise measures are merged on to the balanced election × time-to-election panel as a cross-sectional characteristic that is specific to each election. We next describe the macroeconomic data that we consider for the analysis that is merged to the balanced panel.

## 2.3 Economic outcome data

We use two main sources of data in order to analyse the effect of electoral surprises. First, we use data from the Economist Intelligence Unit (EIU). This source contains quarterly data on macroeconomic variables across 200 countries since 1993. The underlying data are typically sourced from the Quarterly National Accounts that are produced by statistical offices. We collect data on six series in particular: (1) Real GDP, (2) Gross Fixed Investment, (3) Private Consumption, (4) Government Consumption, (5) Exports of Goods and Services, and (6) Imports of Goods and Services. For all measures, we use year-on-year growth rates at the quarterly frequency in our regressions. Table A3 shows the summary statistics for these variables. The data cover over 3,000 quarterly observations across 45 countries in our full sample.

Second, we use data on economic policy uncertainty (EPU), as constructed by Baker et al. (2016). Economic policy uncertainty is calculated using keyword searches of newspaper articles for terms corresponding to three topics: (1) economic topics, (2) policy topics, and (3) uncertainty. The data are currently available at the monthly level for 20 countries in our sample.[10] We aggregate these series to the quarterly level, and use year-on-year log changes in EPU as our main measure of uncertainty.

From the economic outcome data, we obtain a panel dataset at the quarterly frequency level for each country.

## 2.4 Economic reform data

To study underlying mechanisms through which election surprises affect the economic cycle we use data from Doing Business (DB) on regulatory reforms across multiple dimensions.[11] The data are available for all countries in our sample over the period 2003-2020 at the yearly frequency. In the analysis, we analyse the effects of electoral surprises on ten reform categories: (1) Starting a business, (2) Dealing with licenses, (3) Getting credit, (4) Protecting investors, (5) Paying taxes, (6) Trading across borders, (7) Enforcing contracts, (8) Employing workers, (9) Registering property, and (10) Resolving insolvency. Each category is an indicator for whether a reform was passed in that area in a given country-year. As we show in Section 3, electoral surprises have a significant effect on the likelihood of several categories of reforms, particularly in the case of right-wing to left-wing ideology transitions.

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[10]The data are accessed from: http://www.policyuncertainty.com/index.html

[11]See https://www.worldbank.org/en/businessready

## 2.5 Political institution data

Lastly, and mostly for purposes of allowing for split sample estimation, we use data on institutional quality from the Polity IV database of regime characteristics.[12] As our baseline measure, we use the *polity2* score of democracy/autocracy. This is a composite index, considering four features of a country's regime: (1) competitiveness of executive recruitment, (2) openness of executive recruitment, (3) constraints on the chief executive, and (4) competitiveness of political participation. The index is constructed on a scale from -10 to +10. We calculate a country's institutional quality around each election as the average *polity2* score in the three years up to the vote. Country-election years are classified as 'strong democracies' if the average score is above 9.[13] Table A2 tabulates the number of elections by country that satisfy this criterion. In total, 138 elections (60% of our sample) can be classified as taking place within a strongly democratic institutional framework.

# 3 Empirical approach and main results

## 3.1 Empirical specification

We estimate a flexible difference-in-differences design using an event study framework. This allows us to visually present the estimated effect of our election surprise measure at different points before and after an election. We also present results in tabular form. To estimate the effects of the election surprise at each point in the window, we run the following specification:

$$y_{i,t} = \alpha_i + \lambda_t + \beta_q + \sum_{t=-8}^{8} \eta_t \times Election\_Surprise_i \times Quarters\_to\_Election_t + \epsilon_{i,t} \quad (2)$$

In Equation 2 above, $i$ denotes the election, $t$ is the time-to-election in the eight-quarter window, and $q$ is the quarter of the data sample. We control for election fixed effects, $\alpha_i$, to capture any time-invariant characteristics in each election window. Note that this is more demanding than including country fixed effects, as there are usually multiple elections per country in our sample. Time-to-election fixed effects, $\lambda_t$, control for common trends in economic variables around elections, such as systematic discretionary spending by incumbent governments to increase support. Finally, we

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[12]Data: https://www.systemicpeace.org/polityproject.html

[13]The Polity IV dataset currently ends in 2018. In order to assign a score to elections in 2019-2020, we take a conservative approach and classify countries during these years as 'strong democracies' if their average polity2 score is above 9 over the entire sample period.

also impose quarterly time fixed effects, $\beta_q$, to account for any common global shocks to economic activity which affect all countries at the same time. The coefficients of interest in this specification are $\eta_t$ which capture the effect of the election surprise on $y_{i,t}$ for the quarters before and after the election. In all cases, the quarter prior to the election (i.e. $t - 1$) is taken as the reference category. Standard errors are adjusted for two-way clustering at the election and quarter level.

**Econometric considerations for event studies** Our focal unit of analysis is an election event and we construct a balanced time window around each election event attaching economic data to said event. This is the correct way of estimating an event study. Yet, it does raise some concerns around inference that the recent emerging difference-in-differences literature has also raised (see e.g. Borusyak et al., 2021). One specific concern is that some countries may be given implicitly more weight in the estimation if time periods overlap. For example, for a specific election event, the four quarters prior to an election may be the post-election period in a previous event. This is not a concern for our analysis here, because in most instances, elections are at least 16 quarters apart from one another given that elections occur on rather fixed schedules. Our results are robust to dropping elections where there may be concerns that the timing of the election is not exogenously determined by the previous election. Furthermore, there are two instances where there is an overlap: first, whenever an election is in two rounds. Second, whenever there are multiple elections within a year. Both of these occur only a few times in our sample, and the results are robust to dropping these elections.

**Pooled difference-in-differences** While we present most of our results visually, we also provide a characterisation of results in tabular form. We obtain this by pooling the post-election estimated effects on the interaction terms $\widehat{\eta}_t$ into a single point estimate by estimating:

$$y_{i,t} = \alpha_i + \lambda_t + \beta_q + \eta \times Election\_Surprise_i \times Post_t + \epsilon_{i,t} \tag{3}$$

In contrast to Equation 2, there is a single coefficient of interest in the difference-in-differences specification, $\eta$. This captures the average effect of the election surprise in the post-election period $\widehat{\eta}_t$ .

We proceed by presenting the main results.

## 3.2  Main results

We first analyse the effect of election surprises on GDP growth using the full sample of elections in our dataset. Figure 2 presents an event study of the main effect

in visual form. As seen in the figure, there is no significant effect of our election surprise measure in the quarters prior to an election, nor is there a clear trend in the coefficients during this period. This is reassuring, as the electoral surprise is realised on election day. However, in the quarters following an election, we begin to see a negative effect of election surprises on economic activity. This effect is not immediate, but builds over several quarters and is strongest in the third and fourth quarter after an election. The coefficient on $t + 4$ suggests that a one percentage point increase in the average election surprise is associated with a 0.37 percentage point lower year-on-year growth rate one year after the election. Furthermore, we find that these effects are short-lived, and again become insignificant more than a year after an election.

(Figure 2)

Table 1 presents the results of election surprises on GDP growth using the pooled difference-in-differences estimates. The first three columns estimate the regression using a balanced four-quarter window on each side of an election and increasingly add more demanding sets of fixed effects. The estimates of $\eta$ are significant across all three columns and largest quantitatively in Column 3, which includes election, quarterly, and time-to-election fixed effects. The coefficient implies that a one percentage point increase in the election surprise is associated with a 0.25 percentage point lower GDP growth in the four quarters following an election. Columns 4 and 5 increased the window size to $\pm 6$ and $\pm 8$ quarters, respectively. The coefficient estimates do not change drastically in these two specifications, although the estimate is no longer statistically significant in Column 5. This is likely due to the fact that election surprises seem to have the strongest effect in the first four quarters following an election, as shown in Figure 2. However, as we will also show, there is substantial heterogeneity in these estimates depending on the institutional quality of a country during an election year. In Table A5, we present our main results after standardising the electoral surprise measure to have zero mean and unit standard deviation. Column 1 shows that across all election, a one standard deviation increase in the electoral surprise is associated with around a 0.29 slower GDP growth, on average, in the four quarters following an election.

(Table 1)

**Heterogeneity or placebo test** To analyse the heterogeneity of the effects by institutional quality, we use data from the Polity IV database, as outlined in Section

14

2. We classify countries as 'strong democracies' when their average *polity2* score is above 9 in the three years prior to an election. Taking a slower-moving average value helps address potential concerns that institutional quality may be endogenous to the election cycle. Figure 3 presents event studies using this split.

(Figure 3)

As seen in these event studies, there is a clear difference between the effects of electoral surprises for strong versus weak democracies. In strong democracies (Panel A), we see a similar effect to Figure 2: there is no clear trend pre-election and the coefficients are weakly positive and largely insignificant. However, there is a clear negative effect of election surprises on GDP growth in the quarters following an election, with a peak effect around one year (or four quarters) following the vote. Furthermore, the effects on strong democracies are quantitatively more significant than what we observed in the full sample. Four quarters following a vote, a one percentage point increase in the election surprise is associated with a 0.78 percentage point decline in year-on-year GDP growth, more than twice as large as the effect in the full sample. This suggests that there is indeed some heterogeneity in the effect of election surprises by institutional quality.

An alternative way to interpret this exercise is that this constitutes a natural *placebo test*. In other words, there may be several reasons why the effects of electoral surprises are uniquely a phenomenon observed in countries with high levels of institutional quality. First, it may be due to the measurement of our election surprise. As shown in Appendix Figure A3, our election surprise measure is significantly more dispersed in countries with relatively low institutional quality, and may therefore contain more noise. This may also be due to the number of polls available for a given election. Second, it may be due to the fairness of elections in less democratic countries. If elections are not carried out in a transparent and fair nature, there may be less scope for truly 'unexpected' deviations from polls, which would explain why we do not observe an effect in this sub-sample of countries. Finally, the absence of an effect in weak democracies could be due to the quality of the economic data for these countries. For example, Martinez (2022) argues that there are good reasons to believe autocracies overstate GDP growth measures. If this happens systematically also around elections, it may contribute to the insignificant results in our specification.

(Table 2)

To ease the quantification of the effect, we present the results also in tabular form in Table 2. Columns (1)-(3) present the results for strong democracies, while Columns

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(4)-(6) present the results for weak democracies. As suggested by the event studies, we see a highly significant effect in strongly democratic countries: a one percentage point increase in the aggregate election surprise measure is associated with around a 0.6 percentage point decline in GDP growth following an election. This result is robust to using four quarter, six quarter, and eight quarter election windows, and the magnitude of the effect is more than twice as large as the average effect presented for the full sample in Table 1. In contrast, the estimated coefficients are close to zero and insignificant in the sub-sample of weakly democratic countries (Columns 4-6).[14] The effects of the standardised electoral surprise are similar to the ones in the baseline: a one standard deviation increase in the electoral surprise is associated with a 0.7 percentage point lower GDP growth in strong democracies, and no significant effect in weak democracies/autocracies (Columns 2 and 3 in Table A5).

In summary, this section presents two main results. First, we show that election surprises - defined as average deviations of election outcomes from election polls - can have a significant effect on economic activity following an election. This effect materialises in the quarters following a vote and is strongest around one year following an election. Second, we show that the effects of electoral surprises are only present in countries with high institutional quality, defined using data from the Polity IV database. In contrast, countries with weak democracies exhibit no similar effect. This may be interpreted as a natural placebo test. Before we discuss the underlying mechanisms that are at play we discuss a range of robustness checks that we carry out.

## 3.3 Robustness

In this section, we provide a range of natural robustness checks. These document that results are robust to alternative ways of constructing the 'election surprise'; alternative sample cuts; and not driven by specific country- or time periods.

