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Building a Tax State in the 21st Century: Fiscal Pressure, Political Regimes, and Consumption Taxation

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Abstract

How can states expand their fiscal capacity in the 21st century? I examine this question by looking at one of the most powerful contemporary fiscal tools at hand – the Value-Added Tax (VAT). Using a novel dataset on VAT rates worldwide since 2000, I argue that fiscal problem pressure can lead to an expanded usage of the VAT. However, this effect depends on the type of political regime. Whereas democracies tend to raise VAT in dire fiscal times, VAT rates in autocracies are more immune to fiscal pressure. Furthermore, I demonstrate that a worse cost-benefit ratio of VAT increases in autocracies can account for this variation. These findings call for a closer investigation of political regime dynamics and fiscal policy-making worldwide.

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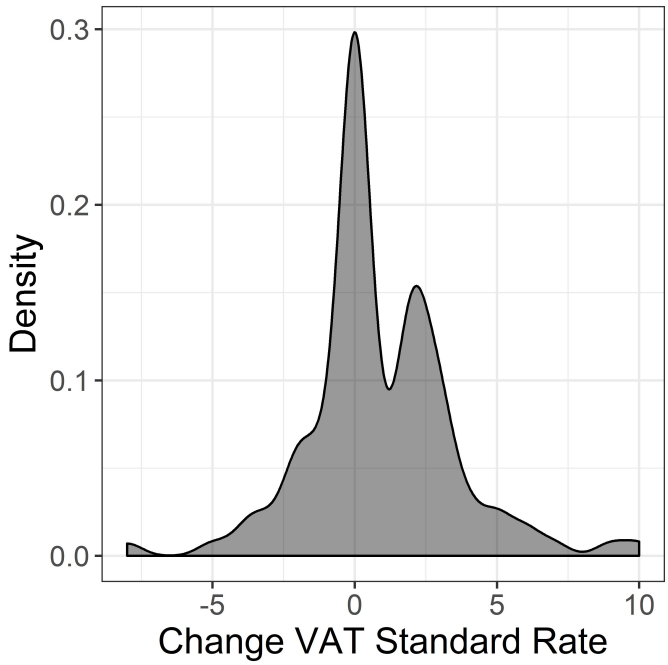
1 Introduction

Fiscal capacity is at the heart of the modern nation state (Schumpeter, 1917). Without sufficient revenue, states worldwide are not capable of fulfilling their manifold tasks (Seelkopf et al., 2021). According to the OECD (2018), countries need at least 15 percent of GDP to fund most basic services which are crucial for achieving the UN's Sustainable Development Goals. In other words, "strengthening tax systems – policy and administration – is a key development priority" (Bank, 2018a). How can states expand their fiscal capacity in the 21st century?

The most intuitive tax tool to look at in the 21st century is the Value-Added Tax (VAT). While taxes on income and assets were mostly drivers of the expansion of the tax state in the 19th and early 20th century, the VAT is widely regarded as the modern day "money machine" (Helgason, 2017; Keen & Lockwood, 2006). In the global mean, it generates more than 26 percent of public revenue (ICTD/UNU-WIDER, 2019). Furthermore, as a tax on consumption, it has lower enforcement costs than taxes on personal income and assets (James, 2015). Hence, it does not come as a surprise that international organisations and academics alike have turned their attention towards the VAT as a powerful revenue-raising instrument. The most dominant explanation for VAT policy-making is the role of fiscal problem pressure. A vast amount of empirical research has demonstrated that countries in the OECD, a club of rich democracies, increase VAT rates when they face dire fiscal times (Ganderson & Limberg, 2021; Ganghof, 2006; Huo, 2020; Kato, 2003; Kemmerling, 2014; Lierse & Seelkopf, 2016a, 2016b). Since most countries around the world have experienced growing fiscal pressure in the last decades, this literature would lead us to expect a 'race to the top' in consumption taxation around the world. Yet, we cannot observe a general increase and convergence of VAT rates empirically. Figure 1 visualises this. While some countries have increased VAT rates in the last two decades, indeed, around one third of countries has not changed their tax rates at all, and several countries have even lowered VAT rates. As a consequence, cross-national variation in VAT policy-making has remained fairly stable. What explains this puzzling variation in VAT policy-making?

