

# Read My Lips? Taxes and Elections\*

Clemens Fuest<sup>a,b,c</sup>, Klaus Gründler<sup>a,b,c</sup>, Niklas Potrafke<sup>†a,b,c</sup>, and Fabian Ruthardt<sup>a,b</sup>

<sup>a</sup>ifo Institute, Munich, <sup>b</sup>University of Munich (LMU), <sup>c</sup>CESifo, Munich

February 15, 2021

## Abstract

We examine how electoral motives influence tax reforms. We introduce a new quantitative harmonized index of tax reforms based on qualitative information of the IMF. Our sample includes 22 advanced and emerging market economies over the period 1960-2014. The results show that election-motivated politicians postponed tax rate increases to after elections. The increase in the overall tax rate index was around 0.24 standard deviations larger in post-election years than in other years. Politicians were especially active in increasing VAT tax rates and personal income tax rates after elections.

**Keywords:** Electoral cycles; tax reforms; OECD countries; panel data

**JEL Codes:** D72; H20; H25; C23

---

\*We would like to thank Justus Mänz for excellent research assistance. Fabian Ruthardt acknowledges funding from the Studienstiftung des deutschen Volkes - German Academic Scholarship Foundation - and the Konrad-Adenauer-Stiftung - Konrad-Adenauer-Foundation. We are grateful from financial support from the Friends of the ifo Institute (Gesellschaft zur Förderung der wirtschaftswissenschaftlichen Forschung (Freunde des ifo Instituts) e.V.).

<sup>†</sup>Corresponding author. University of Munich and ifo Institute for Economic Research. Poschingerstraße 5, 81679 Munich, Germany. E-Mail: Potrafke@ifo.de.

# 1 Introduction

The theory of political business cycles describes that election-motivated politicians implement expansionary policies before elections (Nordhaus, 1975; Rogoff and Sibert, 1988; Rogoff, 1990). Expansionary policies include increasing public expenditure, especially transfers. Tax policies are also well-suited to be manipulated before elections. Politicians may well decrease taxes before elections and postpone tax increases until after elections. Empirical studies have shown electoral cycles in taxation, in particular at the local and sub-national level. Little is known, however, whether electoral cycles in taxation are a global phenomenon or whether they can only be observed in individual federal states. Empirical evidence for electoral taxation cycles at the national level across countries is not available yet, the major reason being a lack of cross-nationally comparable data.

In this paper, we introduce new harmonized indices on tax reforms for 22 advanced and emerging market economies and six tax types between 1960 and 2014. Our indices provide a comprehensive overview of tax reforms and international trends in taxation over the past six decades. We use our indices to investigate electoral cycles in taxation. The results show that election-motivated politicians have postponed tax rate increases until after elections. The increase in the overall tax rate index was around 0.24 standard deviations larger in post-election years than in other years. The results are driven by post-election increases in VAT tax rates and personal income tax rates, increases of which are particularly unpopular among voters.

Measuring tax reforms across countries and over time is a challenging endeavor (Koester, 2009). Tax systems vary across countries. Clearly, in industrialized countries, types of taxes are quite similar: there are personal income taxes, corporate taxes, value added taxes, property taxes etc. Tax rates, tax bases and tax exemptions are, however, subject to multifaceted provisions in the legal framework of countries. The International Monetary Fund (IMF) compiled qualitative information on tax reforms in major OECD countries (Amaglobeli et al., 2018). This information is based on more than 900 OECD Economic Surveys and 37,000 tax-related news from the International Bureau of Fiscal Documentation using text-mining techniques. The IMF portrays tax reforms and describes them to be, for example, a minor or major tax reform. We use this data, disentangle tax increases and tax decreases, and introduce a new quantitative harmonized index of tax reforms (TRI index).

Election-motivated politicians manipulate taxes around elections in two ways. First,

they may well decrease taxes before elections. Voters are very likely to reward politicians when disposable incomes increase just before elections. Second, election-motivated politicians may well promise to not increase taxes when they are in office. Clearly, those promises often turn out to be cheap talk. Be it because election-motivated politicians were deluding voters on purpose or because they honestly did not want to increase taxes and were simply wrong about realities in office. A prominent example is the Republican George Bush who was promising in the U.S presidential election campaign on 18 August 1988: “*Read my lips. no new taxes*”. George Bush won the 1988 US presidential elections and became president in 1989. In 1990, he finally increased taxes (one reason being Congress dominated by the Democrats). George Bush did not fulfill his election pledge.

**Contribution to the literature:** Our study is related to the empirical literature on political business cycles (e.g., Ben-Porath, 1975; Schuknecht, 1996; Bloomberg and Hess, 2003; Shi and Svensson, 2006; Desai et al., 2007; Potrafke, 2010; Aidt et al., 2011; Brender and Drazen, 2013; De Haan and Klomp, 2013; Aidt and Mooney, 2014; Foremny and Riedel, 2014; Klomp and De Haan, 2016; Baskaran et al., 2015; Dubois, 2016; Bostashvili and Ujhelyi, 2019; Aidt et al., 2020; Potrafke, 2020). There is no study yet that investigates political business cycles in overall tax reforms across countries. Our results complement previous studies that find electoral cycles in taxation on the local level (Foremny and Riedel, 2014; Sances, 2017) by showing that postponing tax increases after elections is a global phenomenon and not confined to individual federal states.

The Nordhaus Model of the political business cycle shows that opportunistic policymakers stimulate the economy before elections to reduce unemployment which, in turn, gives rise to inflation after the election (Nordhaus, 1975).<sup>1</sup> Policymakers get away with decreasing unemployment before elections and increasing inflation after elections because voters discount past economic performance. In the United States, for example, voters highly discounted past economic performance; when evaluating politicians based on their economic performance, voters seem to look back not more than 1 or 2 years (Fair, 1978, 1982, 1988).

There are also studies on the role of campaign promises. Candidates’ making promises during campaigns is a worldwide phenomenon. They often do not keep,

---

<sup>1</sup>The Nordhaus Model is one of the first formal models of political business cycles and assumes that policymakers can influence monetary policy.

however, their promise and pledges after being elected. George Bush’s subsequently broken pledge of “*Read my lips: no new taxes*” in the 1988 U.S. presidential campaign is the most often-cited example of recent times, but by far not the only one. In Germany, the social democrats (no VAT rate increase) and christian democrats (2 percentage point VAT rate increase) broke their 2005 campaign promises by, once in a grand coalition, announcing a VAT rate increase by 3 percentage points in 2006. We contribute to the literature on how campaign promises may be kept and why this is rarely the case (Alesina and Spear, 1988; Cukierman and Liviatan, 1991; Harrington, 1993; Drazen, 2000).

We also contribute to the literature on trends in taxation in industrialized countries. So far, most studies investigated reforms in corporate income taxation and tax competition (Devereux and Griffith, 1998; Devereux et al., 2002; Devereux and Griffith, 2003a; Devereux et al., 2008; Arulampalam et al., 2012; Becker et al., 2012; Clausing, 2013; Kawano and Slemrod, 2016; Fuest et al., 2018). Comparable data on tax reforms, particularly for individual tax types and tax bases, has been heavily limited across countries and years. Our new indices on tax reforms allow for an encompassing analysis on how tax systems have been reformed over the past six decades in industrialized countries and may also be useful for scholars to address other research questions on the causes and consequences of tax reforms.

## 2 Measuring tax reforms

### 2.1 Previous measures of tax reforms

Several researchers have compiled datasets on taxes and tax reforms. The OECD Tax Database provides comparative information on major taxes for OECD and inclusive framework countries. However, the database has two shortcomings: (i) the tax base is missing for most taxes and (ii) coverage is limited with respect to the time dimension, including information only for the post-2000 period. The University of Michigan World Tax Database collects most personal income tax (PIT) and corporate income tax (CIT) rates for OECD countries from 1960 (PIT) and 1980 (CIT) until the 2000s. The Centre for Business Taxation Tax Database covers CIT bases and rates for all OECD countries from 1980 to 2017. Although these datasets have set milestones in the analyses of taxes and tax reforms, we are not aware of any tax database that provides comparable data on tax rates and bases for a large sample of countries, tax types, and years.

## 2.2 A new cross-nationally comparable index of tax reforms

### 2.2.1 Measuring tax reforms across countries – a new tax reform indicator

Comparing tax systems across countries is notoriously difficult. Tax systems are complex and their economic impact depends on tax rates, tax bases, administrative practices, fines for tax evasion and many other institutional details. Empirical economic research often needs summary measures which allow for a simple comparison of tax burdens across countries. Which type of summary measure is appropriate depends on the question asked. One example is the international comparison of the corporate tax burden on investment, where [King and Fullerton \(1983\)](#) introduced the concept of the effective marginal tax rate. It measures how the combination of tax rates and tax bases distorts marginal investment in a country. Other examples with a different focus include the concept of effective average tax rate introduced by [Devereux and Griffith \(2003b\)](#) or the labour income tax wedge published regularly by the OECD (see e.g., [OECD, 2020](#)).

Our analysis focuses on tax policy changes before and after elections. Here the challenge is that we cannot focus on individual taxes or particular economic distortions caused by the tax system. We are interested in changes rather than levels of taxation, but in principle all taxes are relevant. We are also interested in the magnitude of the tax changes and their significance, i.e. whether they lead to a large or just a small change in the tax burden. At the same time we need a measure which is simple enough to be suitable for the empirical analysis in a panel of countries.

To strike a balance between these objectives we develop a new index for the international comparison of tax reforms based on qualitative information on tax reforms provided by the IMF.

### 2.2.2 Collecting qualitative information on tax reforms

The key requirement of our approach is collecting detailed qualitative information about reforms of tax rates and tax bases for as many countries, years, and tax types as possible. Until very recently, detailed cross-country information on the nature of tax reforms was difficult to access. The availability of qualitative information on tax reforms was drastically improved by the launch of the IMF's Tax Policy Reform Database (TPRD), a comprehensive database of tax policy measures which includes 23 advanced and emerging market economies observed between 1930 and 2014 ([Amaglobeli et al.](#),

2018). The 23 countries are: Australia, Austria, Brazil, Canada, China, the Czech Republic, Denmark, France, Germany, Greece, India, Ireland, Italy, Japan, Luxembourg, Mexico, Poland, Portugal, Spain, South Korea, Turkey, the United Kingdom and the United States. The dataset covers detailed qualitative information on tax reforms using more than 900 OECD Economic Surveys and 37,000 tax-related news from the International Bureau of Fiscal Documentation. Information on the key features of tax reforms was extracted using text-mining analyses.