**Alternative election surprise measures** First, we examine the robustness of our results to different variations of the 'election surprise' measure. Our baseline measure takes the average absolute deviation between outcomes and polls across all political parties, using polls in the 15 days prior to an election. Table A12 presents several alternatives. In Panels A-D we experiment with different windows for selecting the

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[14]Even though we do not find a significant effect of electoral surprises on growth outcomes in weak democracies and autocracies, political and economic outcomes have been shown to exist in different settings. For example, using leadership transitions due to death or accident, Jones and Olken (2005) show that there are significant effects of turnover on growth outcomes, and particularly in autocratic countries. Similarly, Arezki and Fetzer (2019) find a stronger relationship between political instability (proxied by political turnover at the cabinet level) and growth for non-democratic countries.

polls, ranging from the last 10 days prior to an election (Panel A), only the last two polls (Panel B), only the last three polls (Panel C), and only keeping polls from the election month. In all of these cases, the results remain robust and quantitatively similar, suggesting our findings are not sensitive to a specific window. Finally, in Panel D we keep only the election surprise measures of the two largest parties in an election (based on the election outcomes). Economic activity may be more sensitive to the unexpected outcomes of larger parties, as they have a higher likelihood of being in power and shaping policy. Interestingly, the results suggest that the effects of electoral surprises are smaller quantitatively when focusing on the largest parties only (although still statistically significant). Therefore, it appears that unexpected shifts across all political parties matter in driving our results. This could be because our sample of strong democracies is composed mainly of parliamentary democracies, where many parties can have an influence.

**Coding of strong democracies** One of our main findings is that the effects of electoral surprises are much stronger for 'strong democracies' compared with weak democracies and autocracies. One could consider this as a natural placebo test as only in functioning strong democracies would we expect that elections are economically meaningful and where surprises may produce (unexpected) variation in economic policy that have an impact on the economic cycle. In our analysis, we used the *polity2* index from the Polity IV database to obtain that sample split. In Table A10, we test the robustness of our results to different measures of 'strong democracy'; specifically, we use the indices for 'executive constraints' (*xconst*) and 'political competition' (*polcomp*) from Polity IV. We define 'strong executive constraints' as countries which have an average *xconst* value above 6 (out of 7) in the three years prior to an election. Similarly, we define 'strong political competition' as countries which have an average *polcomp* value above 9 (out of 10) in the three years prior to an election. Our main result remains robust to these alternative measure: we find negative and highly significant effects of electoral surprises on GDP growth in countries with strong institutional quality.

**Sensitivity to specific elections** In Table A14 we examine the robustness of our results to dropping different subsets of elections in our sample. For reference, Column 1 presents the baseline result for all elections using a four-quarter election window. In Column 2, we drop elections with re-scaled polls in our sample. Polling data for some elections are reported also including categories such as 'Don't know', which can be non-negligible in magnitude. In total, 74 of the 233 elections in our sample have such polling data. Calculating deviations between polls and election outcomes

based on raw voting intentions in these cases would lead to unreasonably large errors. Therefore, we re-scale the polls in these elections, excluding the extraneous categories. Nevertheless, this process can create additional noise in our measure. However, as shown in Column 2, dropping these elections does no change the interpretation of our findings, and if anything, it makes the point estimate stronger. In Column 3 shows that the main results are also robust to dropping two-round elections. These occur in presidential elections in our sample, and create overlap between our balanced election windows. Still, the main results are broadly unchanged after dropping these elections. Finally, Column 4 drops 'snap elections' from our sample. 'Snap' elections are those which occur prior to the ending of the regular term of the incumbent. These elections may create additional political uncertainty, which could affect our estimates. However, we show that the effects on economic activity are robust even when focusing only on the sub-sample of planned elections.[15]

**Mean versus variance of election surprise measure** One concern with our approach is that we may be conflating the effects of the average election surprise measure with the variance of the polls (i.e. the first versus the second moment). Thus, a larger election surprise measure may simply be a indication that polls were more uncertain leading up to the election. We try to address this by first calculating the standard deviation of the election surprise measures at the political party level for each election. Indeed, the first and second moments are correlated, with a correlation coefficient of 0.65. Then, in Table A13, we test the effects of both election surprise and election surprise standard deviation in our main difference-in-differences specification. We find that once we control for the average election surprise measure, the effects of the second moment are no longer statistically significant (and indeed also have the opposite sign). Thus, we conclude that our results are primarily driven by variation in the first-moment of the electoral surprises.

**Iteratively dropping countries/time periods** Our results are not driven by any peculiar combination of countries or time periods that we consider. To show this, we iteratively drop countries and time periods from our estimation sample and re-estimate the main pooled difference-in-differences coefficient. Appendix Figure A7 presents results dropping countries one-by-one from the sample. Each coefficient corresponds to the estimate without the country specified on the horizontal axis. The point estimates are similar across all regressions and significant at the 5% significance level,

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[15]Strictly speaking, the sub-sample of 'planned' elections covers countries where elections come at the intended term limit, and countries where snap elections are not possible (e.g. US, UK under the Fixed-term Parliaments Act of 2011 (repealed in 2022).

suggesting that our main findings are not driven by a specific country. Appendix Table A11 presents a similar exercise except that here we drop data pertaining to different decades. This may be particularly salient if there are concerns that the results may be driven by a specific time period (e.g. Global Financial Crisis). Panels B and C suggest that the results are broadly unchanged when dropping elections in the 1990s and 2000s, respectively. Importantly, even after dropping elections in the 2010s (which account for two-thirds of our sample), we still see negative effects of electoral surprises on economic activity.

To summarise, this section presents a number of robustness checks for our main results. We can be confident that our findings are not driven by the specific measurement of our electoral surprise, the specific measurement of institutional quality, or particular countries or time periods in our sample.

# 4   Mechanisms and Heterogeneity

In this section we discuss the underlying mechanisms that are at play. We focus here exclusively on the subsample of countries that are strong democracies, for which a first order effect was documented.

## 4.1   Economic Policy Uncertainty and Investment

The effects of election surprises on GDP growth we show in the previous subsection could be driven by one or more components of GDP. It may be driven by lower consumption, changing government spending following an election, lower investment, or a changing balance of trade. We test the hypothesis that the electoral surprises operate mainly through an uncertainty and investment channel. Previous literature has shown significant impacts of both economic policy uncertainty (e.g. Baker et al., 2020) and firm investment (e.g. Julio and Yook, 2012) around national elections. We use data on Economic Policy Uncertainty (EPU) and Gross Fixed Investment growth (as outlined in Section 2) to test the effects of election surprises within our empirical framework.

Figure 4 presents the effects on investment and EPU for the sub-sample of strong democracies. The impact on investment (Panel A) is similar to what we have already seen for GDP growth. There is no significant effect of our election surprise measure in the quarters prior to an election. However, following an election, there is a clear negative effect on investment growth, which becomes strongest around one year following the vote. These effects remain statistically significant up to five quarters post-election. Quantitatively, the effects on investment are much stronger than

those on GDP growth: a one percentage point increase in the deviation of polls from election outcomes is associated with a 2.9 percentage point lower annual investment growth in the third quarter following an election, $t + 3$. This is likely due to the much more volatile nature of investment, in general.

(Figure 4)

In Panel B of Figure 4 we present the effects on Economic Policy Uncertainty. The dependent variable in this event study is similarly defined as the year-on-year $\Delta \ln(EPU)$. We find a clear effect of election surprises on EPU in the quarters following an election. In particular, the event study suggests that EPU increases significantly in the election quarter itself, before reaching a maximum effect three quarters following the election. Naturally, as the EPU measure is based on newspaper articles, this measure can respond much quicker to surprise events compared with more standard economic variables. Nevertheless, the timing of the effects on EPU broadly match those seen on investment behaviour, with the effects fully unwinding by the eighth quarter following an election.

In Table 3, we present the results of election surprises on investment and economic policy uncertainty as pooled difference-in-differences estimates. These allow for easier quantification of the average effect presented in visual form in the event studies. The results are highly significant across all three event window sizes, with the strongest effects in the four-quarter window (Columns 1 and 4). The coefficients suggest that a one percentage point increase in the election surprise is associated with around a three percentage point decline in investment growth and a 7% increase in EPU growth, on average, in the year following an election.[16]

(Table 3)

## 4.2 Decomposition of GDP growth into components

The effects of electoral surprises do no necessarily have to affect economic activity only through lower investment growth. Rather, they could operate through a multitude of channels. A natural exercise is to decompose the GDP as measured by the expenditure view through its additional sub-components: Private consumption, Government consumption, Exports and imports of goods and services.

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[16]Similarly, for the standardised electoral surprise, we find that a one standard deviation increase in the election surprise is associated with a 3.5 percentage point decline in investment growth in the year following an election and an 8% in Economic Policy Uncertainty (Columns 4 and 5 in Table A5).

Appendix Figure A6 presents these results pertaining to each of these additional macroeconomic variables in visual form. As before, the different dependent variables are defined as year-on-year growth rates at the quarterly frequency. The coefficients on private consumption (Panel A), exports (Panel C), and imports (Panel D) are generally negative in the quarters following an election, however they are mostly statistically insignificant and much less clear than the effect on investment growth. Interestingly, the effects on Government consumption (Panel B) are the least significant, suggesting our election surprise is not capturing any 'political business cycle' effect (e.g. Brollo et al., 2013; Akhmedov and Zhuravskaya, 2004; Aidt et al., 2011).

Beyond the impact of election surprises on the separate macroeconomic variables presented in Figures 4 and A6, it is also interesting to analyse how these effects map to the aggregate effects on GDP growth. For example, even though the coefficient estimates on investment growth were the largest quantitatively, investment accounts for a relative small share of GDP. To address this, we take the estimated impacts on private consumption, gross fixed investment, government consumption, exports, and imports and scale them by the relative contribution of each component in GDP across the countries in our sample. These shares are calculated using the average shares in 2019, weighted by population, using data from the Penn World Tables. On average, private consumption accounts for 60% of GDP, gross fixed investment accounts for 21%, and government consumption 17.5%. Exports and imports both account for around 29% of GDP across our sample. Using these shares, Figure 5 presents a decomposition of the main effect from Figure 3, Panel A into the five main components of GDP.

(Figure 5)

Several insights can be made from this decomposition. First, the decomposition seems to fit the aggregate effect (given by the black line) well, with relatively small 'other' bars for most periods in the event window. Second, the figure emphasises the fact that the main driver of the decline in GDP growth following an electoral surprises is investment growth (shown in the dark red bars). Consumption growth also weighs negatively on GDP growth in the post-election quarters, although the contribution is smaller. Finally, we note that the contribution of exports and imports generally go in opposite directions, such that the total impact on net trade from elections surprises is small overall.

In sum, this section shows that the strongest effects of election surprises post-election appear in investment growth and an associated increase in Economic Policy

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Uncertainty. In the next sub-section, we decompose our election surprise measure into surprise movements of left-wing and right-wing parties and compare the effects on economic activity.

## 4.3 Effect of signed election surprises and ideology transitions

So far, we have analysed the impacts of an election surprise defined as the average absolute deviation between polls and outcomes measured over all parties contesting an election. There are good reasons to believe the surprises can have different effects depending on the ideology of the party which experiences the surprise. After all, political parties have different policy platforms and an unexpected outcome may signal an unforeseen shift in policies which impact the economy. Girardi (2020), for example, finds a stronger effect of surprise election outcomes when left-wing parties are estimated to be more 'interventionist' (as opposed to 'market-oriented', using data from the Manifesto Project Database). Similarly, the effect of our electoral surprises may be larger depending on whether the outcome of an election also leads to an ideology transition (from left-wing to right-wing or vice-versa) of the incumbent chief executive party. Having classified the parties in the dataset according to their ideology (see details in Section 2), we test both these hypothesis in this section.

We first test the effects of left-wing versus right-wing surprises on GDP growth using our event study methodology. Figure 6 presents these estimates. The overall shape of the effects looks similar, with largely insignificant coefficients in the pre-election period and a decline in GDP growth associated with larger electoral surprises. Nevertheless, the effects of left-wing surprises (Panel A) are larger quantitatively and statistically significant in three of the first five quarters following a vote. The effects of right-wing surprises (Panel B) are insignificant across the entire post-election window.