Figure 1: Distribution of VAT Standard Rate Change, 2000-2017



Note: Data on VAT standard rates changes come from a self-constructed database. This figure visualises the distribution of VAT tax rate changes for a global country sample. More specifically, I first calculate the change in the VAT tax rate for each country by comparing the VAT rate in 2000 with the tax rate in 2017. The figure then plots the density of these tax rate changes.

In this article, I claim that the dominant OECD-centered explanation of domestic fiscal problem pressure driving up VAT rates is only part of the story. Although it holds for countries with democratic political regimes, autocracies are less likely to react to increasing public debt by raising VAT. Two factors account for this. First, VAT increases are less effective in raising revenue in autocratic regimes because of lower levels of "quasi-voluntary compliance" (Levi, 1988). After all, collecting revenue from VAT hikes requires tax compliance from the population. Due to lacking input legitimacy of autocratic systems, quasi-voluntary compliance tends to be lower and, hence, tax collection harder. Second, the costs for autocratic rulers to raise VAT rates are higher because tax hikes can fuel political backlashes and endanger regime stability. Although democracies have experienced tax protests as well in the last decades (Martin & Gabay, 2018), governments are mainly held accountable at the ballot box. In contrast, VAT hikes are more likely to lead to anti-government protests and riots in autocratic regimes due to a lack of alternative options to hold autocratic rulers

accountable and overall lower levels of policy legitimacy. Hence, the potential risks and costs connected to raising VAT rates are far higher in autocracies. Thus, in sum, raising VAT has a worse cost-benefit ratio in autocracies compared to democracies.

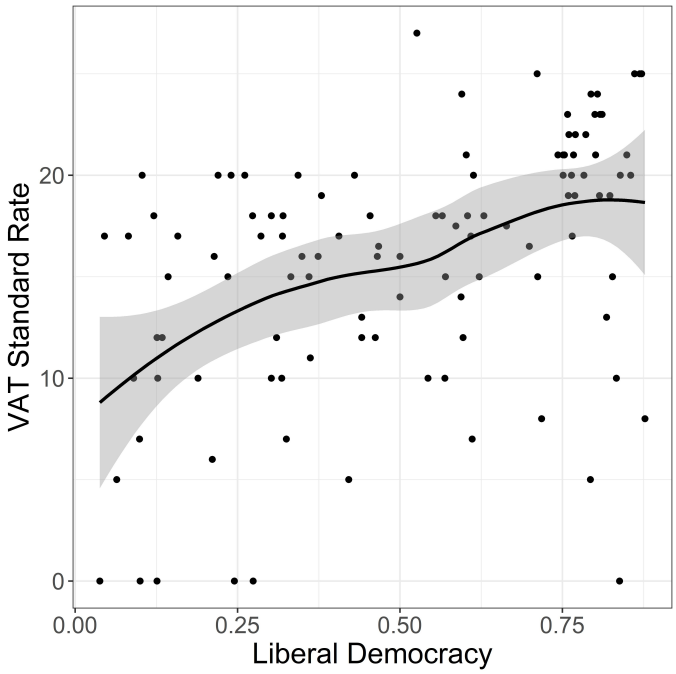
I test my argument using a new dataset on VAT rates worldwide covering 108 states from 2000–2017. A wide range of different panel data models provide robust evidence for my central argument: rising levels of public debt induce VAT increases in democracies, but not in autocracies. Furthermore, I find strong support for the underlying theoretical assumptions. First, raising VAT rates leads to more revenue generation in democracies than in autocracies. Second, higher VAT rates are more likely to predict anti-government protests and riots in autocracies. In sum, these findings suggest that countries with democratic institutions find it easier to raise VAT rates in dire fiscal times as they profit from a better cost-benefit ratio of tax hikes. I also find that raising other taxes like the corporate income tax (CIT) is not a viable fiscal alternative. Hence, democracies have a substantial advantage in expanding fiscal capacity in the 21st century. Autocracies, in contrast, mostly seem to rely on expenditure-based consolidation when facing fiscal pressure.

The contribution of this article is threefold. First, it contributes to the discussion on the determinants of fiscal capacity building worldwide. While most of these studies have focused on fiscal development over the long run of history (Hinrichs, 1966; Kiser & Karceski, 2017; Queralt, 2019), this article investigate current dynamics. Thus, it fosters our knowledge on contemporary determinants of fiscal capacity expansion.