The innovation of the TPRD is the systematic and granular documentation of the direction of tax rates and tax bases, along with a qualitative assessment of the IMF on whether a reform has been “major” or “minor”. Information is separately available for six tax types: personal (PIT) and corporate (CIT) income taxes, value added and sale taxes (VAT), social security contributions (SSC), excises (EXE), and property taxes (PRO).<sup>2</sup> The dataset also includes information on the announcement and implementation dates of tax measures. The major advantage of the TPRD is its broad coverage, including qualitative information in areas (e.g. countries, years, tax types, tax bases) for which no time-varying policy indices existed before.

### 2.2.3 Quantifying tax reforms: the Tax Reform Index (TRI)

While the IMF’s Tax Reform Database is unparalleled in coverage and detail, its broad qualitative information cannot be readily used in empirical analyses that seek to quantify the causes and consequences of tax reforms. To provide a readily available index, we transfer the qualitative information into a quantitative index of tax reforms. Our index, the “Tax Reform Index” (TRI), provides cross-nationally harmonized measures of tax reforms that are available for 23 countries over the period 1960–2014. We introduce 14 indices for each country, reflecting reforms of tax rates and tax bases for each of the six tax types included in the IMF’s Tax Reform Database. We also combine these sub-indices into aggregate index of tax rate and tax base reforms that measure the extent of reform of the overall tax system.

Let  $\Delta s_{it}^r$  be the change in the tax rate for tax type  $r$ , announced in country  $i$  at time  $t$ .<sup>3</sup> Consider further that  $|\tilde{s}_{it}|$  is the qualitative information included in the IMF’s

---

<sup>2</sup>We include SSC when discussing tax types because of convenience and clarity.

<sup>3</sup>A key question is to what time period a tax reform should be assigned. The IMF Tax Reform Database includes information on both the announcement year and the implementation year. In most cases, these years are identical, but we also observe differences between the two. We base our analysis on the announcement year to avoid distorting anticipation effects. Also, the announcement data is

Tax Reform Database about the strength of a reform (“major” or “minor”). Our tax reform index  $\mathfrak{S}_{it}^r \in [-2, +2]$  is defined as

$$\mathfrak{S}_{it}^r = \begin{cases} -2, & \text{if } \Delta s_{it}^r < 0 \text{ and } |\tilde{s}_{it}| = \text{“major”} \\ -1, & \text{if } \Delta s_{it}^r < 0 \text{ and } |\tilde{s}_{it}| = \text{“minor”} \\ \pm 0, & \text{if } \Delta s_{it}^r = 0 \\ +1, & \text{if } \Delta s_{it}^r > 0 \text{ and } |\tilde{s}_{it}| = \text{“minor”} \\ +2, & \text{if } \Delta s_{it}^r > 0 \text{ and } |\tilde{s}_{it}| = \text{“major”}. \end{cases} \quad (1)$$

This index provides an intuitive interpretation. The index assumes a value of 1 when the tax reform led to a minor increase in tax rates, and a value of 2 when there has been a major increase in tax rates. The advantage of this coding is that it makes tax reforms more comparable than simply comparing tax rates. Under a given legal tax framework, an increase of, say, two percentage points may either be a minor increase or a major increase. The classification of the extent of the reform requires additional information on legal provisions of a tax systems, which are accounted for by the IMF’s qualitative assessment.

We also code two minor increases as being equivalent to one major increase. The rationale for this strategy is that two minor increases of the same tax type in the same year have the same reform character as one major increase. Clearly, such a coding rule reflects views on the nature of tax reforms, and researchers may have diverging views about the relative importance of several minor increases compared to one major increase. To address this concern, our indices come in two variants, which differ in the normalization rule applied to measure the extend of tax reforms. Depending on the research question, scholars will find either the normalized or the non-normalized version better suited to match their purposes.

The non-normalized versions put no constraints on the upper and lower bounds, adding multiple minor (+1) and major (+2) increases that occurred in the same period. Hence, compared with our normalized benchmark index  $\mathfrak{S}_{it}^r \in [-2, +2]$  defined in Equation (1), the non-normalized variant  $\mathfrak{S}_{it}^r \in \mathbb{Z}$  is more volatile. While this version offers greater scope to account for extreme reforms, it bears the risk that results in empirical estimations are driven by extreme outliers. The versions also differ in their definition of the very nature of a tax reform. When the research question is whether or

---

useful to examine how election-motivated politicians influence tax policies.

not there has been a (major) tax reform in a given year, then the normalized version is better suited for empirical work. Instead, when the research question requires having estimates for the extent of multiple reforms, then the non-normalized version is the better-suited alternative.

In principle, there may be reforms of several tax types in a given year, and these reforms may not be independent. Hence, for some empirical analyses, researchers might be interested in the extent to which the overall tax system has been reformed. We built our composite tax reform index  $\mathfrak{S}_{it}^A \in [-2, +2]$  by aggregating the six sub-indices to a uni-dimensional index of tax reform via

$$\mathfrak{S}_{it}^A = \frac{1}{6} \sum_{r=1}^6 \mathfrak{S}_{it}^r, \quad r = \{1, \dots, R\}, \quad (2)$$

where  $r = 1, \dots, 6$  denote the six tax types. Again, there might be good arguments to scale the final index on the interval  $[-2, +2]$  or to allow the index to not be confined by a pre-defined interval. We hence provide two versions of the aggregate index, but we believe that the constrained index is more suitable for empirical work. We apply the same logic to obtain indices to measure changes in tax bases.

**Assessing trends in taxation:** Our indices reflect reforms of the tax system, and may hence be interpreted as the *change* of the tax burden at a given point time. For many analyses, however, researchers might be interested in international trends in taxation. Such trends can be obtained by accumulating the index values  $\mathfrak{S}_{it}^r$  over time

$$\mathfrak{S}_{iT'}^r = \sum_{t=1960}^{T'} \mathfrak{S}_{it}^r, \quad t = \{1960, 1961, \dots, T'\}, \quad (3)$$

where  $\mathfrak{S}_{iT'}^r$  is the accumulated index value at time  $T'$ . This index value shows the tax burden of a tax system relative to the base year 1960. The accumulated version also allows comparisons of trends between countries, as all accumulated indices are, by construction, indexed to  $1960 = 0$ .

**Example: Tax Reforms and Trends in the United States, 1960–2014:** Figure (1) shows the Tax Reform Index, plotting the aggregate Tax Reform Index  $\mathfrak{S}_{it}^A$  for the United States (upper panel) and the accumulated version of the index  $\mathfrak{S}_{iT'}^r$  (lower panel). This example shows the logic of our index and compares the Tax Reform Index

to the time-accumulated version of the index that allows for trends in taxation over time.

By construction, the Tax Reform Index oscillates around the zero line, pointing to reforms in the US tax system. We observe that there has been a series of (mostly minor) tax decreases at the beginning of the observation period, which accumulate to a negative trend in the tax burden during the 1970s. This trend reversed during the 1990s, when the US tax system became more contractionary than in 1960, the beginning of our sample.

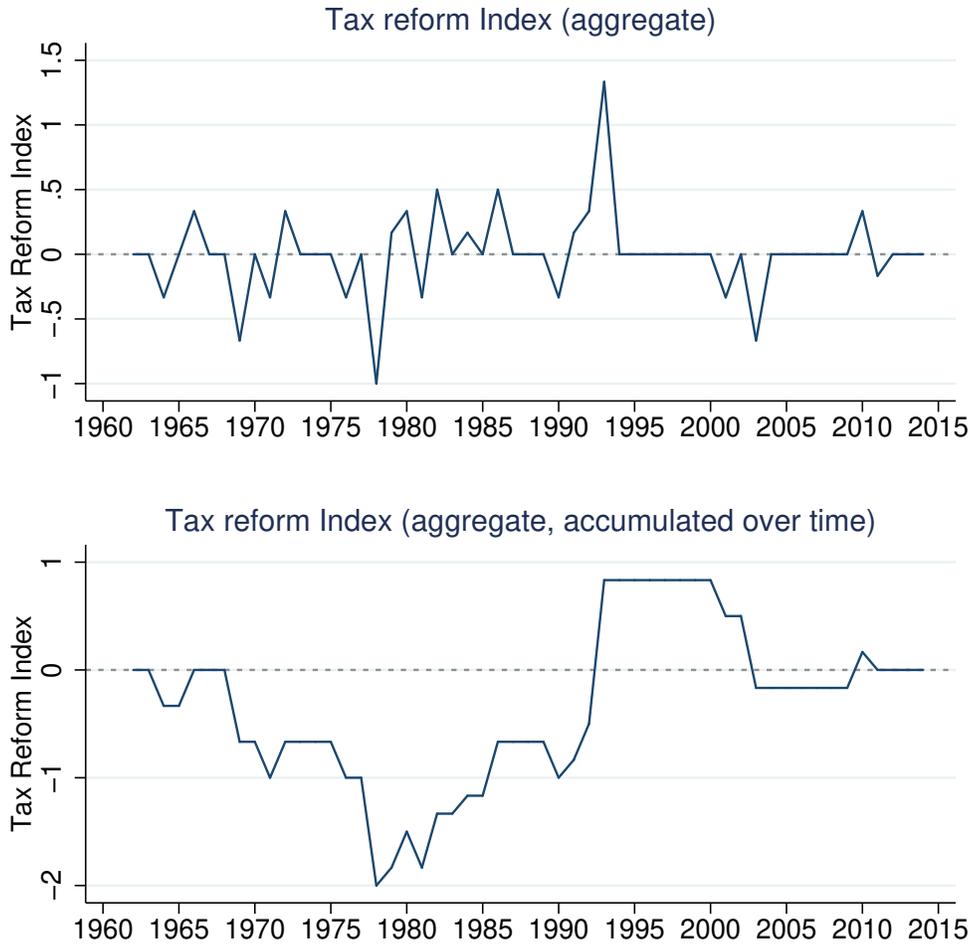
## 2.3 Descriptive statistics

Our indices allow us to portray an encompassing overview of trends in taxation from the early 1960s to the mid 2010s. Previous tax indices were mainly confined to information on tax rates for private and corporate income taxes, and were heavily limited in the included number of countries and years.

**Trends in tax rates:** Figure (2) compares trends in taxation in the United States, Germany, Japan, and the United Kingdom. The figure shows that there is heterogeneity in how tax systems have developed across countries. While we observe a decline in average tax rates in the early 1960s, this trend reverted during the 1970s and gained pace after the 1979 oil crises. Average tax rates started to decline starting in the mid-1990s. In 2015, the end of the sample, average tax rates return to its 1960 levels.