(Figure 6)

One reason we see a similar response for both left-wing and right-wing surprises is that these two measures are correlated. To address this, in Appendix Table 4 we estimate the effects of signed electoral surprises, both independently and in the same specification. Although individually, both left-wing (Column 1) and right-wing (Column 2) surprises have significant effects, once we estimate the specification with both surprises together (Column 3), it is clear that the effects of left-wing surprises are the only ones which are statistically significant and quantitatively meaningful. It appears that economic activity is much more sensitive to election result surprises of

left-wing parties compared with their right-wing counterparts. This finding complements previous literature which finds a stronger economic effects of left-wing election outcomes.[17]

(Table 4)

A second way to investigate the partisan effects of elections surprises is to analyse whether these effects are larger whenever there is an ideology transition following an election. Elections where the incumbent party changes from left-wing to right-wing (or vice versa) are likely associated with larger changes in policy platforms compared with cases where the incumbent remains in power or is replaced by another party with a similar stance. Using our ideology classification, we distinguish between elections with (1) no ideology transitions, (2) right-wing to left-wing transitions, and (3) left-wing to right-wing transitions. In Table A7 we analyse the effects on our main election surprise in a triple difference-in-differences design, separating elections depending on the type of ideology transition that took place. In Columns (1)-(3), we separate elections with a right-wing to left-wing transition from those without a right-wing to left-wing transition.[18] Across all three columns, the effects of electoral surprises are more than twice as large in magnitude in elections with a right-wing to left-wing transition. Furthermore, the difference between these coefficients is statistically significant in all three cases, as shown by the p-values reported at the bottom of the table. Still, it should be noted that the coefficients for 'no right-wing to left-wing transition' are still statistically significant, suggesting that our main results are not driven by a small subset of elections where the ideology of the incumbent changed. In contrast, in Columns (4)-(6) we analyse whether there is a differential effect for left-wing to right-wing ideology transition. The coefficients here are much more similar in magnitude, and the difference between them is statistically insignificant. Overall, this table provides complementary evidence that economic activity reacts more strongly when a left-wing party comes to power.[19]

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[17]Table A6 presents the results of signed election surprises on both investment growth and Economic Policy Uncertainty. The effects of left-wing surprises are quantitatively larger than right-wing surprises in all specifications, consistent with our interpretation, although they are less precisely estimated in these regressions.

[18]To be specific, the baseline category contains elections without an ideology transition as well as cases with a left-wing to-right transition.

[19]Table A8 presents the corresponding results on investment growth and Economic Policy Uncertainty when considering the heterogeneity by ideology transition. We find negative effects of election surprises on investment growth both the the case of 'no RW to LW transition' and when there is such a transition (Columns 1-3), although the effects in the latter case are quantitatively much larger. EPU also increases in both cases, although for this measure we do not find a significant difference between the two sets of coefficients.

One reason that economic activity may react more strongly to left-wing surprises or in cases with a transition to a left-wing party is that they are (perceived as) less likely to implement certain types of reforms. We can test this hypothesis using reform data from the Business Ready (formerly Doing Business) database. These data measure whether a country has implemented a reform of a certain category in a given year using an indicator variable. There are ten reform types meant to capture different dimensions of the ease of doing business in a country, ranging from 'dealing with licenses' to 'resolving insolvencies'. In Table A9 we test the effects of electoral surprises on the likelihood of a reform, again separating the effects for right-wing to left-wing ideology transitions. We find significant negative effects of election surprises in two reform types: Getting Credit (Column 3) and Protecting Investors (Column 4).[20] The results suggest that a larger average polling error is associated with a *lower* likelihood of reform being implemented in these categories, particularly in cases with a transition to a left-wing political party. This provides further evidence that electoral surprises affect the economy through an investment channel: in addition to the effects on increased economic policy uncertainty and lower gross fixed investment presented earlier, larger surprises are also associated with a lower likelihood of reforms aimed at boosting investment. The results in Table A9 also suggest there is a weak *positive* effect of election surprises on the likelihood of reforms aimed at enforcing contracts (Column 7). However, we note that the effects are quite similar quantitatively here for both cases of no transition and right-wing to left-wing transition, and indeed the difference between the coefficients cannot be rejected statistically (p-value=0.868).

Overall, this sub-section shows that there is an important partisan dimension to our electoral surprises. Surprise movements of left-wing parties have significantly stronger effects on short-term economic activity. Furthermore, the effects of these surprises are stronger when there is a transition from a right-wing to a left-wing incumbent. We rationalise these results by considering the effects of electoral surprises on the likelihood of economic reforms and find that, when there is a transition to a left-wing party, election surprises are also associated with a lower likelihood of reforms which ease the access to credit or to protect minority investors interests.

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[20]Reforms relating to 'getting credit' are based on the methodology of Djankov et al. (2007) two sets of sub-indices: (1) a legal rights index, which measures "the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending"; and (2) a credit information index, which measures "rules and practices affecting the coverage, scope and accessibility of credit information". Reforms relating to 'protecting (minority) investors' captures the extent to which interests of minority shareholders are protected, and is constructed based on two sub-indices: (1) Conflict of interest regulation index and (2) Shareholder governance index. See Djankov et al. (2008) for further details.

# 5 Conclusion

In this paper, we document a new source of electorally-induced cycles in economic activity. Using a new dataset of polling data for 233 elections across 51 countries, we first create an election surprise measure as an average absolute deviation of polling predictions from final outcomes. Event studies and a pooled difference-in-differences design show that these electoral surprises are associated with slower GDP growth in the quarters following an election, with no significant pre-trends. Further analysis suggests that the effects are primarily driven by slower investment growth and associated with higher economic policy uncertainty following an election. Finally, we document a significant partisan dimension to the election surprises: surprise outcomes of left-wing parties and elections with an ideology transition to a left-wing government are associated with larger effects on economic activity. Our results are consistent with with the hypothesis that investors and firms adjust their behaviour in response to the unexpected changes in the political landscape. Furthermore, a clear implication of these results is that there are significant economic benefits in making accurate predictions, and initiatives to this end may be welfare enhancing.

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# 6  Figures

Figure 1: Characteristics of sample and election surprise measure that is studied

Panel A: Map of sample of countries included
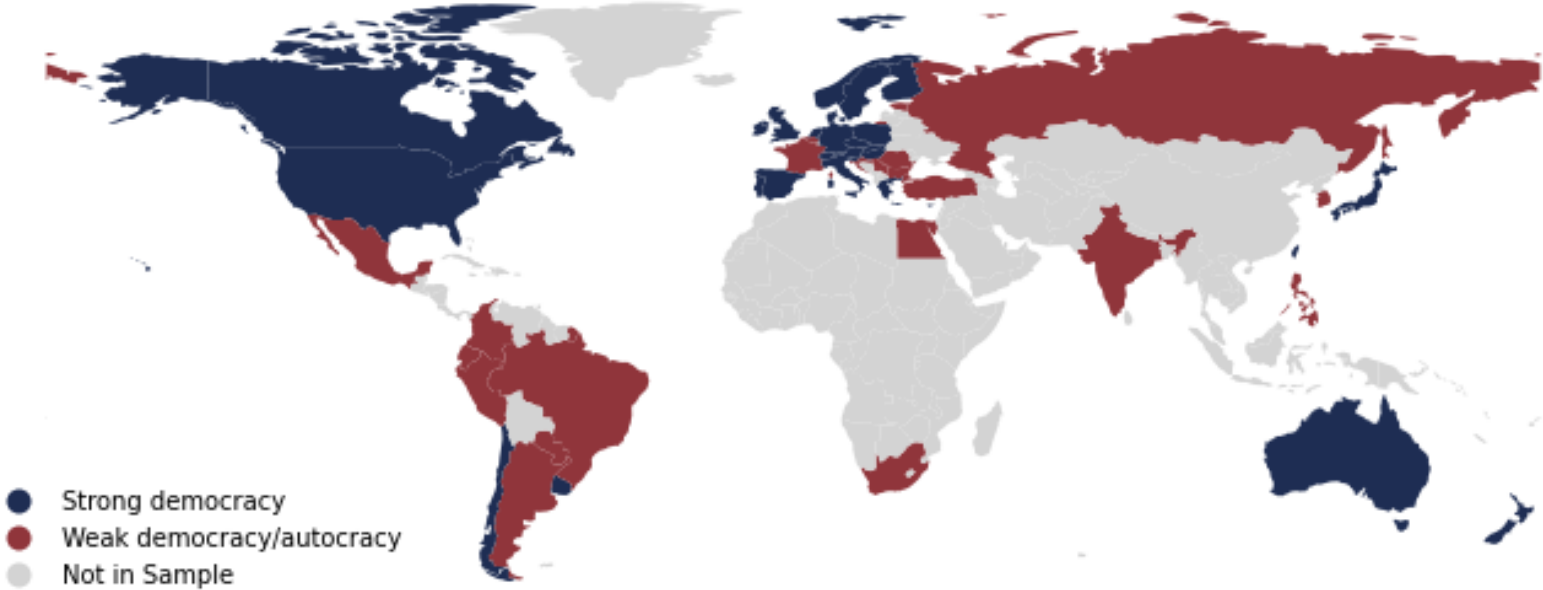
Figure 1: Characteristics of sample and election surprise measure that is studied (cont.)

Panel B: Elections by decade
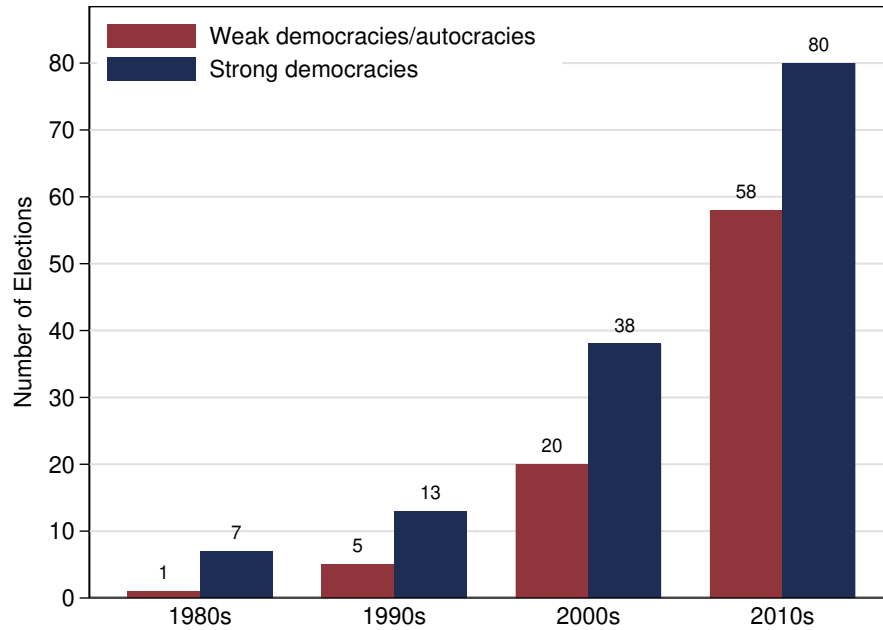
Panel C: Average election surprise
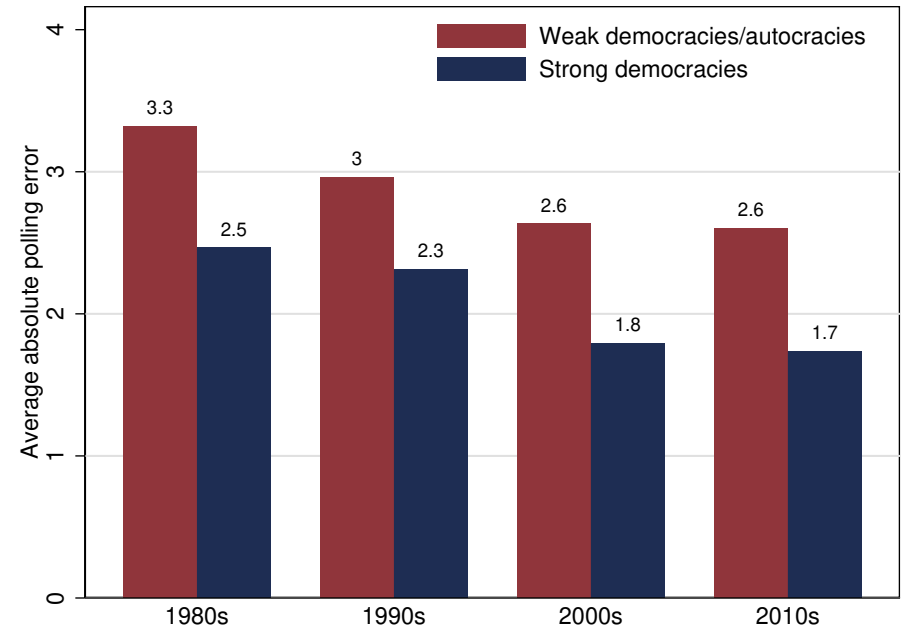
**Notes:** This figure presents an overview of the some key characteristics of the data that we are working with. Panel A presents a map of the countries that are included in the estimating sample. Panel B provides a breakdown of the number of elections in the estimating sample by decade in which the election took place. Panel C presents the average election surprise measure by decade. The sample of 'strong democracies' is defined as countries with an average *polity2* score above 9 in the three years prior to an election.