Second, the article contributes to the literature on regressive consumption taxation (Haffert & Schulz, 2020; Kato, 2003; Kemmerling, 2014). While the scope for tax expansion is severely limited for other tax tools due to international competitive pressures, the VAT is the major tax that offers domestic *room to maneuver* (Genschel, 2002). So far, many authors have looked at the historical origins of value-added taxation worldwide (Helgason, 2017; Keen & Lockwood, 2010; Seelkopf et al., 2021). Studies on contemporary VAT policy-making have focused on advanced market economies with strong democratic institutions (Kemmerling, 2016; Lierse & Seelkopf, 2016b).

In developing economies, however, most analyses look at fiscal outcomes such as revenue generation instead of tax policy change (Garcia & von Haldenwang, 2015; Prichard, Salardi, & Segal, 2018). The article uses a new dataset on VAT standard rates worldwide to overcome this shortcoming of the existing literature on fiscal policy development worldwide. By investigating tax policy-making instead of revenue outcomes, this article looks at the crucial first step of fiscal capacity building.

Figure 2: Democracy and VAT Standard Rates in 2015



Note: Data on VAT rates come from a self-constructed database. The liberal democracy index is taken from the VDEM dataset (Coppedge et al., 2019).

Finally, the article shows that democratic structures still make a difference for contemporary tax policy-making (Garcia & von Haldenwang, 2015; Genschel, Lierse, & Seelkopf, 2016; Levi, 1988). Thus, it contributes to the debate on fiscal implications of regime types, which has prevailed ever since the famous demand for 'no taxation without representation' emerged in the USA in the 18th century. In sum, the better cost-benefit ratio of VAT increases in democracies leads to a situation where more democratic countries levy higher VAT rates (Figure 2). On the first view, this may seem counter-intuitive. After all, the VAT is a regressive tax instrument and classic theories of redistribution would expect democracies to push for more progressive

taxation (Meltzer & Richard, 1981). Investigating how democratic structures improve the cost-benefit ratio of VAT increases thus helps to get a more nuanced and in depth picture of the link between regime types and taxation.

The article is structured as follows. I start by looking at the literature that has dealt with the rise of the tax state from a historical perspective. Subsequently, I discuss states' potential to expand fiscal capacity in the 21st century. I focus on the role of VAT policy-making for the modern tax state and formulate my hypothesis about the impact of fiscal problem pressure in different political regimes. After presenting my hypotheses, I describe my empirical approach and present the results. The final section concludes.

2 The Drivers of the Tax State

What are the main drivers of the tax state? Much work in political economy, economic history, and fiscal sociology has focused on the historical roots of fiscal capacity (Helgason, 2017; Mkandawire, 2010; Queralt, 2019). According to this literature, past circumstances have crucially shaped subsequent fiscal development. In particular, the time period from the early 19th to the middle of the 20th century is seen as decisive for national tax states as Western countries managed to expand their extractive capacities massively (Lindert, 2004). In general, we can differentiate between three broad explanatory approaches: theories that stress the importance of asymmetric shocks, theories that focus on the effects of slowly changing socio-economic developments, and theories that underline structural factors and societal conflict lines.

The first set of explanations looks at the impact of sudden shocks on fiscal development (Limberg, 2020a; Tilly, 1990). Much work has investigated the effect of mass interstate warfare on the tax state (Besley & Persson, 2010; Scheve & Stasavage, 2016). This so-called bellicist theory argues that wars have boosted fiscal capacity building until the 1950s. Most importantly, wars are expensive. To pay for war-induced public expenditure, governments expanded and modernised their tax systems (Brewer, 1990;

Dincecco & Prado, 2012). Furthermore, wars can enable governments to increase taxation by expanding administrative capacities and by raising domestic support for progressive tax hikes (Scheve & Stasavage, 2016; Thies, 2005). In addition to warfare, recent work has started to investigate the historical impact of financial and economic shocks on the modern tax state (Gillitzer, 2017; Limberg, 2020a). Similar to bellicist theory, financial and economic crises create revenue needs and can induce demands for tax progressivity (Limberg, 2020b).