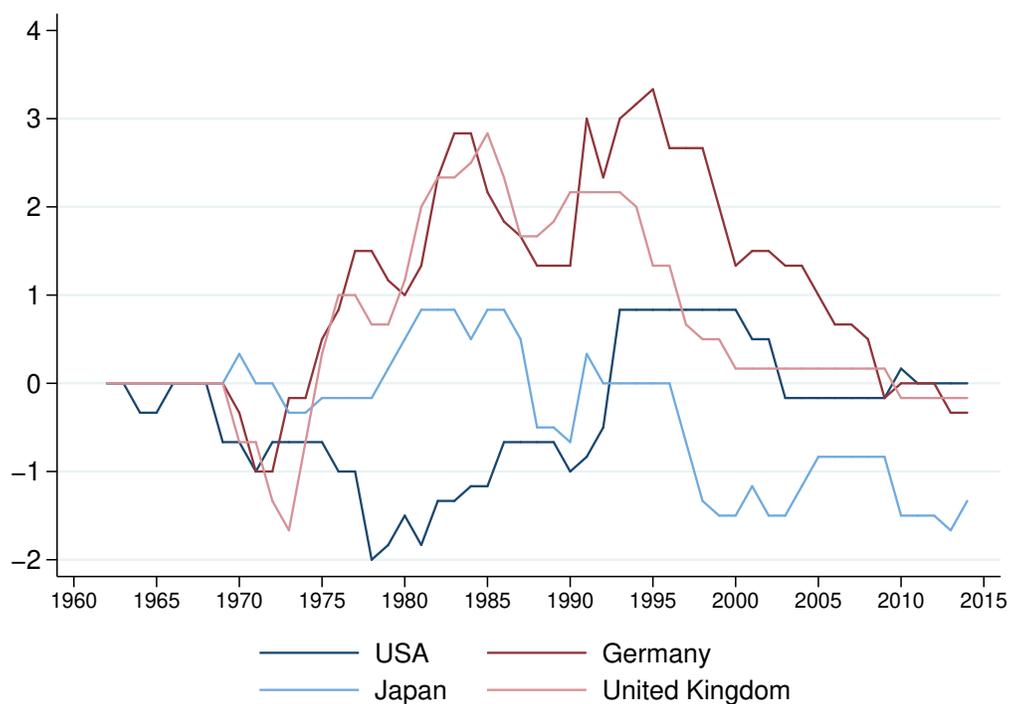
Our aggregate tax index adds sub-indices for tax types using equal weights. There may well be heterogeneity in how tax rates for individual tax types have developed. Figure (3) shows trends in taxation for individual tax types for the United States and Germany. The figure suggests that trends for individual tax types are more strongly pronounced than trends in overall tax systems. For both countries, we observe a negative trend in tax rates of corporate taxation and personal income taxation. In contrast, excises have increased substantially in both countries. There are differences between the countries with regard to the development of social security contributions and the VAT. The observable trends are consistent with developments implied by previous tax indices for which data on corporate and personal income taxation has been available. The trends in tax types suggest that the composition of tax systems has changed over the past decades.

**Figure 1** ILLUSTRATION OF THE TAX REFORM INDEX: TAX REFORMS AND TRENDS IN TAXATION IN THE UNITED STATES, 1960–2014.



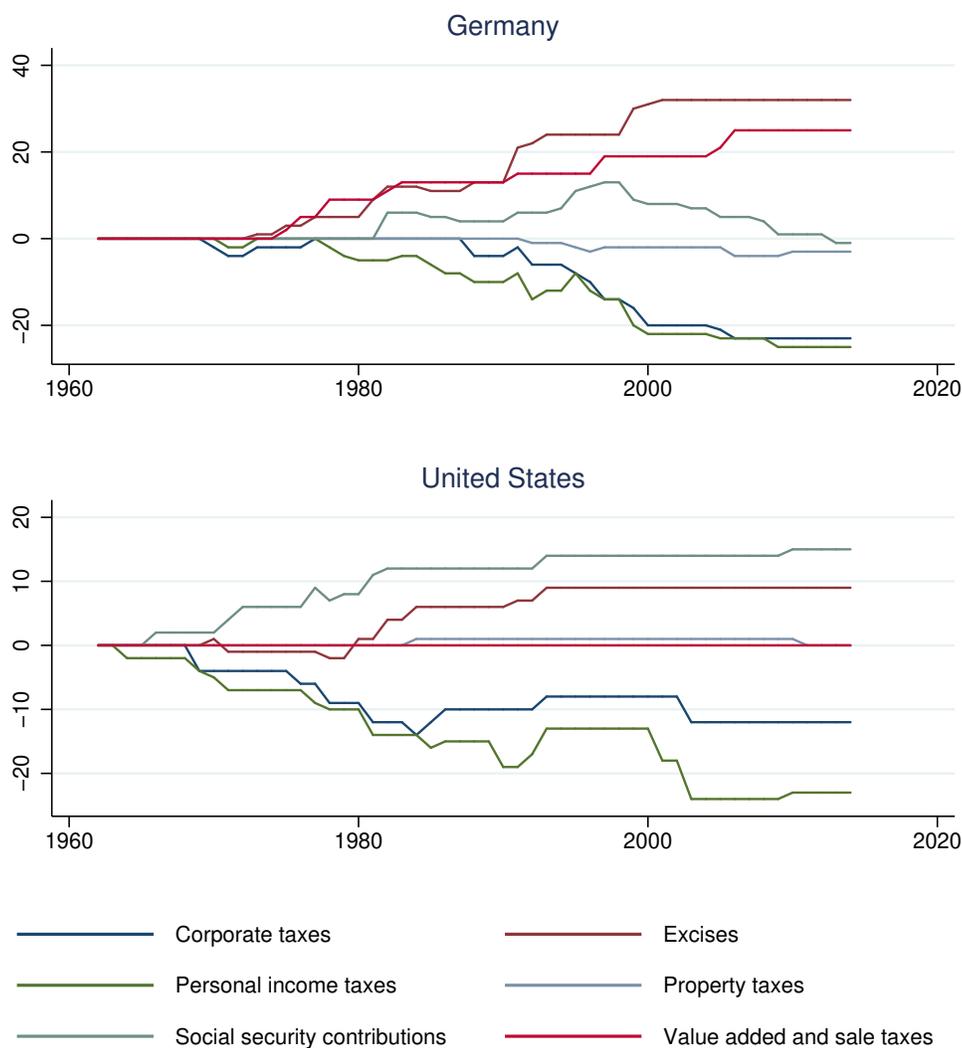
*Notes:* The figure illustrates the aggregate Tax Reform Index  $\mathfrak{S}_{it}^A$  for the United States (upper panel) and the accumulated version of this index  $\mathfrak{S}_{iT'}^r$ , to assess trends over time. For the accumulated version, each point in time  $T'$  represents the sum of the Tax Reform Index  $\mathfrak{S}_{it}^A$  over all available periods prior to  $T'$ .

**Figure 2** TRENDS IN TAX RATES, THE UNITED STATES, GERMANY, JAPAN, AND THE UNITED KINGDOM IN COMPARISON, 1960–2014.



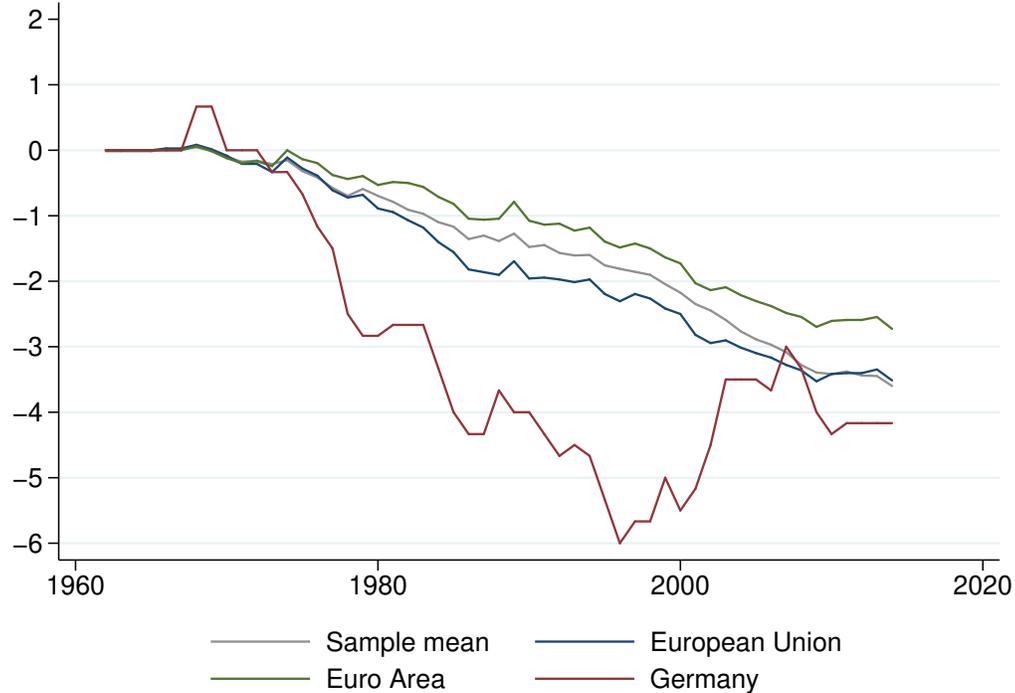
*Notes:* The figure illustrates the accumulated version of the aggregate Tax Reform Index ( $\mathfrak{S}_{iT'}^A$ ) to compare trends in taxation between the United States, Germany, Japan, and the United Kingdom over time. For the accumulated version, each point in time  $T'$  represents the sum of the Tax Reform Index  $\mathfrak{S}_{it}^A$  over all available periods prior to  $T'$ .

**Figure 3** TRENDS IN TAX RATES, DEVELOPMENT OF INDIVIDUAL TAX TYPES, THE UNITED STATES AND GERMANY IN COMPARISON, 1960–2014.



*Notes:* The figure shows the accumulated version of the Tax Reform Index for individual tax types ( $\mathfrak{S}_{iT'}^r$ ) to compare trends in taxation between the United States and Germany over time. For the accumulated version, each point in time  $T'$  represents the sum of the Tax Reform Index for individual tax types  $\mathfrak{S}_{it}^r$  over all available periods prior to  $T'$ .

**Figure 4** TRENDS IN TAX BASES, SAMPLE MEAN, EUROPEAN UNION, EURO AREA, AND GERMANY IN COMPARISON, 1960–2014.



*Notes:* The figure shows the accumulated version of the aggregate Tax Reform Index ( $\mathfrak{S}_{iT'}^A$ ) to compare trends in tax bases between the sample mean, the European Union, the Euro Area, and Germany over time. For the accumulated version, each point in time  $T'$  represents the sum of the Tax Reform Index  $\mathfrak{S}_{it}^A$  over all available periods prior to  $T'$ .

**Trends in tax bases:** Figure (4) shows trends in tax bases for the sample mean, Germany, the European Union, and the Euro Area. Contrary to the trends observed regarding tax rates, the figure suggests that tax bases have narrowed in all countries and regions included in our dataset.