Figure 2: Impact of election surprises on real GDP growth (full sample)
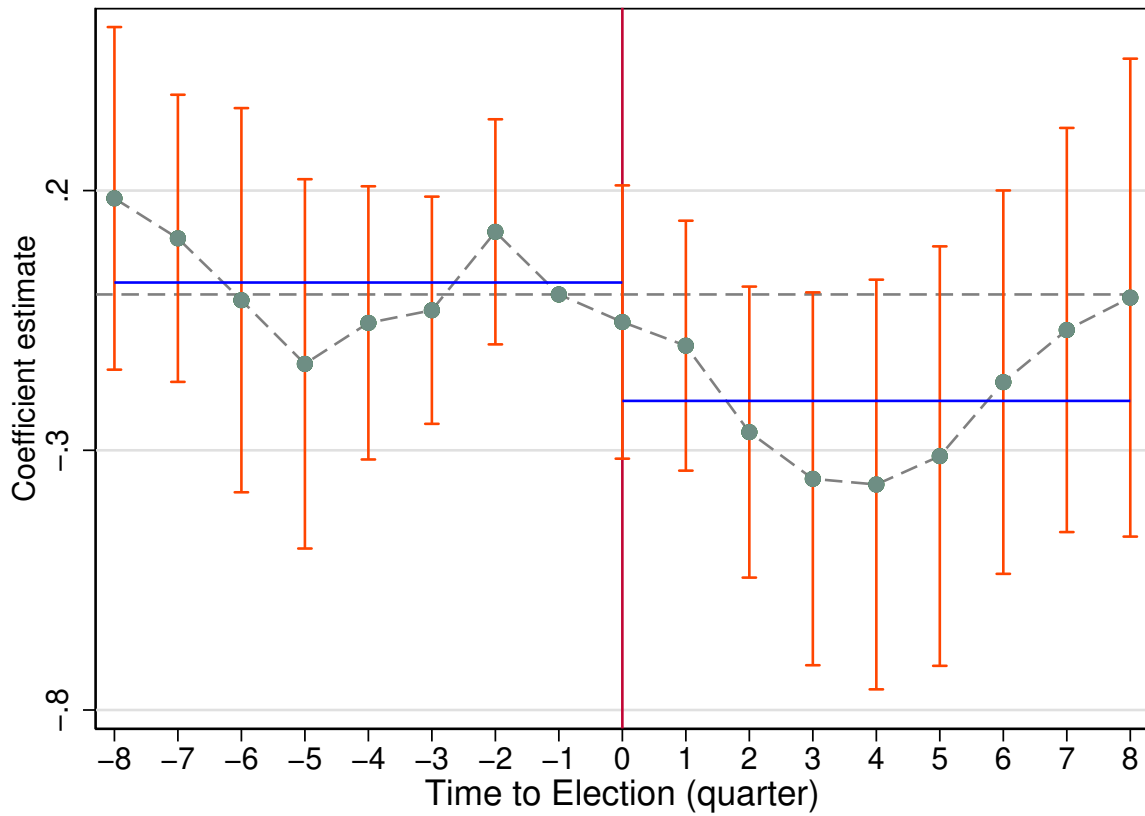
**Notes:** This figure plots regression results studying the effect of election surprises on year-on-year changes in real GDP at the quarterly frequency. The figure plots out estimated coefficient of the time-to-election interacted with a measure of the election surprise capturing the average absolute difference between ex-ante opinion polling and the actual election outcome. The solid horizontal lines indicate pre- and post- election averages of the estimated coefficients. All regressions include election, time-to-election, and quarterly fixed effects. Standard errors are clustered by election and quarter with 90% confidence intervals displayed.

Figure 3: Impact of election surprises on real GDP growth: Strong democracies vs. weak democracies/autocracies

Panel A: Strong democracies

Panel B: Weak democracies/autocracies

**Notes:** This figure plots regression results studying the effect of election surprises on year-on-year changes in real GDP at the quarterly frequency. The sample of 'strong democracies' is defined as countries with an average *polity2* score above 9 in the three years prior to an election. The figures plot out estimated coefficient of the time-to-election interacted with a measure of the election surprise capturing the average absolute difference between ex-ante opinion polling and the actual election outcome. The solid horizontal lines indicate pre- and post- election averages of the estimated coefficients. All regressions include election, time-to-election, and quarterly fixed effects. Standard errors are clustered by election and quarter with 90% confidence intervals displayed.

Figure 4: Impact of election surprises on investment growth and Economic Policy Uncertainty (strong democracies)

Panel A: Gross Fixed Investment

Panel B: Economic Policy Uncertainty



**Notes:** This figure plots regression results studying the effect of election surprises on year-on-year changes in Gross Fixed Investment growth (Panel A) and Economic Policy Uncertainty (Panel B) at the quarterly frequency. The sample of 'strong democracies' is defined as countries with an average *polity2* score above 9 in the three years prior to an election. The fig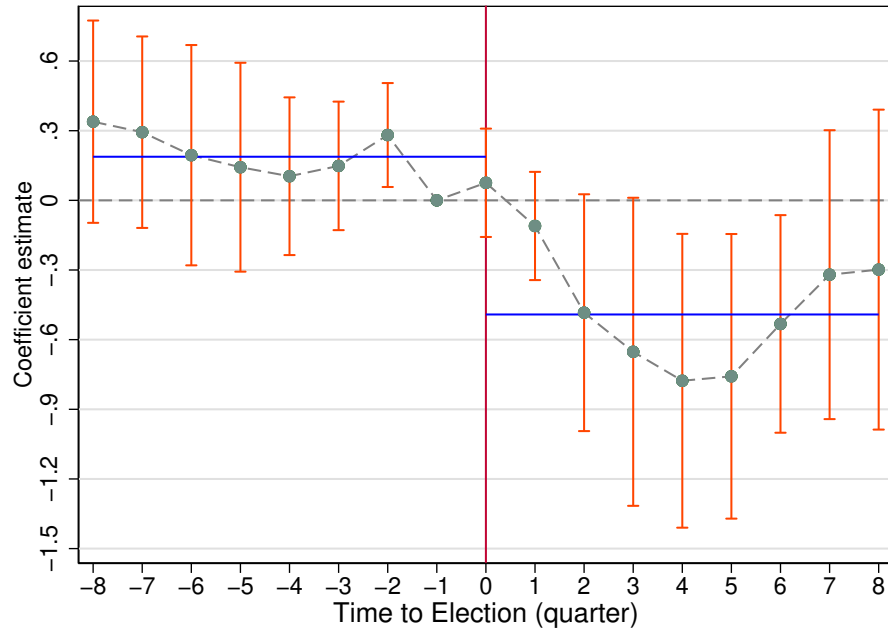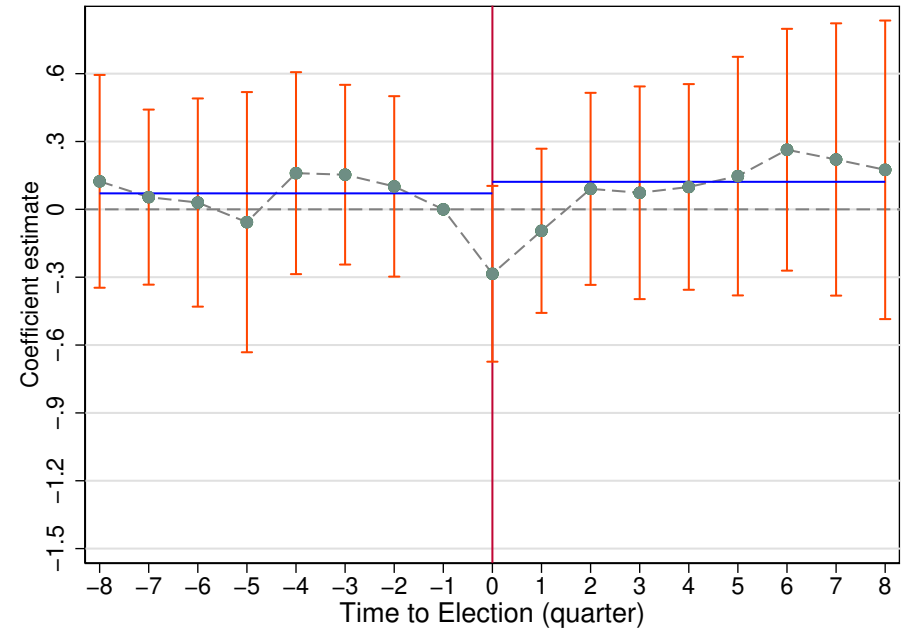ures plot out estimated coefficient of the time-to-election interacted with a measure of the election surprise capturing the average absolute difference between ex-ante opinion polling and the actual election outcome. The solid horizontal lines indicate pre- and post- election averages of the estimated coefficients. All regressions include election, time-to-election, and quarterly fixed effects. Standard errors are clustered by election and quarter with 90% confidence intervals displayed.

Figure 5: Decomposition of impact of election surprises on GDP growth in strong democracies on different GDP components
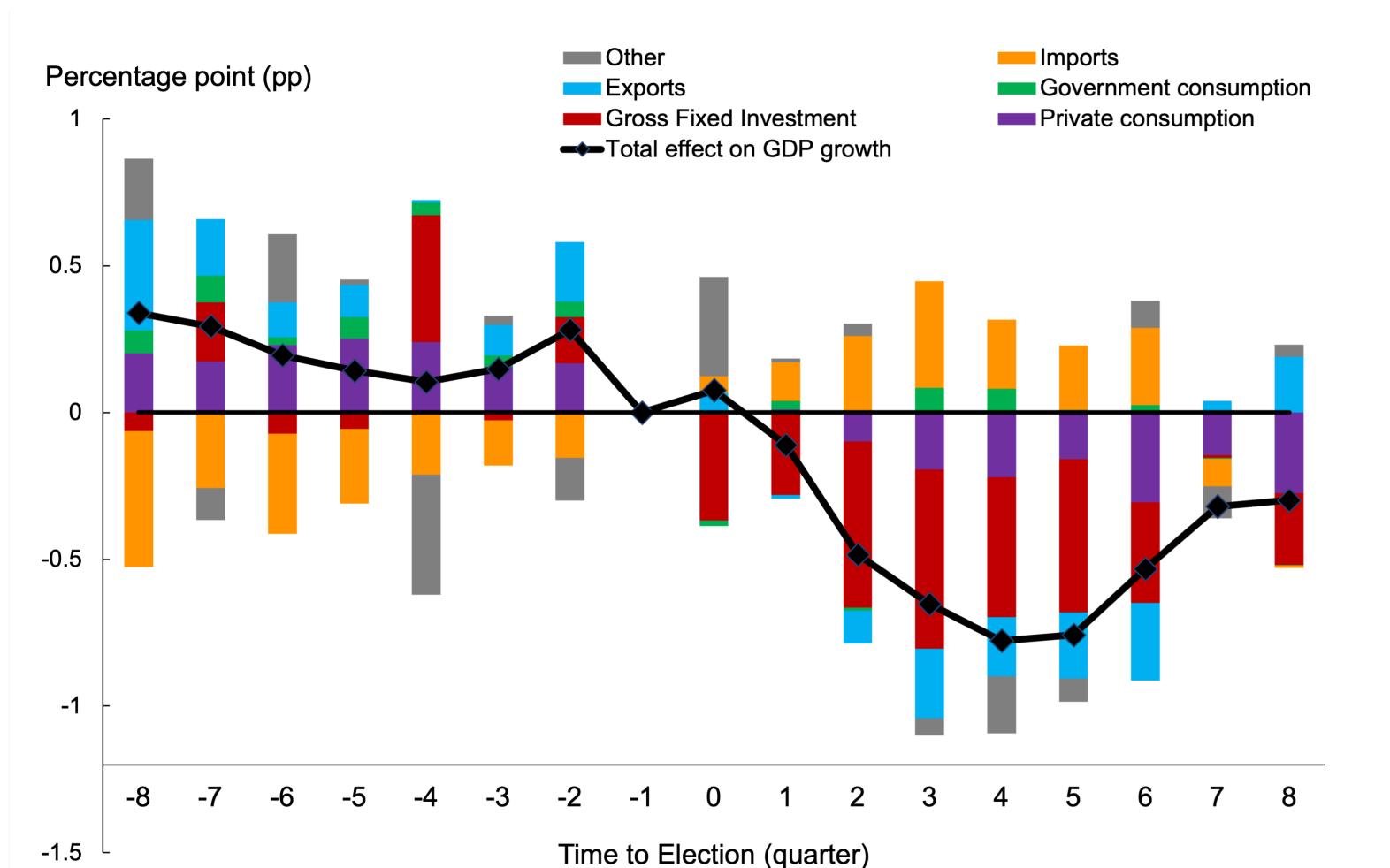


**Notes:** This figure presents a decomposition of the effects of election surprises on GDP growth for the sample of strong democracies. The decomposition splits the effect into five components: Private consumption; Government consumption; Gross Fixed Investment; Imports; and Exports. The black line is based on the estimated coefficients from Figure 3, Panel B. The bars are estimated using coefficient values from Figure 4 Panel A and Figure A6. These coefficients are then scaled by the average contribution of the given component in GDP across the countries in the sample, weighted by population.