A second explanatory approach argues that slowly changing socio-economic and institutional factors have shaped the tax state historically. Three approaches stand out: explanations looking at the effect of economic modernisation (Andersson & Lazuka, 2019; Kiser & Karceski, 2017), globalisation (Aizenman & Jinjarak, 2009; Seelkopf, Lierse, & Schmitt, 2016), and democratisation (Levi, 1988). First, economic modernisation is one of the most prominent explanations for fiscal capacity (Hinrichs, 1966). According to Wagner's law (Wagner, 1883), government size should expand in line with economic modernisation. Thus, overall revenue needs increase as well. Furthermore, as countries become wealthier, they tend to raise their administrative capacity (Kurtz & Schrank, 2007). The reason for this is that technological advances improve administrative procedures. Richer states can hire more public servants, and increasing levels of education lead to more competent staff. Second, the globalisation literature argues that international economic integration has facilitated the rise of modern taxation over the long run of history (Seelkopf et al., 2016). As countries opened up to international markets, they reduced tariffs and introduced modern taxes to compensate revenue losses (Aizenman & Jinjarak, 2009; Keen & Lockwood, 2010). Thus, this literature claims that the historical development of globalisation has had a crucial impact on fiscal capacity building. Third, the rise of democratic institutions could be linked to fiscal capacity building. The timing and extent of democratisation affected the fiscal contract between rulers and citizens (Levi, 1988). Hence, early democratisers should have had an advantage in expanding revenue extraction.

Finally, recent studies have stressed the role of domestic societal conflict struc-

tures for the rise of the tax state. For instance, structural cleavages between economic elites have affected fiscal capacity as competition between old landholding elites and the new, upcoming industrial bourgeoisie have boosted fiscal innovations (Ansell & Samuels, 2014; Mares & Queralt, 2015). The role of organised business in shaping societal conflicts and their impact on fiscal capacity building has received particular attention (Castañeda, 2017; Morgan & Prasad, 2009). Furthermore, structural differences in geographical economic disparities are closely related to long-run fiscal capacity building (Beramendi & Rogers, 2018). For instance, **?** shows how different historical patterns of land use in Colombia have paved the way for diverging paths of subnational fiscal development.

In sum, a fruitful literature on the historical evolution of the tax state has emerged in recent years (Seelkopf et al., 2021). This work has greatly improved our knowledge on the determinants of tax policy-making over the long run of history. However, it remains unclear whether historical drivers of the tax state still play a role in the 21st century. Under which circumstances can countries build a tax state nowadays?

3 Building a Tax State in the 21st Century

Every tax state needs powerful fiscal tools (Aidt & Jensen, 2009). Thus, looking at the usage of tax policies as the legal foundations of fiscal capacity building is indispensable in order to identify the contemporary drivers of the tax state. When governments change the tax code, they fundamentally reform their fiscal toolkit. However, most studies with a global scope have focused on revenue generation instead of tax policy-making (Prichard et al., 2018). By investigating the determinants of revenue extraction, these studies have fostered our understanding of the outcomes of taxation. Yet, we know relatively about the global drivers of tax policy-making in the first place.[1] In other words, we have to look at tax policy-making as the crucial initial step when analysing tax state trajectories.

[1]There are some notable exceptions for corporate and personal income tax policy-making (Genschel et al., 2016; Peter, Buttrick, & Duncan, 2010).

One of the most powerful fiscal tools in the 21st century is the VAT. The VAT is an indirect tax which falls on consumption. Like its predecessor, the general sales tax (GST), it is a comprehensive tax on the sale of goods and services. However, unlike the GST, it is levied at multiple stages and business are able to claim a deduction for taxes paid on inputs against the total tax due at outputs to customers (Ebrill, Keen, Bodin, & Summers, 2001; James, 2015). Therefore, the VAT is technically superior and a highly efficient revenue raising tool in globalised economies.

In a nutshell, the VAT is not only seen as a "money machine" (Helgason, 2017, p. 797) but also as an a relatively easy to collect tax compared to taxes on personal income and assets (James, 2015; Seelkopf et al., 2016). Thus, raising VAT is a promising strategy for governments that which to tool up. In contrast to taxes on corporations which are also relatively easy to collect (Keen & Mansour, 2010), the VAT has the advantage that it is relatively unaffected by tax competition (Genschel & Schwarz, 2011). In fact, countries have often relied on the VAT when opening up their economies (Fricke & Süssmuth, 2014). Furthermore, raising VAT can have fiscal knock-on effects. By increasing fiscal capacity via taxing consumption, states can strengthen their domestic bureaucratic capacities. This way, they might become capable of tapping into other tax bases which require more administrative effort, like personal income (Seelkopf et al., 2021). Thus, the VAT seems to be a superior tax tool for expanding fiscal expansion in the 21st century. When do governments decide to expand the tax state by expanding the usage of VAT nowadays?