## 2.4 Tax reforms after elections

Evidence suggests a substantial increase in announced tax reforms in the first year after a national general election. We provide examples of three tax reforms and describe how we coded the reforms in our harmonized index. We then provide a broader overview comparing sample means of tax reforms in election years, years before elections, and

years after elections.

**Italy 1977:** The Italian center-right minority government announced a major tax reform on 1 February 1977. 7 days later, on 8 February 1977, the standard VAT rate was increased by 2 percentage points from 12% to 14%. An extra bracket was introduced for the reduced VAT rate which was taxable at 12%.<sup>4</sup> The increased tax rate was further increased by 5 percentage points from 30% to 35% (European Commission, 2020).

The IMF Tax Reform Database records the announced change in the Italian VAT rate as a major increase. Therefore, the VATRI assumes the value 2 for Italy for the year 1977.

**United States 1993:** The 103rd US Congress enacted the Tax Reform Act of 1993 and then-President Bill Clinton signed it into law. The tax reform contained major provisions for individuals and companies. The most substantial changes concerned the PIT and CIT rates. The Tax Reform Act of 1993 increased the PIT rate by 5 percentage points from 31% to 36% for taxable income between 140,000 and 250,000 USD and by 8.6 percentage points to 39.6% on incomes over 250,000 USD (Feldstein, 1995). It also increased the CIT rate for corporate income over 10 million USD: the tax rate on income between 10 and 15 million USD increased by 1 percentage point from 34% to 35%, the tax rate on income between 15 and 18.33 million USD increased by 3 percentage points from 34% to 38%, and the tax rate on income over 18.33 million USD increased by 1 percentage point from 34% to 35% (Taylor, 2003).

The IMF Tax Reform Dataset records the announced changes in the US PIT and CIT rates as major increases. Therefore, the PITRI and CITRI assume the value 2 for the United States for the year 1993.

**Germany 2006:** On 19 May 2006, the German parliament (*Deutscher Bundestag*) voted for the largest tax increase since 1949 (Spiegel, 2006). The conservatives (*CDU & CSU*) and the social democrats (*SPD*) jointly agreed to increase the VAT rate by 3 percentage points from 16% to 19% starting 1 January 2007.<sup>5</sup>

---

<sup>4</sup>The total number of tax brackets for the reduced VAT rate was 4 before the reform. Tax rates of the brackets were 1%, 3%, 6%, and 9%

<sup>5</sup>The reduced VAT rate increased by 2 percentage points from 5% to 7%.

During the 2005 election campaign, CDU-candidate Angela Merkel proposed a 2 percentage points increase in the VAT rate. The SPD promised that they would not support any VAT rate increase and campaigned with the now infamous slogan: “*Mehrwertsteuer, das wird teuer.*” (engl.: “VAT [increase] is expensive”). The compromise was a VAT rate increase by 3 percentage points.

The IMF Tax Reform Database records the announced change in the German VAT rate as a major increase. Therefore, the VATRI assumes the value 2 for Germany for the year 2006.

**Comparing sample means:** The case studies are expository examples of tax changes after elections. To provide a more general overview on the unconditional correlation between tax changes and election dates, Figure (5) shows changes in the overall tax rate index in election and non-election years (left panel), post-election and no post-election years (center panel), and pre-election and no pre-election years (right panel). The figure uses data for OECD countries with established democracies. The differences in the overall tax rate index in election years (-0.005) and non-election years (-0.009) lacks statistical significance. The results suggest, by contrast, that increases in tax rates were postponed until after elections: in post-election years, the increase in the overall tax rate index was 0.046 points. In all other years, the overall tax rate index decreased by 0.031 points on average. This difference is statistically significant at the 5% level. Overall tax rates decreased in pre-election years; the mean of the overall tax reform index is -0.013 (right panel). Overall tax rates were only slightly decreased in all other years; the mean of the overall tax rate index is -0.004. The difference in means is, however, not statistically significant for pre-election years.

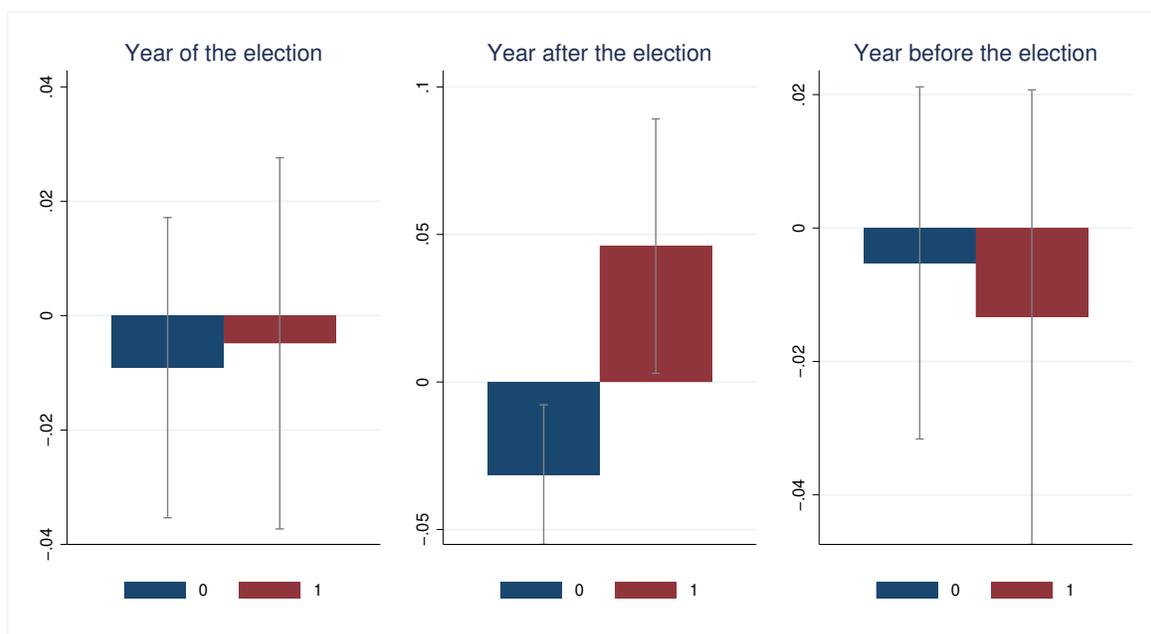
The patterns are identical when we compare election dates and tax reforms using the full sample of countries which also covers emerging market economies with less established political institutions (Figure 6 in the appendix).

## 3 Changes in taxation after elections

### 3.1 Hypotheses

Election-motivated politicians are expected to manipulate economic policies and outcomes before elections. The theories on political business cycles describe that politi-

**Figure 5** CHANGES IN TAX RATES AND ELECTION DATES, AGGREGATE TAX REFORM INDEX, OECD COUNTRIES, 1960–2014.



*Notes:* The figure shows changes in tax rates implied by the aggregate Tax Reform Index ( $S_{iT'}^A$ ) in election years and non-election years. When comparing changes in tax rates in election years, label “1” refers to years with elections, while “0” refers to non-election years. When comparing changes in years before and after elections, “1” refers to the pre- or post-election-year. Vertical lines indicate 95% confidence intervals.

cians implement expansionary policies such as increasing public expenditure and decreasing taxes before elections (Nordhaus, 1975; Rogoff and Sibert, 1988; Rogoff, 1990).

Our hypotheses to be examined empirically are:

**Hypothesis 1 (H1).** *Tax rates decrease (increase) before (after) elections.*

**Hypothesis 2 (H2).** *Tax bases are reduced (expanded) before (after) elections.*

## 3.2 Empirical strategy

The unconditional correlations reported in Figure (5) suggest that tax rates on average increase after elections, implying that policymakers postpone tax increase after the election date to avoid unfavourable effects on electoral outcomes. However, the descriptive statistics shown in Section (2.3) suggest that there is large cross-country heterogeneity in how tax systems have developed. Also, we observed pronounced trends in taxation over time. We account for heterogeneity in taxation across countries and over time by specifying a panel data model of the form

$$\mathfrak{S}_{it}^A = \gamma E_{it+\tau} + \mathbf{X}_{it}\boldsymbol{\beta} + \eta_i + \zeta_t + \varepsilon_{it}, \quad (4)$$

where the Tax Reform Index  $\mathfrak{S}_{it}^A$  of country  $i$  at time  $i$  is modeled to be a function of the election date  $E_{it+\tau}$ . To account for cross-country heterogeneity in taxation, we include fixed effects for countries  $\eta_i$ . These effects also account for all other time-invariant unobserved factors that may correlate with election dates and tax reforms (e.g. cultural norms and socialization, political history, dominant schools of thought, geography, and institutional frameworks). To account for cross-country trends in taxation over time, we include year fixed effects  $\zeta_t$ . These effects also account for exogenous shocks that similarly affect all countries in the dataset and which may influence taxation (e.g. economic crises). All unobserved time-varying shocks to taxation are absorbed by the idiosyncratic error term  $\varepsilon$ .

We also account for observable time-varying factors that may confound the relationship between election dates and taxation. These factors are stacked in the matrix  $\mathbf{X}_{it}$  and include government ideology, the growth rate of real per capita GDP, globalization, and the quality of political institutions.

The partisan theories describe that leftwing and rightwing governments implement fiscal policies to gratify the needs of their constituencies. Leftwing governments are

expected to cater low-income citizens and favor income redistribution; rightwing governments are expected to cater high-income citizens and favor less income redistribution than leftwing governments (Hibbs, 1977; Chappell and Keech, 1986; Alesina, 1987; Potrafke, 2017, 2018). Leftwing governments have been shown, for example, to set higher corporate tax rates than rightwing governments (Osterloh and Debus, 2012).

Tax reforms may also be driven by a country’s past macroeconomic performance (see, e.g., Castanheira et al., 2012). On the one hand, tax increases may face less political headwinds in times when the macroeconomic performance is favourable. On the other hand, tax increases may be inevitable if spending increases in recessions have raised the public deficit. To account for these mechanisms, our model includes the growth rate of real per capita GDP.

Globalization is likely to influence taxation policies (Jha and Gozgor, 2019). The question is how. The race-to-the-bottom hypothesis describes that globalization puts pressure on national governments: systems competition gives rise to decreasing tax rates (Sinn, 1997, 2003). By contrast, when citizens demand higher social insurance during globalization, governments need to increase public expenditure and may want to increase tax revenues. On the globalization-welfare state nexus see, for example, Schulze and Ursprung (1999).

The main hypothesis underlying the electoral cycle theory is that self-interested politicians have incentives to pursue expansionary fiscal policies before elections and to postpone contractionary policies until after the elections. Leeway for such practices is higher in countries with weaker political institutions.