Figure 6: Impact of signed election surprises on GDP growth (strong democracies)

Panel A: Left-wing surprise

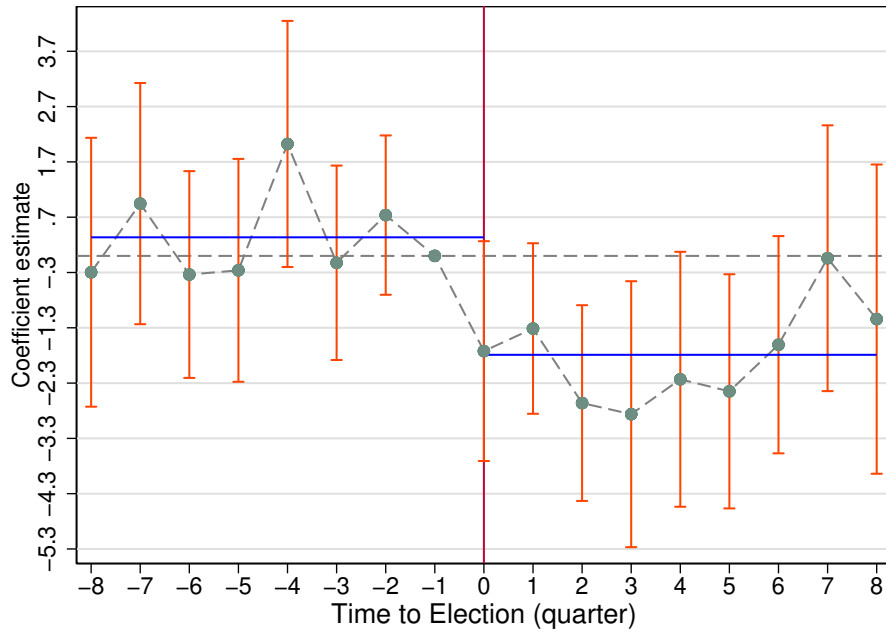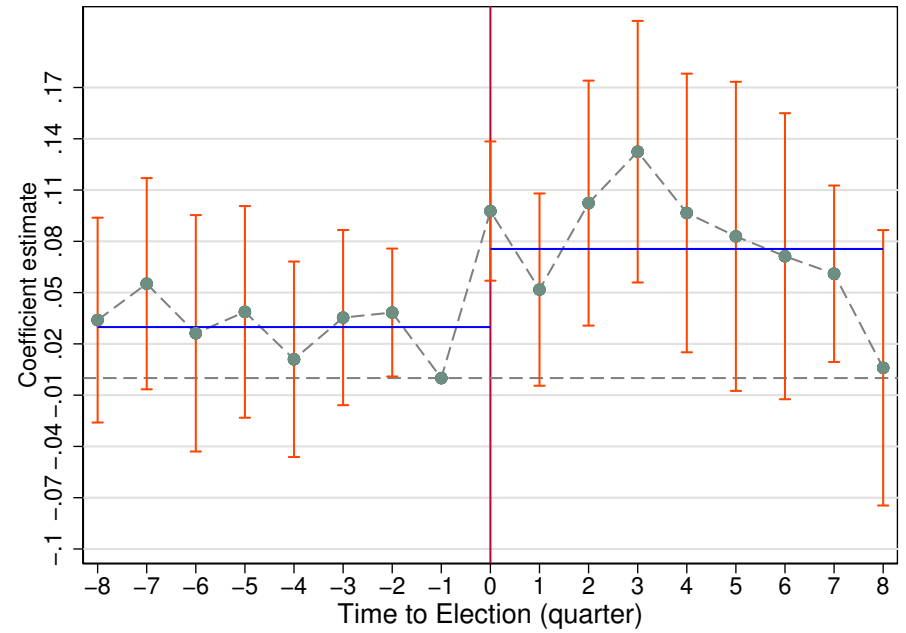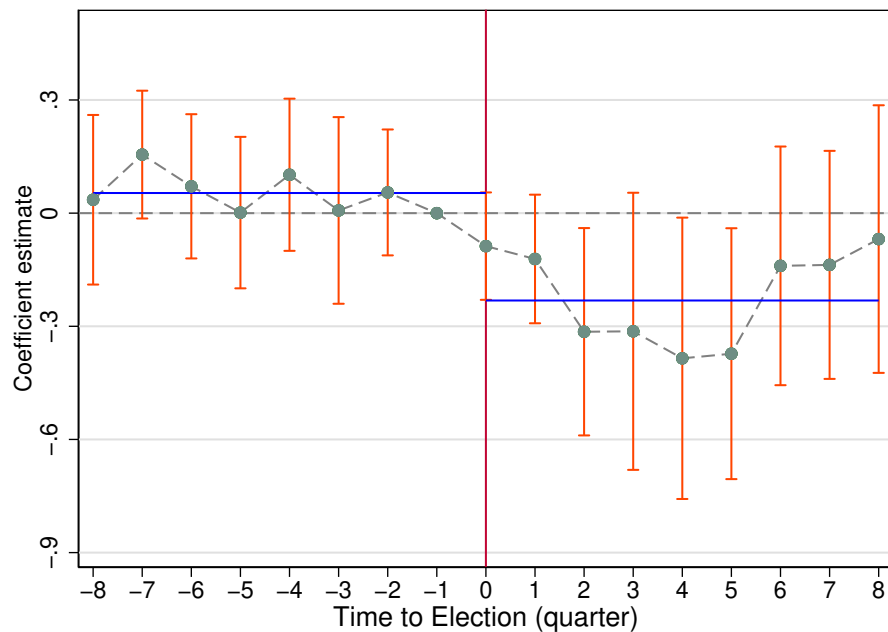Panel B: Right-wing surprise

**Notes:** This figure plots regression results studying the effect of election surprises on year-on-year changes in real GDP at the quarterly frequency. The sample of 'strong democracies' is defined as countries with an average *polity2* score above 9 in the three years prior to an election. The figures plot out estimated coefficient of the time-to-election interacted with a measure of the election surprise capturing the average absolute difference between ex-ante opinion polling and the actual election outcome. The solid horizontal lines indicate pre- and post- election averages of the estimated coefficients. All regressions include election, time-to-election, and quarterly fixed effects. Standard errors are clustered by election and quarter with 90% confidence intervals displayed.

# 7 Tables

Table 1: Effect of election surprises on GDP Growth (full sample)

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Dependent variable: | | | GDP Growth | | |
| Estimation window: | 4 Quarter Window | 4 Quarter Window | 4 Quarter Window | 6 Quarter Window | 8 Quarter Window |
| Sample: | | | Full Sample | | |
| | | | | | |
| Election Surprise X Post | -0.151 (0.097) | -0.130** (0.065) | -0.245** (0.112) | -0.221* (0.132) | -0.212 (0.135) |
| Election fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ |
| Quarter fixed effects | | ✓ | ✓ | ✓ | ✓ |
| Time-to-election fixed effects | | | ✓ | ✓ | ✓ |
| $R^2$ | 0.562 | 0.731 | 0.734 | 0.669 | 0.635 |
| Observations | 1,803 | 1,802 | 1,802 | 2,603 | 3,400 |
| Number of Elections | 203 | 203 | 203 | 203 | 203 |

Notes: This table presents regression results studying the effect of election surprises. The dependent variable in all specifications is year-on-year changes in real GDP at the quarterly frequency. The coefficients are estimated using OLS. Standard errors are adjusted for two-way clustering by election and quarter with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 2: Effect of election surprises on GDP Growth: Strong democracies vs. weak democracies/autocracies

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Dependent variable: | | GDP Growth | | | GDP Growth | |
| Estimation window: | 4 Quarter Window | 6 Quarter Window | 8 Quarter Window | 4 Quarter Window | 6 Quarter Window | 8 Quarter Window |
| Sample: | | Strong democracies | | | Weak democracies/autocracies | |
| | | | | | | |
| Election Surprise X Post | -0.560*** (0.181) | -0.614*** (0.205) | -0.617*** (0.213) | -0.059 (0.137) | -0.036 (0.185) | 0.006 (0.204) |
| Election fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Quarter fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Time-to-election fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| $R^2$ | 0.765 | 0.737 | 0.712 | 0.766 | 0.660 | 0.601 |
| Observations | 1,082 | 1,563 | 2,040 | 683 | 987 | 1,291 |
| Number of Elections | 122 | 122 | 122 | 76 | 76 | 76 |

Notes: This table presents regression results studying the effect of election surprises. The dependent variable in all specifications is year-on-year changes in real GDP at the quarterly frequency. The sample of 'strong democracies' is defined as countries with an average *polity2* score above 9 in the three years prior to an election. The coefficients are estimated using OLS. Standard errors are adjusted for two-way clustering by election and quarter with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3: Effect of election surprises on Investment Growth and Economic Policy Uncertainty (strong democracies)

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Dependent variable: | Gross Fixed Investment Growth | | | Δ ln(Economic Policy Uncertainty) | | |
| Estimation window: | 4 Quarter Window | 6 Quarter Window | 8 Quarter Window | 4 Quarter Window | 6 Quarter Window | 8 Quarter Window |
| Sample: | Strong democracies | | | Strong democracies | | |
| | | | | | | |
| Election Surprise X Post | -2.968*** | -2.399*** | -2.130*** | 0.068** | 0.066*** | 0.049*** |
| | (0.955) | (0.731) | (0.773) | (0.029) | (0.021) | (0.017) |
| Election fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Quarter fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Time-to-election fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| $R^2$ | 0.482 | 0.442 | 0.382 | 0.698 | 0.614 | 0.613 |
| Observations | 1,064 | 1,534 | 1,997 | 561 | 813 | 1,053 |
| Number of Elections | 122 | 122 | 122 | 64 | 64 | 64 |

Notes: This table presents regression results studying the effect of election surprises. The dependent variable in Columns 1-3 is year-on-year changes in gross fixed investment. The dependent variable in Columns 4-6 is year-on-year changes in the natural logarithm of EPU. The sample of 'strong democracies' is defined as countries with an average *polity2* score above 9 in the three years prior to an election. The coefficients are estimated using OLS. Standard errors are adjusted for two-way clustering by election and quarter with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 4: Effect of signed election surprises on GDP Growth

| | (1) | (2) | (3) |
|---|---|---|---|
| Dependent variable: | | GDP Growth | |
| Estimation window: | | 4 Quarter Window | |
| Sample: | | Strong democracies | |
| | | | |
| Left-Wing Election Surprise X Post | -0.299** | | -0.280* |
| | (0.127) | | (0.162) |
| Right-Wing Election Surprise X Post | | -0.159* | -0.023 |
| | | (0.095) | (0.121) |
| Election fixed effects | ✓ | ✓ | ✓ |
| Quarter fixed effects | ✓ | ✓ | ✓ |
| Time-to-election fixed effects | ✓ | ✓ | ✓ |
| $R^2$ | 0.764 | 0.761 | 0.764 |
| Observations | 1,082 | 1,082 | 1,082 |
| Number of Elections | 96 | 96 | 96 |

Notes: This table presents regression results studying the effect of signed election surprises. The dependent variable in all specifications is year-on-year changes in quarterly GDP growth. The sample of 'strong democracies' is defined as countries with an average *polity2* score above 9 in the three years prior to an election. The coefficients are estimated using OLS. Standard errors are adjusted for two-way clustering by election and quarter with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

# Online Appendix

# (How) Do electoral surprises drive business cycles? Evidence from a new dataset

For Online Publication

July 21, 2023

## A  Figures

Figure A1: Figure visualising the data architecture and key data



**Economic activity**
Country by quarter panel dataset
Measuring GDP, Consumption, Investment, Government expenditure, Exports, Imports,...
T

1:1 merge on country and time

**Economic Policy Uncertainty**
Country by quarter panel dataset ...
T

**Election**
N = 233 elections

Country, type of election, party or candidate vote share, election date, power transitions ...
T

**Opinion polls**
N ~ 100,000

Country, type of election, pollster, party/ candidate predicted vote share, date of poll,...
T

merge 1:m on country and time

1:m merge on country by election by party/candidate

**Balanced Panel Election x Time**
Economic activity, EPU, election surprise shock, time to election, quarter, country, election identifier
T

creation of balanced panel around election quarter

**Election Shock**
N = 233
Election surprise shock, politically signed election shocks, election date, country, election identifier
T

collapse to create shock measures

**Election by Opinion poll**
N ~100,000

Expected & actual vote share of a party or candidate with opinion poll date relative to election date
T

**Political leaning**

Left or right leaning party or candidate identifier for each country

2

**Notes:** This figure shows the different data sources, the various data merges and collapses in a schematic form that are carried out to obtain the final election-level balanced panel dataset on which the empirical exercises are carried out.