3.1 Fiscal Needs and the Money Machine

A lot of work in political economy and fiscal sociology has looked at the origins of the VAT worldwide (Helgason, 2017; James, 2015). In particular, scholars have stressed the importance of economic globalisation and international institutions for the global diffusion of the VAT from 1950–2000 (Keen & Lockwood, 2010). In contrast, analyses of subsequent VAT policy changes are less numerous.

Most studies have investigated VAT increases as a functional reaction to fiscal

problem pressure in advanced democracies. For instance, Lierse and Seelkopf (2016b) look at VAT rate changes in 26 OECD democracies from 1980–2010. Most importantly, they find that rising fiscal pressure via increasing rates for government bonds leads to higher VAT rates. Kato (2003) as well as Ganghof (2006) argue that VAT policy-making in OECD countries is strongly driven by fiscal needs. In particular, VAT rates can help to sustain generous welfare states in dire fiscal times (see also Lindert, 2004; Steinmo, 1993; Wilensky, 2002). Kemmerling (2014) looks at the German case and finds that "governments of all 'colours' defended raising VAT as a means to reduce debt or to finance expenditures" (Kemmerling, 2014, p. 158). Looking at average effective tax rates on consumption for 14 OECD countries from 1970–2010, the analysis by Huo (2020) yields similar results. Studies looking at countries outside the OECD have detected similar patterns. Ahlerup, Baskaran, and Bigsten (2015) argue that fiscal needs have been a major motivation for VAT introductions in Sub-Saharan Africa. Fiscal pressure has also been a major driver for tax hikes in the region. For example, Botswana increased the VAT standard rate in 2010 from 10% to 12% in order to consolidate public finances. In Mauritius, mountening fiscal pressure led to an increase of the VAT standard rate from 10% when it was introduced in 1998 to 15% in 2002 (Genschel & Seelkopf, 2019; IMF, 2003b). Furthermore, Hallerberg and Scartascini (2017) find that economic crises in Latin America have led to rising VAT rates in order to make up for revenue shortfalls. Again, there are several examples that are in line with their findings. For instance, Peru raised it's VAT rate in 2003 from 18% to 19% in order to reduce public deficits. Chile raised its VAT rate to the same level a year earlier when it faced deficits due to revenue losses and rising social spending (IMF, 2003a). Taken together, the literature has identified fiscal needs as a central driver of VAT policy-making. When public finances worsen, VAT rates go up. Therefore, my first hypothesis is as follows.

Hypothesis 1: Fiscal pressure leads to VAT increases.

Importantly, however, the literature on the political economy of VAT policy changes primarily focuses on countries with strong democratic institutions. Limited data avail-

ability for VAT policy-making worldwide might be the reason for this. Yet, it is hard to imagine tax policy-making independently of the institutional context. Across history, taxation has always been closely connected to political representation systems (Levi, 1988). Therefore, we have good reason to assume that the effect of fiscal problem pressure varies in different political regimes. The next section elaborates on this argument in more detail.

3.2 Autocracies and Democracies Under Fiscal Pressure

How do tax policy reactions to fiscal pressure differ between autocracies and democracies? In the following, I argue that autocracies should be less likely to react to fiscal pressure by increasing VAT rates than democracies. The main reason for this is a worse *cost-benefit ratio* of VAT increases in autocracies. Thus, raising VAT to face dire fiscal times is a less attractive strategy for autocratic rulers. Two factors account for this. First, tax compliance is lower in autocracies. As a consequence, additional revenue from VAT hikes should be less bountiful in autocracies than in democracies. Thus, raising VAT generates lower *benefits* in autocracies. Second, VAT increases endanger autocratic regime stability. Raising VAT can increase demand for regime change due to lacking accountability of autocratic rulers. Thus, anti-government protests – and even riots – are more likely to emerge in autocracies as a reaction to VAT hikes. Hence, the *costs* of VAT increases are higher in autocracies than in democracies. Let us look at both *benefits* and the *costs* of raising VAT in turn.