Our Tax reform Index is available for a total of 23 advanced and emerging market economies. Data on elections is missing for China among these 23 countries. Our benchmark estimates are based on the 16 democratic OECD and/or EU-member countries included in Armingeon et al. (2020) to compare our results with previous studies on political business cycles that were based on OECD countries with established political institutions. In a second step, we enlarge our analysis to cover the full sample of 22 countries.

### 3.3 Data description

**Election data:** Our main election data comes from the “Comparative Political Data Set 1960-2018” compiled by Armingeon et al. (2020). This dataset includes information for 16 of the 22 countries included in our sample. For the analysis of our complete

sample, we enlarge the election dataset with information provided in the Database of Political Institutions (Cruz et al., 2018).

**Data for control variables:** We measure government ideology by the index of [Po-  
trafke \(2009\)](#) that assumes values between 1 (strong rightwing government) and 5 (strong leftwing government). Data on real per capita GDP comes from the Penn World Tables version 9.1 ([Feenstra et al., 2015](#)). We measure globalization by the KOF Globalisation Index ([Dreher, 2006](#); [Gygli et al., 2019](#)). Political institutions are measured using the continuous democracy indicator of [Gründler and Krieger \(2016, 2019\)](#).

### 3.4 Baseline results

Table (1) presents our baseline results. The parameter estimates of the election year and pre-election year variables lack statistical significance - including them individually (columns I and III) and jointly (column IV) notwithstanding. By contrast, the parameter estimate of the post-election year variable is statistically significant at the 1% level in columns (II) and (IV). The parameter estimate is positive in columns II and IV and indicates that the increase in the overall tax rate index was 0.0717 (column II) points higher in post-election years than in other years. It was 0.0874 (column IV) points higher in post-election years than in other years that were no election or pre-election years. In other words, the increase in the overall tax rate index was around 0.27 standard deviations larger in post-election years than in other years.

In Table (A-2) in the appendix, we provide results for tax bases: we do not find evidence that an electoral cycle influenced tax base reforms.

Taken together, our results suggest that election-motivated politicians influenced tax policies around elections. The results also show that it is important to distinguish between changes in tax rates and bases. While we find an economically and statistically significant increase in taxes rates after elections, similar inferences cannot be drawn regarding tax bases.

### 3.5 Robustness

We conduct a series of robustness checks to assess the stability of our results.

**Table 1** TAXES AND ELECTIONS—BASELINE-RESULTS, TAX RATES

Dependent variable: Tax Reform Index (aggregated, tax rates), $\mathfrak{S}_{it}^A$				
	(I) Election year	(II) Post-Election	(III) Pre-Election	(IV) Full specification
Election year	0.000926 (0.03)			0.0384 (1.04)
Post-Election		0.0717*** (3.30)		0.0874*** (3.25)
Pre-Election			-0.0151 (-0.43)	0.00824 (0.19)
Observations	759	759	759	759
Countries	16	16	16	16
R-Squared (overall)	0.138	0.146	0.138	0.147
Prob. > F-Stat	0.000	0.000	0.000	0.000
Country-Level Fixed Effects	YES	YES	YES	YES
Period Fixed Effects	YES	YES	YES	YES

*Notes:* The table shows the baseline results of our estimations on the relationship between tax reforms and election dates (Equation 4).  $t$  values that are obtained using robust standard errors (adjusted for arbitrary heteroskedasticity) are reported in parentheses. The variable “Election” refers to election date in  $t$ , “Post-Election” shows the coefficient for election dates in  $(t - 1)$ , “Pre-Election” reports coefficients for election dates in  $(t + 1)$ . For a description of the Tax Reform Index, see Section (2). All estimations include fixed effects for countries and years.

- \*\*\* Significant at the 1 percent level,
- \*\* Significant at the 5 percent level,
- \* Significant at the 10 percent level

**Observable confounding factors:** A concern may be that the results are driven by time-varying confounding factors. In Table (A-4), we control for the growth rate of real per capita GDP, government ideology, globalization, and political institutions (see Section 3.2). There are no changes in the results when we include these controls.

**US midterm elections:** Our benchmark election dummy follows the definition of [Armingeon et al. \(2020\)](#) and includes mid-term elections for the United States. The results are practically identical when we exclude US midterm elections (see Table A-3 in the appendix).

**Jack-knifed analysis:** A concern about our benchmark estimates is that the results may be driven by individual countries. To examine whether outliers influence our

results, Table (A-5) reports results from a jack-knife analysis which re-estimates the baseline model while gradually excluding observations for each country. Doing so does not change the inferences.

**Non-normalized index of tax reforms:** Our estimates are obtained based on the tax reform indices that are normalized on the interval  $[-2, +2]$ . The motivation for this choice is two-fold. First, our research question is whether we observe tax reforms before and after election dates. Hence, we are interested in the occurrence of any reform and not in the occurrence of multiple reforms. Second, we want to rule-out that the results are driven by outliers. For instance, a series of reforms led the sub-index for personal index taxation to assume values of 6 in Canada (1985) and the United Kingdom (1976) and the sub-index for value added taxation to be -10 in France (2000) and -5 in Spain (1999). The total number of observations outside the interval  $[-2, +2]$  is, however, small for each sub-index.<sup>6</sup> For each analysis executed in this paper, the results are qualitatively identical when we replace the non-normalized index with the normalized index. We also observe little changes regarding the size of the estimated parameters.

### 3.6 Electoral Cycles in emerging market economies

Our tax reform indices are available for a total of 23 countries: 16 democratic OECD and/or EU-member countries included in [Armingeon et al. \(2020\)](#) and Brazil, China, Czech Republic, India, Mexico, South Korea, and Turkey. Our baseline results are obtained using the 16 countries included in [Armingeon et al. \(2020\)](#) to examine electoral cycles in established democracies with strong political institutions. In Table (A-6), we re-estimate our baseline model for the full sample of countries. This analysis excludes China, where the Database on Political Institutions does not list a single election during the observation period. Exploiting the full sample of countries and years does not change the results, but the size of the estimated parameters and the  $t$ -statistics increase.

---

<sup>6</sup>For all 1,166 observations for which data on tax reforms is available, the following number of observations is outside the normalized interval  $[-2, +2]$ : corporate income tax (48), personal income tax (59), excises (27), value added and sales tax (31), property tax (2), social security contributions (23). Hence, the share of observations outside the constrained interval is less than 5% for each index.

### 3.7 Heterogeneity across tax types

In Tables (A-7)–(A-12) in the appendix, we re-estimate our benchmark model of Table (1) for the individual tax types. The results show that the overall postponement effect is driven by value added and sales taxes (VAT) and, to a lesser extent, by personal income taxation. The parameter estimate of the post-election year variable is statistically significant at the 1% level in columns (II) and (IV) and indicates that the increase in the VAT tax rate reform index was around 0.34 standard deviations larger in post-election years than in other years. Also, personal income tax rates were increased in post-election years, an effect that is statistically significant at the 10% level (Table A-9). Social security contributions were decreased in election years (Table A-12). The parameter estimates of the election year variable have negative signs and are statistically significant at the 5 % level in column (I) and at the 10 % level in column (IV). The estimates suggest that the decrease in social security contributions was by around 0.18 standard deviations larger in election years than in any other years. The results do not change when we perform the robustness checks conducted in Section (3.5) for each of the tax types.

The results do not suggest that electoral cycles influenced corporate income taxation (Table A-7) and property taxation (Table A-11).

The estimates for individual tax types emphasize the advantages of our indices, providing more granular results about the origin of the strong post-election effects. Such effects could not be uncovered with previous tax indices, which do not allow for a similar in-depth examination of tax changes after elections.

### 3.8 Early elections

Election-motivated politicians may well have less time to manipulate economic policies and outcomes when elections are called early than when elections take place on their scheduled date. Scholars therefore disentangle effects of regular and early elections (Shi and Svensson, 2006; Potrafke, 2010). Taxation policies are suitable to be changed quickly, also before early elections. In particular, our dependent variable is based on announcements of tax reforms and not the reforms' implementation dates. It is therefore conceivable that election-motivated politicians influence tax reforms also before early elections.

We use official government documents to manually code a dummy variable that is 1

if an election took place early (and zero otherwise), building on the early election data by [Potrafke \(2010\)](#) and [Potrafke \(2020\)](#). Our baseline sample includes 232 elections, 93 among them were called early (about 40%). We disentangle regular and early elections in Table (2). The result show that election-motivated politicians postponed tax increases after both regular and early elections. The coefficient estimates of the regular and early post-election year variable are both statistically significant at the 5% level have quite similar magnitudes (0.0866 and 0.0721) in column (IV).

## 4 Conclusion

How election-motivated politicians influence economic policies has been examined for a long time. Many previous studies have focused on public expenditure and deficits which politicians often increase before elections. Taxation policies are also an excellent measure to be manipulated around elections: voters are likely to enjoy, and in turn likely to reward politicians who decrease taxes before elections. When politicians have no means to decrease taxes before elections because, for example, budgets need to be consolidated and taxes need to be increased, politicians are well advised to postpone tax increases after elections.

Electoral cycles in taxation policies are to be expected and researchers have been eager in investigating them. Researchers needed, so far, be satisfied with sub-national or incomplete national data to measure taxation policies. Tax systems are complex: they encompass individual types of taxes, and politicians use tax rates, tax bases and exemptions to design tax systems in manifold ways. What is more, tax systems vary a great deal across countries. Consequently, there was no evidence yet describing how electoral motives influence overall taxation policies.

We introduce a new harmonized index of tax reforms that is based on qualitative information of the IMF. Our sample includes 22 countries: 16 democratic OECD and/or EU-member countries included in [Armingeon et al. \(2020\)](#) and Brazil, Czech Republic, India, Mexico, South Korea, and Turkey. The data is available over the period 1960-2014. The results show that election-motivated politicians influenced taxation policies around elections. Tax rate increases were postponed to the year after elections. This effect is strong: it is numerically important – the increase in the overall tax rate index was around 0.24 standard deviations larger in post-election years than in other years – statistically significant at the 1 % level and robust to many robustness tests. Election-

**Table 2** TAXES AND ELECTIONS—DISENTANGLING EARLY AND REGULAR ELECTIONS, TAX RATES

Dependent variable: Tax Reform Index (aggregated, tax rates), $\mathfrak{S}_{it}^A$				
	(I) Election year	(II) Post-Election	(III) Pre-Election	(IV) Full specification
Election (regular)	-0.0299 (-0.81)			0.00681 (0.13)
Post-Election (regular)		0.0797** (2.33)		0.0866** (2.05)
Pre-Election (regular)			-0.0296 (-0.78)	-0.00617 (-0.12)
Election (early)	0.0466 (1.22)			0.0718 (1.74)
Post-Election (early)		0.0604* (1.80)		0.0721** (2.29)
Pre-Election (early)			0.00624 (0.13)	0.0170 (0.35)
Observations	759	759	759	759
Countries	16	16	16	16
R-Squared (overall)	0.143	0.145	0.140	0.152
Prob. > F-Stat	0.000	0.000	0.000	0.000
Country-Level Fixed Effects	YES	YES	YES	YES
Period Fixed Effects	YES	YES	YES	YES

*Notes:* The table shows the results of our estimations on the relationship between tax reforms and election dates (Equation 4), disentangling early and regular elections.  $t$  values that are obtained using robust standard errors (adjusted for arbitrary heteroskedasticity) are reported in parentheses. The variable “Election” refers to election date in  $t$ , “Post-Election” shows the coefficient for election dates in  $(t - 1)$ , “Pre-Election” reports coefficients for election dates in  $(t + 1)$ . For a description of the Tax Reform Index, see Section (2). All estimations include fixed effects for countries and years.