## Figure A2: 2017 French Presidential Election, Second Round
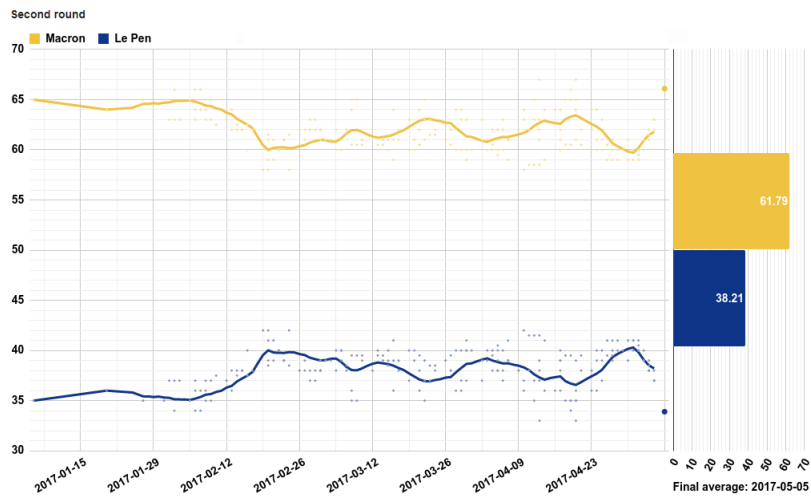


**Notes:** This figure presents a summary of the election polls in the second round of the 2017 French presidential election between Emmanuel Macron and Marine Le Pen. **Source:** https://en.wikipedia.org/wiki/2017_French_presidential_election#Opinion_polls

## Figure A3: Distribution of election surprises (full sample)
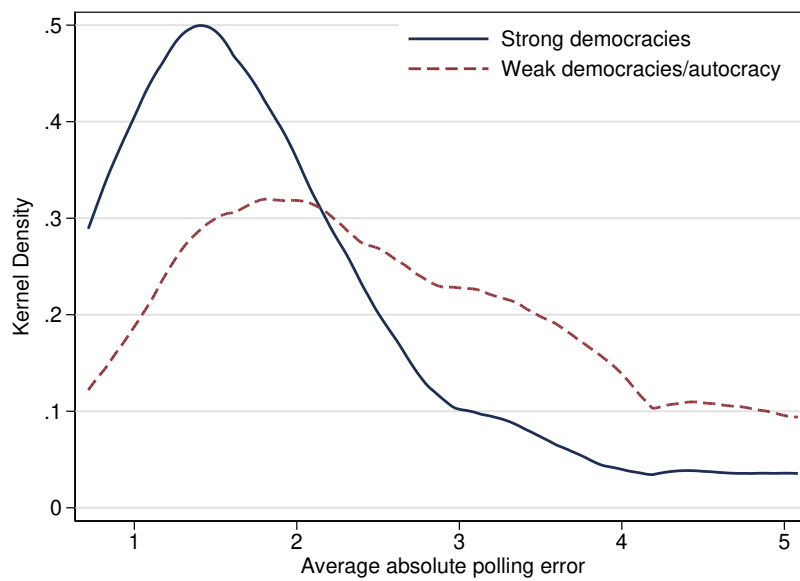


**Notes:** This figure presents the distribution of our main election surprise measure for all 233 elections in our elections dataset. The election surprise is defined as the absolute average polling error using polls in the 15 days before the election date. Strong democracies are defined as countries with an average *polity2* score above 9 in the three years prior to an election.

Figure A4: Distribution of election surprises by political orientation (strong democracies)
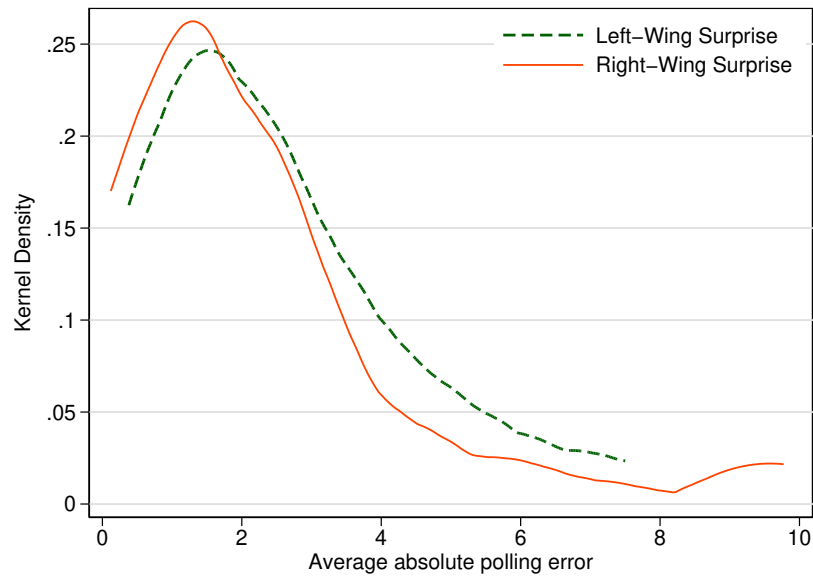


**Notes:** This figure presents the distribution of our election surprise measure by the political orientation of the political party. The distributions are presented for the sample of strong democracies, which covers 138 elections. Strong democracies are defined as countries with an average *polity2* score above 9 in the three years prior to an election.

Figure A5: Right-wing vs. left-wing election surprises (strong democracies)
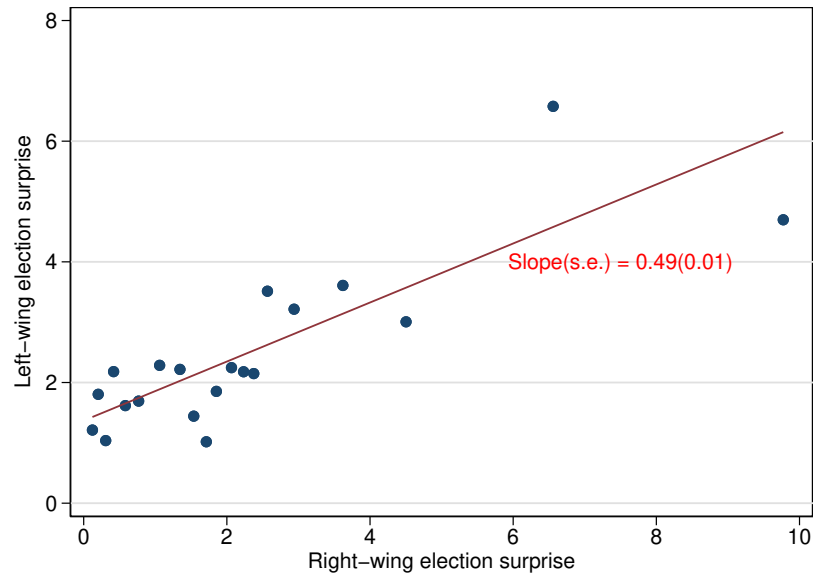


**Notes:** This figure presents a binned scatter plot of left-wing vs. right-wing election surprises. The sample of 'strong democracies' is defined as countries with an average *polity2* score above 9 in the three years prior to an election.

# Figure A6: Impact of election surprises on additional macroeconomic variables (strong democracies)

Panel A: Private consumption
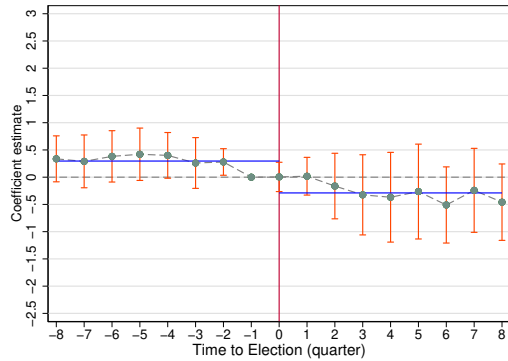


Panel B: Government consumption
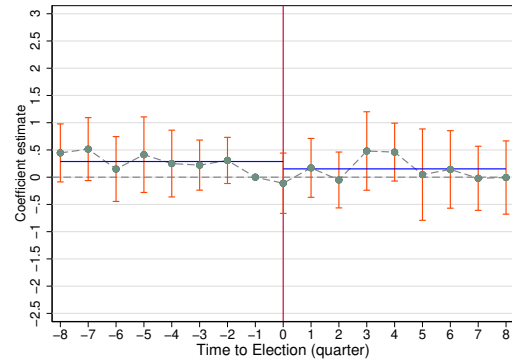


Panel C: Exports of goods and services



Panel D: Imports of goods and services
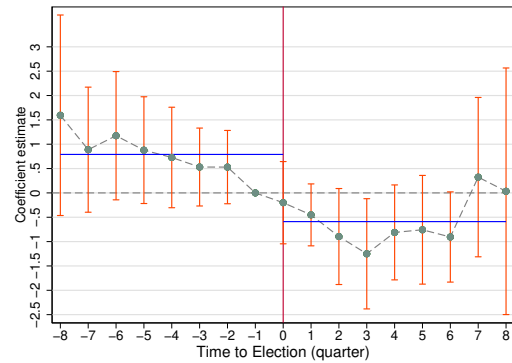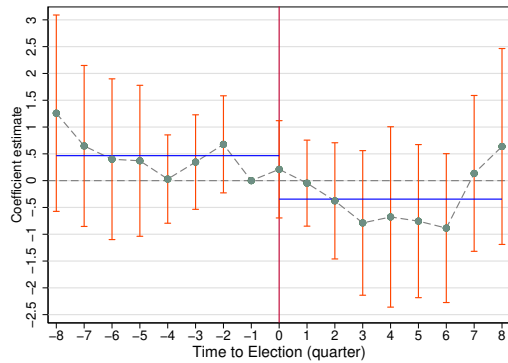


**Notes:** This figure plots regression results studying the effect of election surprises on year-on-year changes in Gross Fixed Investment growth (Panel A) and Economic Policy Uncertainty (Panel B). The sample of 'strong democracies' is defined as countries with an average *polity2* score above 9 in the three years prior to an election. The figures plot out estimated coefficient of the time-to-election interacted with a measure of the election surprise capturing the average absolute difference between ex-ante opinion polling and the actual election outcome. The solid horizontal lines indicate pre- and post- election averages of the estimated coefficients. All regressions include election, time-to-election, and quarterly fixed effects. Standard errors are clustered by election and quarter with 90% confidence intervals displayed.