- \*\*\* Significant at the 1 percent level,
- \*\* Significant at the 5 percent level,
- \* Significant at the 10 percent level

motivated politicians were especially active in increasing VAT tax rates after elections.

Our results contribute to the empirical studies on political business cycles: electoral motives influence economic policies quite strongly, also in industrialized countries. The results are also useful for the public discourse. Voters may well consider election dates when they anticipate changes in tax policies. Politicians often promise to not increase taxes after elections. When being in office, however, they do not fulfill their pledges.

# Appendix A: Supplementary Tables

**Table A-1** SUMMARY STATISTICS OF VARIABLES

Variable	Mean	Std. Dev.	Min.	Max.	Observations
Election	0.305	0.461	0	1	791
Aggregate Indicator (Tax Rate)	-0.01	0.329	-2	1.667	1166
Aggregate Indicator (Tax Base)	-0.068	0.334	-1.5	1.5	1166
CIT Indicator (Tax Rate)	-0.148	0.811	-2	2	1166
EXE Indicator (Tax Rate)	0.136	0.595	-2	2	1166
PIT Indicator (Tax Rate)	-0.142	0.851	-2	2	1166
PRO Indicator (Tax Rate)	0.002	0.275	-2	2	1166
SSC Indicator (Rate)	0.055	0.541	-2	2	1166
VAT Indicator (Tax Rate)	0.039	0.677	-2	2	1166
CIT Indicator (Tax Rate, non-normalized)	-0.22	1.18	-8	6	1166
EXE Indicator (Tax Rate, non-normalized)	0.174	0.808	-4	8	1166
PIT Indicator (Tax Rate, non-normalized)	-0.226	1.266	-9	4	1166
PRO Indicator (Tax Rate, non-normalized)	-0.003	0.337	-6	2	1166
SSC Indicator (Rate, non-normalized)	0.064	0.746	-6	6	1166
VAT Indicator (Tax Rate, non-normalized)	0.035	0.935	-10	6	1166

*Notes:* The table shows descriptive statistics of the variables used in our analysis. For a description of the Tax Reform Index, see Section (2). All estimations include fixed effects for countries and years.

**Table A-2** TAXES AND ELECTIONS—BASELINE-RESULTS, TAX BASES

Dependent variable: Tax Reform Index (aggregated, tax bases), $\mathfrak{S}_{it}^A$				
	(I) Election year	(II) Post-Election	(III) Pre-Election	(IV) Full specification
Election year	-0.0083 (-0.30)			-0.0147 (-0.38)
Post-Election		0.0395 (1.22)		0.0297 (1.02)
Pre-Election			-0.0426 (-1.36)	-0.0457 (-1.02)
Observations	759	759	759	759
Countries	16	16	16	16
R-Squared (overall)	0.0881	0.0914	0.0898	0.0923
Prob. > F-Stat	0.000	0.000	0.000	0.000
Country-Level Fixed Effects	YES	YES	YES	YES
Period Fixed Effects	YES	YES	YES	YES

*Notes:* The table shows the baseline results of our estimations on the relationship between tax reforms and election dates (Equation 4).  $t$  values that are obtained using robust standard errors (adjusted for arbitrary heteroskedasticity) are reported in parentheses. The variable “Election” refers to election date in  $t$ , “Post-Election” shows the coefficient for election dates in  $(t - 1)$ , “Pre-Election” reports coefficients for election dates in  $(t + 1)$ . For a description of the Tax Reform Index, see Section (2). All estimations include fixed effects for countries and years.

- \*\*\* Significant at the 1 percent level,
- \*\* Significant at the 5 percent level,
- \* Significant at the 10 percent level

**Table A-3 TAXES AND ELECTIONS—ACCOUNTING FOR OBSERVABLE CONFOUNDING FACTORS, TAX RATES**

Dependent variable: Tax Reform Index (aggregated, tax rates), $\mathfrak{S}_{it}^A$				
	(I) Election year	(II) Post-Election	(III) Pre-Election	(IV) Full specification
Election year	-0.00488 (-0.15)			0.0462 (1.05)
Post-Election		0.0940*** (3.43)		0.114*** (3.27)
Pre-Election			-0.0165 (-0.40)	0.0138 (0.26)
$\Delta \text{GDP}^{pc}$	-1.711 (-1.48)	-1.745 (-1.56)	-1.724 (-1.47)	-1.756 (-1.55)
Left-Wing Ideology	0.00596 (0.12)	0.00589 (0.12)	0.00625 (0.13)	0.00521 (0.11)
Globalization	-0.000385 (-0.05)	0.0000296 (0.00)	-0.000340 (-0.04)	0.000504 (0.06)
Political Institutions	-0.0545 (-0.54)	-0.0932 (-0.91)	-0.0544 (-0.56)	-0.115 (-1.19)
Observations	649	649	649	649
Countries	16	16	16	16
R-Squared (overall)	0.154	0.165	0.154	0.166
Prob. > F-Stat	0.000	0.000	0.000	0.000
Country-Level Fixed Effects	YES	YES	YES	YES
Period Fixed Effects	YES	YES	YES	YES

*Notes:* The table shows the baseline results of our estimations on the relationship between tax reforms and election dates (Equation 4).  $t$  values that are obtained using robust standard errors (adjusted for arbitrary heteroskedasticity) are reported in parentheses. The variable “Election” refers to election date in  $t$ , “Post-Election” shows the coefficient for election dates in  $(t - 1)$ , “Pre-Election” reports coefficients for election dates in  $(t + 1)$ . For a description of the Tax Reform Index, see Section (2). All estimations include fixed effects for countries and years.

- \*\*\* Significant at the 1 percent level,
- \*\* Significant at the 5 percent level,
- \* Significant at the 10 percent level

**Table A-4** TAXES AND ELECTIONS—EXCLUDING US-MIDTERM ELECTIONS, TAX RATES

Dependent variable: Tax Reform Index (aggregated, tax rates), $\mathfrak{S}_{it}^A$				
	(I) Election year	(II) Post-Election	(III) Pre-Election	(IV) Full specification
Election year	-0.00725 (-0.26)			0.0277 (0.76)
Post-Election		0.0758*** (3.58)		0.0882*** (3.04)
Pre-Election			-0.0111 (-0.31)	0.0161 (0.37)
Observations	759	759	759	759
Countries	16	16	16	16
R-Squared (overall)	0.138	0.146	0.138	0.147
Prob. > F-Stat	0.000	0.000	0.000	0.000
Country-Level Fixed Effects	YES	YES	YES	YES
Period Fixed Effects	YES	YES	YES	YES

*Notes:* The table shows the baseline results of our estimations on the relationship between tax reforms and election dates (Equation 4).  $t$  values that are obtained using robust standard errors (adjusted for arbitrary heteroskedasticity) are reported in parentheses. The variable “Election” refers to election date in  $t$ , “Post-Election” shows the coefficient for election dates in  $(t - 1)$ , “Pre-Election” reports coefficients for election dates in  $(t + 1)$ . For a description of the Tax Reform Index, see Section (2). All estimations include fixed effects for countries and years.

- \*\*\* Significant at the 1 percent level,
- \*\* Significant at the 5 percent level,
- \* Significant at the 10 percent level

**Table A-5** TAXES AND ELECTIONS—JACK-KNIFED ANALYSIS, TAX RATES

Dependent variable: Tax Reform Index (aggregated, tax rates), $\mathfrak{S}_{it}^A$				
	(I)	(II)	(III)	(IV)
	Election year	Post-Election	Pre-Election	Full specification
PLATZHALTER	-0.00725 (-0.26)			0.0277 (0.76)

*Notes:* The table shows the baseline results of our estimations on the relationship between tax reforms and election dates (Equation 4).  $t$  values that are obtained using robust standard errors (adjusted for arbitrary heteroskedasticity) are reported in parentheses. The variable “Election” refers to election date in  $t$ , “Post-Election” shows the coefficient for election dates in  $(t - 1)$ , “Pre-Election” reports coefficients for election dates in  $(t + 1)$ . For a description of the Tax Reform Index, see Section (2). All estimations include fixed effects for countries and years.

- \*\*\* Significant at the 1 percent level,
- \*\* Significant at the 5 percent level,
- \* Significant at the 10 percent level

**Table A-6** TAXES AND ELECTIONS—BASELINE-RESULTS, FULL SAMPLE OF ADVANCED AND EMERGING MARKET ECONOMIES, TAX RATES

Dependent variable: Tax Reform Index (aggregated, tax rates), $\mathfrak{S}_{it}^A$				
	(I) Election year	(II) Post-Election	(III) Pre-Election	(IV) Full specification
Election year	0.00404 (0.17)			0.0709* (1.93)
Post-Election		0.0775*** (3.44)		0.114*** (3.59)
Pre-Election			0.0149 (0.50)	0.0601 (1.46)
Observations	836	836	836	836
Countries	22	22	22	22
R-Squared (overall)	0.0825	0.0923	0.0830	0.0992
Prob. > F-Stat	0.000	0.000	0.000	0.000
Country-Level Fixed Effects	YES	YES	YES	YES
Period Fixed Effects	YES	YES	YES	YES

*Notes:* The table shows the baseline results of our estimations on the relationship between tax reforms and election dates (Equation 4).  $t$  values that are obtained using robust standard errors (adjusted for arbitrary heteroskedasticity) are reported in parentheses. The variable “Election” refers to election date in  $t$ , “Post-Election” shows the coefficient for election dates in  $(t - 1)$ , “Pre-Election” reports coefficients for election dates in  $(t + 1)$ . For a description of the Tax Reform Index, see Section (2). All estimations include fixed effects for countries and years.

- \*\*\* Significant at the 1 percent level,
- \*\* Significant at the 5 percent level,
- \* Significant at the 10 percent level

**Table A-7** TAXES AND ELECTIONS—CORPORATE INCOME TAXATION, TAX RATES

Dependent variable: Tax Reform Index (corporate income taxation, tax rates), $\mathfrak{S}_{it}^r$				
	(I) Election year	(II) Post-Election	(III) Pre-Election	(IV) Full specification
Election year	0.0624 (0.64)			0.150 (1.17)
Post-Election		0.103 (1.14)		0.167 (1.45)
Pre-Election			-0.0180 (-0.18)	0.0571 (0.57)
Observations	759	759	759	759
Countries	16	16	16	16
R-Squared (overall)	0.124	0.125	0.123	0.127
Prob. > F-Stat	0.000	0.000	0.000	0.000
Country-Level Fixed Effects	YES	YES	YES	YES
Period Fixed Effects	YES	YES	YES	YES

*Notes:* The table shows the baseline results of our estimations on the relationship between tax reforms and election dates (Equation 4).  $t$  values that are obtained using robust standard errors (adjusted for arbitrary heteroskedasticity) are reported in parentheses. The variable “Election” refers to election date in  $t$ , “Post-Election” shows the coefficient for election dates in  $(t - 1)$ , “Pre-Election” reports coefficients for election dates in  $(t + 1)$ . For a description of the Tax Reform Index, see Section (2). All estimations include fixed effects for countries and years.

- \*\*\* Significant at the 1 percent level,
- \*\* Significant at the 5 percent level,
- \* Significant at the 10 percent level

**Table A-8 TAXES AND ELECTIONS—PERSONAL INCOME TAXATION, TAX RATES**

Dependent variable: Tax Reform Index (personal income taxation, tax rates), $\mathfrak{S}_{it}^r$				
	(I) Election year	(II) Post-Election	(III) Pre-Election	(IV) Full specification
Election year	0.144 (0.85)			0.273 (1.21)
Post-Election		0.161 (1.32)		0.273** (2.24)
Pre-Election			-0.0777 (-0.51)	0.0562 (0.26)
Observations	759	759	759	759
Countries	16	16	16	16
R-Squared (overall)	0.107	0.107	0.106	0.110
Prob. > F-Stat	0.000	0.000	0.000	0.000
Country-Level Fixed Effects	YES	YES	YES	YES
Period Fixed Effects	YES	YES	YES	YES

*Notes:* The table shows the baseline results of our estimations on the relationship between tax reforms and election dates (Equation 4).  $t$  values that are obtained using robust standard errors (adjusted for arbitrary heteroskedasticity) are reported in parentheses. The variable “Election” refers to election date in  $t$ , “Post-Election” shows the coefficient for election dates in  $(t - 1)$ , “Pre-Election” reports coefficients for election dates in  $(t + 1)$ . For a description of the Tax Reform Index, see Section (2). All estimations include fixed effects for countries and years.

- \*\*\* Significant at the 1 percent level,
- \*\* Significant at the 5 percent level,
- \* Significant at the 10 percent level

**Table A-9** TAXES AND ELECTIONS—EXCISES, TAX RATES

Dependent variable: Tax Reform Index (excises, tax rates), $\mathfrak{S}_{it}^r$				
	(I) Election year	(II) Post-Election	(III) Pre-Election	(IV) Full specification
Election year	-0.0408 (-0.68)			-0.0445 (-0.65)
Post-Election		0.0675 (0.64)		0.0453 (0.41)
Pre-Election			-0.0410 (-0.90)	-0.0545 (-0.78)
Observations	759	759	759	759
Countries	16	16	16	16
R-Squared (overall)	0.0864	0.0863	0.0863	0.0877
Prob. > F-Stat	0.000	0.000	0.000	0.000
Country-Level Fixed Effects	YES	YES	YES	YES
Period Fixed Effects	YES	YES	YES	YES

*Notes:* The table shows the baseline results of our estimations on the relationship between tax reforms and election dates (Equation 4).  $t$  values that are obtained using robust standard errors (adjusted for arbitrary heteroskedasticity) are reported in parentheses. The variable “Election” refers to election date in  $t$ , “Post-Election” shows the coefficient for election dates in  $(t - 1)$ , “Pre-Election” reports coefficients for election dates in  $(t + 1)$ . For a description of the Tax Reform Index, see Section (2). All estimations include fixed effects for countries and years.

- \*\*\* Significant at the 1 percent level,
- \*\* Significant at the 5 percent level,
- \* Significant at the 10 percent level

**Table A-10 TAXES AND ELECTIONS—VALUE ADDED AND SALES TAXATION, TAX RATES**

Dependent variable: Tax Reform Index (value added and sales taxation, tax rates), $\mathfrak{S}_{it}^r$				
	(I) Election year	(II) Post-Election	(III) Pre-Election	(IV) Full specification
Election year	-0.0480 (-0.56)			0.0456 (0.41)
Post-Election		0.231*** (3.12)		0.248*** (3.36)
Pre-Election			-0.0494 (-0.72)	-0.00855 (-0.10)
Observations	759	759	759	759
Countries	16	16	16	16
R-Squared (overall)	0.0792	0.0892	0.0793	0.0897
Prob. > F-Stat	0.000	0.000	0.000	0.000
Country-Level Fixed Effects	YES	YES	YES	YES
Period Fixed Effects	YES	YES	YES	YES

*Notes:* The table shows the baseline results of our estimations on the relationship between tax reforms and election dates (Equation 4).  $t$  values that are obtained using robust standard errors (adjusted for arbitrary heteroskedasticity) are reported in parentheses. The variable “Election” refers to election date in  $t$ , “Post-Election” shows the coefficient for election dates in  $(t - 1)$ , “Pre-Election” reports coefficients for election dates in  $(t + 1)$ . For a description of the Tax Reform Index, see Section (2). All estimations include fixed effects for countries and years.

- \*\*\* Significant at the 1 percent level,
- \*\* Significant at the 5 percent level,
- \* Significant at the 10 percent level

**Table A-11** TAXES AND ELECTIONS—PROPERTY TAXES, TAX RATES

Dependent variable: Tax Reform Index (property taxes, tax rates), $\mathfrak{S}_{it}^r$				
	(I) Election year	(II) Post-Election	(III) Pre-Election	(IV) Full specification
Election year	0.00580 (0.33)			0.0248 (1.13)
Post-Election		0.0275 (0.72)		0.0381 (0.88)
Pre-Election			-0.00297 (-0.11)	0.0104 (0.36)
Observations	759	759	759	759
Countries	16	16	16	16
R-Squared (overall)	0.0707	0.0722	0.0708	0.0723
Prob. > F-Stat	0.000	0.000	0.000	0.000
Country-Level Fixed Effects	YES	YES	YES	YES
Period Fixed Effects	YES	YES	YES	YES

*Notes:* The table shows the baseline results of our estimations on the relationship between tax reforms and election dates (Equation 4).  $t$  values that are obtained using robust standard errors (adjusted for arbitrary heteroskedasticity) are reported in parentheses. The variable “Election” refers to election date in  $t$ , “Post-Election” shows the coefficient for election dates in  $(t - 1)$ , “Pre-Election” reports coefficients for election dates in  $(t + 1)$ . For a description of the Tax Reform Index, see Section (2). All estimations include fixed effects for countries and years.

- \*\*\* Significant at the 1 percent level,
- \*\* Significant at the 5 percent level,
- \* Significant at the 10 percent level

**Table A-12** TAXES AND ELECTIONS—SOCIAL SECURITY CONTRIBUTIONS, RATES

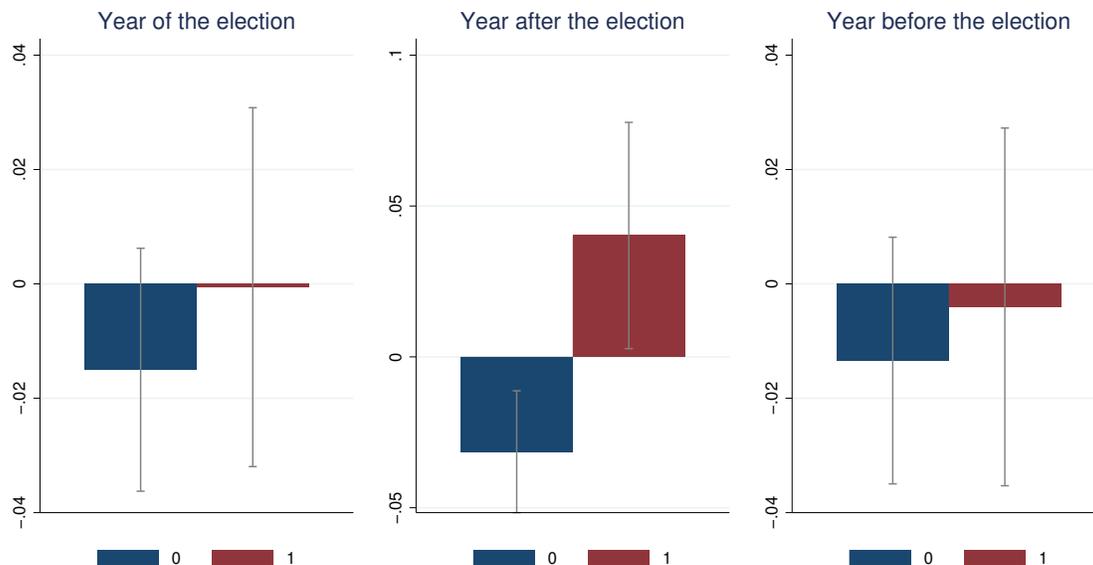
Dependent variable: Tax Reform Index (social security contributions, rates), $\mathfrak{S}_{it}^r$				
	(I) Election year	(II) Post-Election	(III) Pre-Election	(IV) Full specification
Election year election	-0.129** (-2.15)			-0.109* (-1.97)
Post-Election		0.0194 (0.28)		-0.0171 (-0.29)
Pre-Election			0.112 (1.59)	0.0670 (0.90)
Observations	759	759	759	759
Countries	16	16	16	16
R-Squared (overall)	0.0761	0.0730	0.0772	0.0782
Prob. > F-Stat	0.000	0.000	0.000	0.000
Country-Level Fixed Effects	YES	YES	YES	YES
Period Fixed Effects	YES	YES	YES	YES

*Notes:* The table shows the baseline results of our estimations on the relationship between tax reforms and election dates (Equation 4).  $t$  values that are obtained using robust standard errors (adjusted for arbitrary heteroskedasticity) are reported in parentheses. The variable “Election” refers to election date in  $t$ , “Post-Election” shows the coefficient for election dates in  $(t - 1)$ , “Pre-Election” reports coefficients for election dates in  $(t + 1)$ . For a description of the Tax Reform Index, see Section (2). All estimations include fixed effects for countries and years.