Figure A7: Robustness to dropping countries from estimation sample (strong democracies)
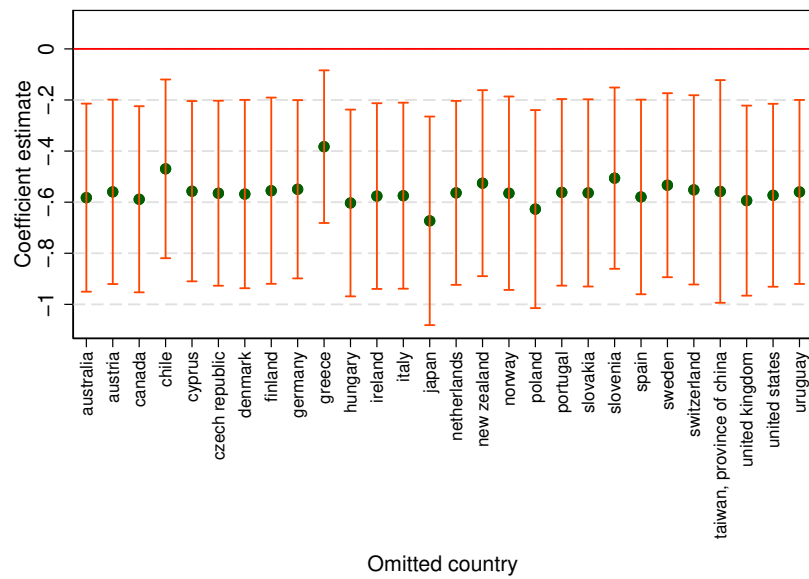


**Notes:** This figure plots regression results studying the effect of election surprises on year-on-year changes in quarterly GDP, while omitting countries one by one from the estimation sample. The sample of 'strong democracies' is defined as countries with an average *polity2* score above 9 in the three years prior to an election. The figure plots the coefficients of the Election Surprise X Post variable, as defined in Equation 3. All regressions include election, time-to-election, and quarterly fixed effects. Regressions are estimated on a four-quarter window around each election quarter. Standard errors are clustered by election and quarter with 95% confidence intervals displayed.

# B  Tables

Table A1: Number of elections by country (full sample)

| Country | Number of Elections |
|---|---|
| argentina | 7 |
| australia | 12 |
| austria | 5 |
| belgium | 1 |
| brazil | 3 |
| bulgaria | 4 |
| canada | 5 |
| chile | 6 |
| colombia | 7 |
| croatia | 3 |
| cyprus | 3 |
| czech republic | 8 |
| denmark | 3 |
| ecuador | 6 |
| egypt | 2 |
| estonia | 2 |
| finland | 3 |
| france | 9 |
| germany | 4 |
| greece | 7 |
| hungary | 4 |
| iceland | 4 |
| india | 2 |
| ireland | 2 |
| italy | 4 |
| japan | 3 |
| korea, republic of | 2 |
| malta | 2 |
| mexico | 3 |
| netherlands | 2 |
| new zealand | 6 |
| norway | 3 |
| paraguay | 2 |
| peru | 6 |
| philippines | 3 |
| poland | 8 |
| portugal | 11 |
| romania | 3 |
| russian federation | 6 |
| serbia | 3 |
| slovakia | 3 |
| slovenia | 4 |
| south africa | 2 |
| spain | 8 |
| sweden | 4 |
| switzerland | 3 |
| taiwan, province of china | 4 |
| turkey | 5 |
| united kingdom | 9 |
| united states | 10 |
| uruguay | 2 |
| Total | 233 |

Table A2: Number of elections by country (strong democracies)

| Country | Number of Elections |
|---|---|
| australia | 12 |
| austria | 5 |
| canada | 5 |
| chile | 6 |
| cyprus | 3 |
| czech republic | 4 |
| denmark | 3 |
| finland | 3 |
| germany | 4 |
| greece | 7 |
| hungary | 4 |
| ireland | 2 |
| italy | 4 |
| japan | 3 |
| netherlands | 2 |
| new zealand | 6 |
| norway | 3 |
| poland | 5 |
| portugal | 11 |
| slovakia | 3 |
| slovenia | 4 |
| spain | 8 |
| sweden | 4 |
| switzerland | 3 |
| taiwan, province of china | 4 |
| united kingdom | 8 |
| united states | 10 |
| uruguay | 2 |
| Total | 138 |

Table A3: Summary Statistics (full sample)

| Variable | Observations | Mean | Standard Deviation | 25 Pctile | 50 Pctile | 75 Pctile |
|---|---|---|---|---|---|---|
| Main Election Surprise | 233 | 2.157583 | 1.167554 | 1.303333 | 1.857051 | 2.765833 |
| Left-Wing Election Surprise | 230 | 2.883867 | 2.027386 | 1.208 | 2.402647 | 4.095833 |
| Right-Wing Election Surprise | 229 | 2.754737 | 2.534647 | .8 | 2.132248 | 3.667143 |
| Real GDP Growth | 3414 | 2.270272 | 3.146851 | .983 | 2.347 | 3.893 |
| Real Gross Fixed Investment Growth | 3267 | 2.842036 | 11.25871 | -1.563 | 2.891 | 6.932 |
| Real Private Consumption Growth | 3285 | 2.319338 | 3.37617 | .931 | 2.301 | 3.895 |
| Real Government Consumption Growth | 3285 | 2.287583 | 4.00743 | .48 | 1.904 | 3.846 |
| Imports of goods and services (as % of GDP) growth | 3285 | 4.560124 | 9.430855 | .72 | 4.642 | 8.795 |
| Exports of goods and services (as % of GDP) growth | 3285 | 4.201987 | 6.801596 | 1.05 | 3.975 | 7.636 |
| $\Delta \ln$(Economic Policy Uncertainty) | 1661 | .0371592 | .397866 | -.2263746 | .0306044 | .278583 |

Table A4: Election Surprise Measure Correlates

| Dependent variable:<br>Sample: | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | | | Election Surprise<br>Full Sample | | | |
| =1 Strong Democracy | -0.558**<br>(0.213) | -0.797***<br>(0.221) | -0.792***<br>(0.225) | -0.778***<br>(0.222) | -0.768***<br>(0.219) | -0.745***<br>(0.220) |
| =1 Presidential Election | 0.499**<br>(0.235) | | | | | |
| =1 Snap Election | | 0.042<br>(0.247) | | | | |
| =1 Expected Party Order Change | | | -0.081<br>(0.170) | | | |
| =1 Incumbent Party Stays | | | | -0.151<br>(0.115) | | |
| =1 Incumbent Individual Stays | | | | | -0.133<br>(0.111) | |
| Voter Turnout | | | | | | -0.012<br>(0.009) |
| =1 Compulsory Voting | | | | | | 0.004<br>(0.235) |
| Constant | 2.311***<br>(0.182) | 2.631***<br>(0.195) | 2.678***<br>(0.204) | 2.699***<br>(0.199) | 2.676***<br>(0.191) | 3.450***<br>(0.618) |
| $R^2$ | 0.140 | 0.108 | 0.109 | 0.112 | 0.111 | 0.125 |
| Mean of Dependent Variable | 2.144 | 2.144 | 2.144 | 2.144 | 2.144 | 2.148 |
| Number of Elections | 222 | 222 | 222 | 222 | 222 | 221 |

Notes: The sample of 'strong democracies' is defined as countries with an average *polity2* score above 9 in the three years prior to an election. The coefficients are estimated using OLS. Standard errors are clustered at the country level and reported in parentheses, stars indicate *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A5: Effect of Standardised Election Surprises on GDP Growth, Gross Fixed Investment, and Economic Policy Uncertainty

| Dependent variable: | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| | | GDP Growth | | Investment<br>Growth | $\Delta \ln(EPU)$ |
| Estimation window: | | 4 Quarter Window | | 4 Quarter Window | |
| Sample: | All<br>elections | Strong<br>democracies | Weak<br>democracies/<br>autocracies | Strong<br>democracies | Strong<br>democracies |
| Standardised Election Surprise X Post | -0.287**<br>(0.130) | -0.655***<br>(0.211) | -0.069<br>(0.160) | -3.472***<br>(1.117) | 0.080**<br>(0.034) |
| Election fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ |
| Quarter fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ |
| Time-to-election fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ |
| $R^2$ | 0.734 | 0.765 | 0.766 | 0.482 | 0.698 |
| Observations | 1,802 | 1,082 | 683 | 1,064 | 561 |
| Number of Elections | 203 | 122 | 76 | 122 | 64 |

Notes: This table presents regression results studying the effect of election surprises on GDP growth (Columns 1-3), Gross fixed investment growth (Column 4), and Economic Policy Uncertainty (Column 5). The sample of 'strong democracies' is defined as countries with an average *polity2* score above 9 in the three years prior to an election. The 'election surprise' variable is standardised to have zero mean and unit standard deviation. The coefficients are estimated using OLS. Standard errors are adjusted for two-way clustering by election and quarter with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A6: Effect of Signed Election Surprises on Investment Growth and Economic Policy Uncertainty (strong democracies)

| Dependent variable: | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Gross Fixed Investment Growth | | | $\Delta \ln$(Economic Policy Uncertainty) | | |
| Estimation window: | 4 Quarter Window | 6 Quarter Window | 8 Quarter Window | 4 Quarter Window | 6 Quarter Window | 8 Quarter Window |
| Sample: | Strong democracies | | | Strong democracies | | |
| Election Surprise LW X Post | -1.534 (1.000) | -1.022 (0.773) | -1.004 (0.670) | 0.050 (0.033) | 0.038 (0.024) | 0.026 (0.020) |
| Election Surprise RW X Post | 0.192 (0.610) | 0.046 (0.504) | 0.144 (0.452) | -0.015 (0.023) | -0.002 (0.014) | 0.003 (0.013) |
| Election fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Quarter fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Time-to-election fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| $R^2$ | 0.479 | 0.438 | 0.379 | 0.697 | 0.613 | 0.613 |
| Observations | 1,064 | 1,534 | 1,997 | 561 | 813 | 1,053 |
| Number of Elections | 96 | 98 | 100 | 64 | 64 | 64 |

Notes: This table presents regression results studying the effect of election surprises. The dependent variable in all specifications is year-on-year changes in quarterly gross fixed investment. The sample of 'strong democracies' is defined as countries with an average *polity2* score above 9 in the three years prior to an election. The coefficients are estimated using OLS. Standard errors are adjusted for two-way clustering by election and quarter with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A7: Effect of Election Surprises on GDP growth: Heterogeneity by ideology transition

|  | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Dependent variable: | | GDP Growth | | | GDP Growth | |
| Estimation window: | 4 Quarter Window | 6 Quarter Window | 8 Quarter Window | 4 Quarter Window | 6 Quarter Window | 8 Quarter Window |
| Sample: | | Strong democracies | | | Strong democracies | |
| Election Surprise X Post X No RW to LW Transition | -0.462*** (0.138) | -0.493*** (0.150) | -0.476*** (0.138) | | | |
| Election Surprise X Post X RW to LW Transition | -0.951*** (0.303) | -1.121*** (0.306) | -1.205*** (0.302) | | | |
| Election Surprise X Post X No LW to RW Transition | | | | -0.578*** (0.196) | -0.635*** (0.221) | -0.653*** (0.222) |
| Election Surprise X Post X LW to RW Transition | | | | -0.462* (0.276) | -0.504** (0.251) | -0.438* (0.225) |
| Election fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Quarter fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Time-to-election fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Test coefficients equal (p-value) | 0.086 | 0.020 | 0.004 | 0.680 | 0.603 | 0.303 |
| $R^2$ | 0.768 | 0.743 | 0.720 | 0.765 | 0.737 | 0.712 |
| Observations | 1,082 | 1,563 | 2,040 | 1,082 | 1,563 | 2,040 |
| Number of Elections | 122 | 122 | 122 | 122 | 122 | 122 |

Notes: This table presents regression results studying the effect of election surprises. The dependent variable in all specifications is year-on-year changes in quarterly gross fixed investment. The sample of 'strong democracies' is defined as countries with an average *polity2* score above 9 in the three years prior to an election. The coefficients are estimated using OLS. Standard errors are adjusted for two-way clustering by election and quarter with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A8: Effect of Election Surprises on Gross Fixed Investment and Economic Policy Uncertainty: Heterogeneity by ideology transition

| Dependent variable: | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Gross Fixed Investment | | | $\Delta \ln(\text{EPU})$ | | |
| Estimation window: | 4 Quarter Window | 6 Quarter Window | 8 Quarter Window | 4 Quarter Window | 6 Quarter Window | 8 Quarter Window |
| Sample: | Strong democracies | | | Strong democracies | | |
| Election Surprise X Post X No RW to LW Transition | -2.677*** (0.984) | -2.054*** (0.722) | -1.699** (0.712) | 0.050* (0.030) | 0.065*** (0.021) | 0.054*** (0.018) |
| Election Surprise X Post X RW to LW Transition | -3.945*** (0.945) | -3.594*** (0.858) | -3.603*** (0.834) | 0.095*** (0.028) | 0.068** (0.029) | 0.040* (0.024) |
| Election fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Quarter fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Time-to-election fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Test coefficients equal (p-value) | 0.184 | 0.084 | 0.022 | 0.152 | 0.885 | 0.533 |
| $R^2$ | 0.484 | 0.445 | 0.386 | 0.700 | 0.614 | 0.614 |
| Observations | 1,064 | 1,534 | 1,997 | 561 | 813 | 1,053 |
| Number of Elections | 122 | 122 | 122 | 64 | 64 | 64 |

Notes: This table presents regression results studying the effect of election surprises. The dependent variable is year-on-year changes in quarterly gross fixed investment (Columns 1-3) and year-on-year changes in the natural logarithm of EPU (Columnd 4-6). The sample of 'strong democracies' is defined as countries with an average *polity2* score above 9 in the three years prior to an election. The coefficients are estimated using OLS. Standard errors are adjusted for two-way clustering by election and quarter with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A9: Effect of Election Surprises on likelihood of reforms: Heterogeneity by ideology transition

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| Dependent variable: | | | | | =1 Reform Implemented | | | | | |
| Estimation window: | | | | | 4 Quarter Window | | | | | |
| Sample: | | | | | Strong democracies | | | | | |
| Reform Category: | Starting Business | Dealing with Licenses | Getting Credit | Protecting Investors | Paying Taxes | Trading across Borders | Enforcing Contracts | Employing Workers | Registering Property | Resolving Insolvency |
| Election Surprise X Post X No RW to LW Transition | -0.062 (0.041) | 0.011 (0.017) | 0.022 (0.036) | -0.013 (0.023) | 0.023 (0.043) | -0.037 (0.025) | 0.045 (0.028) | -0.062 (0.041) | 0.023 (0.028) | 0.006 (0.012) |
| Election Surprise X Post X RW to LW Transition | -0.036 (0.051) | 0.022 (0.018) | -0.071* (0.036) | -0.110*** (0.035) | -0.007 (0.046) | 0.010 (0.020) | 0.050* (0.029) | -0.036 (0.051) | -0.000 (0.017) | 0.047 (0.031) |
| Election fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Quarter fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Time-to-election fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Test coefficients equal (p-value) | 0.614 | 0.502 | 0.013 | 0.003 | 0.482 | 0.006 | 0.868 | 0.614 | 0.235 | 0.181 |
| $R^2$ | 0.492 | 0.587 | 0.542 | 0.577 | 0.513 | 0.479 | 0.477 | 0.492 | 0.500 | 0.432 |
| Observations | 946 | 920 | 946 | 920 | 920 | 920 | 946 | 946 | 946 | 946 |
| Number of Elections | 111 | 110 | 111 | 110 | 110 | 110 | 111 | 111 | 111 | 111 |

Notes: This table presents regression results studying the effect of election surprises on the likelihood of reforms being implemented. The sample of 'strong democracies' is defined as countries with an average *polity2* score above 9 in the three years prior to an election. The coefficients are estimated using OLS. Standard errors are adjusted for two-way clustering by election and quarter with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A10: Effect of Election Surprises on GDP growth: Alternative institutional quality

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Dependent variable: | GDP Growth | | | GDP Growth | | |
| Estimation window: | 4 Quarter Window | 6 Quarter Window | 8 Quarter Window | 4 Quarter Window | 6 Quarter Window | 8 Quarter Window |
| Sample | Strong executive constraints | | | Strong political competition | | |
| | | | | | | |
| Election Surprise X Post | -0.560*** | -0.614*** | -0.617*** | -0.559*** | -0.613*** | -0.617*** |
| | (0.181) | (0.205) | (0.213) | (0.182) | (0.205) | (0.213) |
| Election fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Quarter fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Time-to-election fixed effects | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| $R^2$ | 0.765 | 0.737 | 0.712 | 0.765 | 0.737 | 0.712 |
| Observations | 1,082 | 1,563 | 2,040 | 1,073 | 1,550 | 2,023 |
| Number of Elections | 96 | 98 | 100 | 96 | 98 | 100 |

Notes: This table presents regression results studying the effect of election surprises. The dependent variable in all specifications is year-on-year changes in GDP growth at the quarterly frequency. The sample of 'strong executive constraints' is defined as countries with an average *xconst* score above 6 in the three years prior to an election. The sample of 'strong political competition' is defined as countries with an average *polcomp* score above 9 in the three years prior to an election. The coefficients are estimated using OLS. Standard errors are adjusted for two-way clustering by election and quarter with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A11: Effect of Election Surprises on GDP Growth: Robustness to Removing Decades

| | (1) | (2) | (3) |
|---|---|---|---|
| Dependent variable: | | GDP Growth | |
| Estimation window: | 4 Quarter Window | 6 Quarter Window | 8 Quarter Window |
| Sample: | | Strong democracies | |
| | | | |
| *Panel A: Baseline* | | | |
| Election Surprise X Post | -0.560*** | -0.614*** | -0.617*** |
| | (0.181) | (0.205) | (0.213) |
| | | | |
| $R^2$ | 0.765 | 0.737 | 0.712 |
| Observations | 1,082 | 1,563 | 2,040 |
| Number of Elections | 122 | 122 | 122 |
| | | | |
| *Panel B: Drop 1990s Elections* | | | |
| Election Surprise X Post | -0.566*** | -0.620*** | -0.627*** |
| | (0.183) | (0.206) | (0.214) |
| | | | |
| $R^2$ | 0.761 | 0.733 | 0.709 |
| Observations | 1,040 | 1,504 | 1,966 |
| Number of Elections | 116 | 116 | 116 |
| | | | |
| *Panel C: Drop 2000s Elections* | | | |
| Election Surprise X Post | -0.351** | -0.424** | -0.531*** |
| | (0.133) | (0.178) | (0.189) |
| | | | |
| $R^2$ | 0.756 | 0.729 | 0.709 |
| Observations | 735 | 1,064 | 1,389 |
| Number of Elections | 84 | 84 | 84 |
| | | | |
| *Panel D: Drop 2010s Elections* | | | |
| Election Surprise X Post | -0.972*** | -0.980** | -0.741 |
| | (0.356) | (0.379) | (0.493) |
| | | | |
| $R^2$ | 0.817 | 0.779 | 0.736 |
| Observations | 381 | 550 | 717 |
| Number of Elections | 44 | 44 | 44 |
| Election fixed effects | ✓ | ✓ | ✓ |
| Quarter fixed effects | ✓ | ✓ | ✓ |
| Time-to-election fixed effects | ✓ | ✓ | ✓ |

Notes: This table presents regression results studying the effect of election surprises. The dependent variable in all specifications is year-on-year changes in GDP at the quarterly frequency. The sample of 'strong democracies' is defined as countries with an average *polity2* score above 9 in the three years prior to an election. The coefficients are estimated using OLS. Standard errors are adjusted for two-way clustering by election and quarter with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A12: Effect of Election Surprises on GDP Growth: Robustness to Alternative Surprise Measures

| | (1) | (2) | (3) |
|---|---|---|---|
| Dependent variable: | | GDP Growth | |
| Estimation window: | 4 Quarter Window | 6 Quarter Window | 8 Quarter Window |
| Sample: | | Strong Democracies | |
| *Panel A: Election Surprise Last 10 Days* | | | |
| Election Surprise X Post | -0.573*** | -0.646*** | -0.664*** |
| | (0.194) | (0.222) | (0.228) |
| $R^2$ | 0.765 | 0.737 | 0.712 |
| Observations | 1,082 | 1,563 | 2,040 |
| Number of Elections | 122 | 122 | 122 |
| *Panel B: Election Surprise Last 2 Polls* | | | |
| Election Surprise X Post | -0.509** | -0.577** | -0.605** |
| | (0.205) | (0.228) | (0.234) |
| $R^2$ | 0.763 | 0.735 | 0.711 |
| Observations | 1,082 | 1,563 | 2,040 |
| Number of Elections | 122 | 122 | 122 |
| *Panel C: Election Surprise Last 3 Polls* | | | |
| Election Surprise X Post | -0.548*** | -0.605*** | -0.626*** |
| | (0.199) | (0.226) | (0.234) |
| $R^2$ | 0.764 | 0.736 | 0.711 |
| Observations | 1,082 | 1,563 | 2,040 |
| Number of Elections | 122 | 122 | 122 |
| *Panel D: Election Surprise Polls from Election Month* | | | |
| Election Surprise X Post | -0.551*** | -0.575*** | -0.576** |
| | (0.187) | (0.212) | (0.220) |
| $R^2$ | 0.765 | 0.735 | 0.710 |
| Observations | 1,082 | 1,563 | 2,040 |
| Number of Elections | 122 | 122 | 122 |
| *Panel E: Election Surprise Polls from Top 2 Parties* | | | |
| Election Surprise X Post | -0.178** | -0.179** | -0.159* |
| | (0.079) | (0.088) | (0.083) |
| $R^2$ | 0.761 | 0.731 | 0.705 |
| Observations | 1,082 | 1,563 | 2,040 |
| Number of Elections | 122 | 122 | 122 |
| Election fixed effects | ✓ | ✓ | ✓ |
| Quarter fixed effects | ✓ | ✓ | ✓ |
| Time-to-election fixed effects | ✓ | ✓ | ✓ |

Notes: This table presents regression results studying the effect of election surprises. The dependent variable in all specifications is year-on-year changes in GDP at the quarterly frequency. The sample of 'strong democracies' is defined as countries with an average *polity2* score above 9 in the three years prior to an election. The coefficients are estimated using OLS. Standard errors are adjusted for two-way clustering by election and quarter with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A13: Effect of Election Surprises on GDP Growth: Robustness to variance of polling errors

| | (1) | (2) | (3) |
|---|---|---|---|
| Dependent variable: | | GDP Growth | |
| Estimation window: | 4 Quarter Window | 6 Quarter Window | 8 Quarter Window |
| Sample: | | Strong democracies | |
| Election Surprise X Post | -0.768*** | -0.844*** | -0.762*** |
| | (0.179) | (0.175) | (0.262) |
| Election Surprise Standard Deviation X Post | 0.301 | 0.333 | 0.208 |
| | (0.238) | (0.237) | (0.287) |
| Election fixed effects | ✓ | ✓ | ✓ |
| Quarter fixed effects | ✓ | ✓ | ✓ |
| Time-to-election fixed effects | ✓ | ✓ | ✓ |
| $R^2$ | 0.766 | 0.738 | 0.712 |
| Observations | 1,082 | 1,563 | 2,040 |
| Number of Elections | 122 | 122 | 122 |

Notes: This table presents regression results studying the effect of election surprises on GDP growth. The dependent variable in all specifications is year-on-year changes in GDP at the quarterly frequency. The sample of 'strong democracies' is defined as countries with an average *polity2* score above 9 in the three years prior to an election. The coefficients are estimated using OLS. Standard errors are adjusted for two-way clustering by election and quarter with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A14: Effect of Election Surprises on GDP Growth: Robustness to election characteristics (strong democracies)

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Dependent variable: | | GDP Growth | | |
| Estimation window: | | 4 Quarter Window | | |
| Sample: | All Elections | Dropping Rescaled Polls | Dropping Two-Round Elections | Dropping Snap Elections |
| Election Surprise X Post | -0.560*** | -0.622** | -0.470*** | -0.504*** |
| | (0.181) | (0.276) | (0.176) | (0.172) |
| Election fixed effects | ✓ | ✓ | ✓ | ✓ |
| Quarter fixed effects | ✓ | ✓ | ✓ | ✓ |
| Time-to-election fixed effects | ✓ | ✓ | ✓ | ✓ |
| $R^2$ | 0.765 | 0.763 | 0.767 | 0.725 |
| Observations | 1,082 | 891 | 1,028 | 830 |
| Number of Elections | 122 | 100 | 116 | 94 |

Notes: This table presents regression results studying the effect of election surprises on GDP growth. The dependent variable in all specifications is year-on-year changes in GDP at the quarterly frequency. The sample of 'strong democracies' is defined as countries with an average *polity2* score above 9 in the three years prior to an election. The coefficients are estimated using OLS. Standard errors are adjusted for two-way clustering by election and quarter with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.