- \*\*\* Significant at the 1 percent level,
- \*\* Significant at the 5 percent level,
- \* Significant at the 10 percent level

## Appendix B: Supplementary Figures

**Figure 6** CHANGES IN TAX RATES AND ELECTION DATES, AGGREGATE TAX REFORM INDEX, FULL SAMPLE OF ADVANCED AND EMERGING MARKET ECONOMIES, 1960–2014.



*Notes:* The figure shows changes in tax rates implied by the aggregate Tax Reform Index ( $S_{iTr}^A$ ) in election years and non-election years. When comparing changes in tax rates in election years, label “1” refers to years with elections, while “0” refers to non-election years. When comparing changes in years before and after elections, “1” refers to the pre- or post-election-year. Vertical lines indicate 95% confidence intervals.

## References

- Aidt, T., Asatryan, Z., Badalyan, L., and Heinemann, F. (2020). Vote buying or political (business) cycles as usual? *Review of Economics and Statistics*, 102(3):409–425.
- Aidt, T. and Mooney, G. (2014). Voting suffrage and the political budget cycle: Evidence from the london metropolitan boroughs 1902–1937. *Journal of Public Economics*, 112:53–71.
- Aidt, T., Veiga, F. J., and Veiga, L. G. (2011). Election results and opportunistic policies: a new test of the rational political business cycle model. *Public Choice*, 148(1-2):21–44.
- Alesina, A. (1987). Macroeconomic Policy in a Two-Party System as a Repeated Game. *Quarterly Journal of Economics*, 102(3):651–678.
- Alesina, A. and Spear, S. (1988). An overlapping generations model of electoral competition. *Journal of Public Economics*, 37(3):359–379.
- Amaglobeli, D., Crispolti, V., Dabla-Norris, E., Karnane, P., and Misch, F. (2018). *Tax policy measures in advanced and emerging economies: a novel database*. International Monetary Fund.
- Armingeon, K., Engler, S., and Leemann, L. (2020). *Comparative Political Data Set 1960-2018*. Zurich: Institute of Political Science, University of Zurich.
- Arulampalam, W., Devereux, M. P., and Maffini, G. (2012). The direct incidence of corporate income tax on wages. *European Economic Review*, 56(6):1038–1054.
- Baskaran, T., Min, B., and Uppal, Y. (2015). Election cycles and electricity provision: Evidence from a quasi-experiment with indian special elections. *Journal of Public Economics*, 126:64–73.
- Becker, J., Fuest, C., and Riedel, N. (2012). Corporate tax effects on the quality and quantity of fdi. *European Economic Review*, 56(8):1495–1511.
- Ben-Porath, Y. (1975). The years of plenty and the years of famine—a political business cycle? *Kyklos*, 28(2):400–403.
- Bloomberg, S. B. and Hess, G. D. (2003). Is the political business cycle for real? *Journal of Public Economics*, 87:1091–1121.
- Bostashvili, D. and Ujhelyi, G. (2019). Political budget cycles and the civil service: Evidence from highway spending in us states. *Journal of Public Economics*, 175:17–28.
- Brender, A. and Drazen, A. (2013). Elections, leaders, and the composition of government spending. *Journal of Public Economics*, 97:18–31.
- Castanheira, M., Nicodème, G., and Profeta, P. (2012). On the political economics of tax reforms: survey and empirical assessment. *International Tax and Public Finance*, 19(4):598–624.
- Chappell, H. W. and Keech, W. R. (1986). Party differences in macroeconomic policies and outcomes. *American Economic Review*, 76:71–74.
- Clausing, K. A. (2013). Who pays the corporate tax in a global economy? *National Tax Journal*, 66(1).

- Cruz, C., Keefer, P., and Scartascini, C. (2018). Database of political institutions 2017 (dpi2017). *Inter-American Development Bank. Numbers for Development*.
- Cukierman, A. and Liviatan, N. (1991). Optimal accommodation by strong policymakers under incomplete information. *Journal of Monetary Economics*, 27(1):99–127.
- De Haan, J. and Klomp, J. (2013). Conditional political budget cycles: a review of recent evidence. *Public Choice*, 157:387–410.
- Desai, M. A., Foley, C. F., and Hines, J. R. (2007). Labor and capital shares of the corporate tax burden: International evidence. In *Conference on who pays the corporate tax in an open economy*.
- Devereux, M. P. and Griffith, R. (1998). Taxes and the location of production: Evidence from a panel of us multinationals. *Journal of Public Economics*, 68(3):335–367.
- Devereux, M. P. and Griffith, R. (2003a). Evaluating tax policy for location decisions. *International Tax and Public Finance*, 10(2):107–126.
- Devereux, M. P. and Griffith, R. (2003b). Evaluating tax policy for location decisions. *International Tax and Public Finance*, 10(2):107–126.
- Devereux, M. P., Griffith, R., and Klemm, A. (2002). Corporate income tax reforms and international tax competition. *Economic Policy*, 17(35):449–495.
- Devereux, M. P., Lockwood, B., and Redoano, M. (2008). Do countries compete over corporate tax rates? *Journal of Public Economics*, 92(5-6):1210–1235.
- Drazen, A. (2000). *Elections and Changes of Policymakers*, pages 219–308. Princeton University Press.
- Dreher, A. (2006). Does globalization affect growth? Evidence from a new index of globalization. *Applied Economics*, 38(10):1091–1110.
- Dubois, E. (2016). Political business cycles 40 years after nordhaus. *Public Choice*, 166:235–259.
- European Commission (2020). VAT rates applied in the Member States of the European Union. *Taxud.c.1(2020)*. Situation at 1st January 2020.
- Fair, R. C. (1978). The effect of economic events on votes for president. *Review of Economics and Statistics*, pages 159–173.
- Fair, R. C. (1982). The effect of economic events on votes for president: 1980 results. *Review of Economics and Statistics*, pages 322–325.
- Fair, R. C. (1988). The effect of economic events on votes for president: 1984 update. *Political Behavior*, 10(2):168–179.
- Feenstra, R. C., Inklaar, R., and Timmer, M. P. (2015). The next generation of the penn world table. *American Economic Review*, 105(10):3150–82.
- Feldstein, M. (1995). The effect of marginal tax rates on taxable income: a panel study of the 1986 tax reform act. *Journal of Political Economy*, 103(3):551–572.
- Foremny, D. and Riedel, N. (2014). Business taxes and the electoral cycle. *Journal of Public Economics*, 115:48–61.
- Fuest, C., Peichl, A., and Siegloch, S. (2018). Do higher corporate taxes reduce wages? micro evidence from germany. *American Economic Review*, 108(2):393–418.
- Gründler, K. and Krieger, T. (2016). Democracy and growth: Evidence from a machine learning indicator. *European Journal of Political Economy*, 45:85–107.

- Gründler, K. and Krieger, T. (2019). Should we care (more) about data aggregation? evidence from the democracy-growth-nexus. *CESifo Working Paper No. 7480*.
- Gygli, S., Haelg, F., Potrafke, N., and Sturm, J.-E. (2019). The KOF globalization index – revisited. *Review of International Organizations*, 14(3):543–574.
- Harrington, J. E. (1993). The impact of reelection pressures on the fulfillment of campaign promises. *Games and Economic Behavior*, 5:71–97.
- Hibbs, D. (1977). Political parties and macroeconomic policy. *American Political Science Review*, 71(4):1467–1487.
- Jha, P. and Gozgor, G. (2019). Globalization and taxation: Theory and evidence. *European Journal of Political Economy*, 59:296–315.
- Kawano, L. and Slemrod, J. (2016). How do corporate tax bases change when corporate tax rates change? with implications for the tax rate elasticity of corporate tax revenues. *International Tax and Public Finance*, 23(3):401–433.
- King, M. and Fullerton, D. (1983). The taxation of income from capital: A comparative study of the U.S., U.K., Sweden, and West Germany—the theoretical framework. *NBER Working Paper No 1058*.
- Klomp, J. and De Haan, J. (2016). Election cycles in natural resource rents: Empirical evidence. *Journal of Development Economics*, 116:79–93.
- Koester, G. B. (2009). *The political economy of tax reforms: An empirical analysis of new German data*. Baden-Baden, Nomos.
- Nordhaus, W. D. (1975). The political business cycle. *Review of Economic Studies*, 42:169–190.
- OECD (2020). Taxing wages 2020. Paris.
- Osterloh, S. and Debus, M. (2012). Partisan politics in corporate taxation. *European Journal of Political Economy*, 28:192–207.
- Potrafke, N. (2009). Did globalization restrict partisan politics? an empirical evaluation of social expenditures in a panel of oecd countries. *Public Choice*, 140(1-2):105–124.
- Potrafke, N. (2010). The growth of public health expenditures in oecd countries: Do government ideology and electoral motives matter? *Journal of Health Economics*, 29(6):797–810.
- Potrafke, N. (2017). Partisan politics: The empirical evidence from oecd panel studies. *Journal of Comparative Economics*, 45(4):712–750.
- Potrafke, N. (2018). Government ideology and economic policy-making in the United States—a survey. *Public Choice*, 174(1):145–207.
- Potrafke, N. (2020). General or central government? empirical evidence on political cycles in budget composition using new data for oecd countries. *European Journal of Political Economy*, 63:101860.
- Rogoff, K. (1990). Equilibrium political budget cycles. *American Economic Review*, 80:21–36.
- Rogoff, K. and Sibert, A. (1988). Elections and macroeconomic policy cycles. *Review of Economic Studies*, 55:1–16.
- Sances, M. W. (2017). Attribution errors in federalist systems: When voters punish the president for local tax increases. *Journal of Politics*, 79(4):1286–1301.

- Schuknecht, L. (1996). Political business cycles in developing countries. *Kyklos*, 49:155–170.
- Schulze, G. and Ursprung, H. W. (1999). Globalisation of the economy and the nation state. *World Economy*, 22(3):295–352.
- Shi, M. and Svensson, J. (2006). Political budget cycles: Do they differ across countries and why? *Journal of Public Economics*, 90(8-9):1367–1389.
- Sinn, H.-W. (1997). The selection principle and market failure in systems competition. *Journal of Public Economics*, 66(2):247–274.
- Sinn, H.-W. (2003). *The new systems competition*. Oxford, Blackwell.
- Spiegel, D. (2006). Bundestag beschließt größte steuererhöhung seit 1949. <https://www.spiegel.de/politik/deutschland/koalition-bundestag-beschliesst-groesste-steuererhoehung-seit-1949-a-417118.html>. Accessed: 2021-01-18.
- Taylor, J. (2003). Corporation income tax brackets and rates, 1909-2002. *Statistics of Income. SOI Bulletin*, 23(2):284–291.