First, the *benefits* of raising VAT as a reaction to fiscal problem pressure depend on the political regime. In particular, VAT increases should generate more revenue in democratic countries. Democracies profit from considerably higher levels of "quasi-voluntary compliance" (Levi, 1988). According to Levi (1988, p. 52), taxation is both "*voluntary* because taxpayers choose to pay" and "*quasi*-voluntary because the non-compliant are subject to coercion". From this perspective, raising VAT should lead to more revenue if quasi-voluntary compliance is high. This will be the case if tax policy-making is perceived as legitimate. Following Scharpf (1970), we can differen-

tiate between input and output legitimacy: input legitimacy refers to the procedure that has led to the decision of raising taxes, whereas output legitimacy is based on popular support for public policies. Democratic institutions can lead to higher input legitimacy because they give citizens political power over the decision-making process. Hence, quasi-voluntary compliance is higher in democracies (Levi, 1988, chapter 6). As a consequence, VAT increases should lead to more bountiful additional revenue.

Second, VAT increases cause higher *costs* for autocratic rulers. Most importantly, increasing VAT rates can increase demand for accountability and increase the likelihood of regime breakdown. Recent studies have found that the introduction of VAT, just like taxation in the 18th and 19th century, asserts pressure on autocratic rulers (Baskaran, 2014; Kato & Tanaka, 2019). Collective action via protests and riots is a major factor that accounts for this (Moore, 2004). The most prominent case is Ghana where attempts to introduce a VAT in 1995 led to protests and "VAT riots" (Kato & Tanaka, 2019, p. 190). Another example is the case of South Africa, where the introduction of the VAT in 1991 was accompanied by public protest and a two day national strike, with the initiators of the strike claiming "that they were not so much objecting to the new tax in principle as they were essentially protesting against not having had any share in the governmental decision to impose it" (Wren, 1991). In other words, increasing VAT rates in autocracies fosters political opposition and comes at high political costs. To be clear, raising VAT also comes at political costs in democracies. For instance, Martin and Gabay (2018) show that VAT increases can lead to popular protest in the Western world. The recent protests in Colombia which, amongst other factors, were induced by government plans to raise VAT provide further anecdotal evidence. Furthermore, raising taxes might cause electoral backlashes. In contrast to autocratic rulers, however, democratically elected governments possess higher levels of input legitimacy (Scharpf, 1970). Although unpopular, VAT hikes in democracies are at least accepted on procedural grounds. Thus, mass-based anti-government mobilisation as a reaction to VAT increases should be less likely in democracies than in

autocracies. This makes the option of raising VAT more attractive to democratic rulers in times of fiscal needs.

In sum, I expect that the effect of fiscal pressure on VAT rates varies by political regime. Democratic governments are likely to raise VAT in difficult fiscal times. This is in line with the extensive literature on VAT policy-making in rich democracies (Ganghof, 2006; Lierse & Seelkopf, 2016b). In contrast, the effect might disappear in autocratic regimes. Thus, fiscal pressure might indeed help to build a tax state in the 21st century, but only in countries with stable democratic institutions. Therefore, my second hypothesis is as follows.

Hypothesis 2: The effect of fiscal pressure on VAT increases depends on the political regime.

I have highlighted two crucial theoretical factors that account for a lower *cost-benefit ratio* of VAT increases in autocracies. The first one refers to varying levels of *benefits*. In particular, I have argued that lower levels of quasi-voluntary compliance in autocracies lead to more tax evasion and avoidance. In other words, VAT increases might come with a better revenue performance in democracies than in autocracies. This leads to the following hypothesis.

Hypothesis 3: VAT increases have a stronger effect on revenue extraction in democracies.

The second factor focuses on the *costs* of raising VAT. More specifically, my argument refers to political costs. Autocratic rulers might face a stronger backlash against VAT increases since they lack political input legitimacy. This could lead to severe anti-government protests and might even endanger regime stability. In contrast, democracies are likely to enjoy higher levels of legitimacy. Although democratic rulers might also fear protests and riots as a reaction to tax policy-making (Martin & Gabay, 2018), political risks of VAT increases are lower than in autocracies. Hence, my last hypothesis is as follows.

Hypothesis 4: VAT increases increase the likelihood of protests and riots in autocracies.

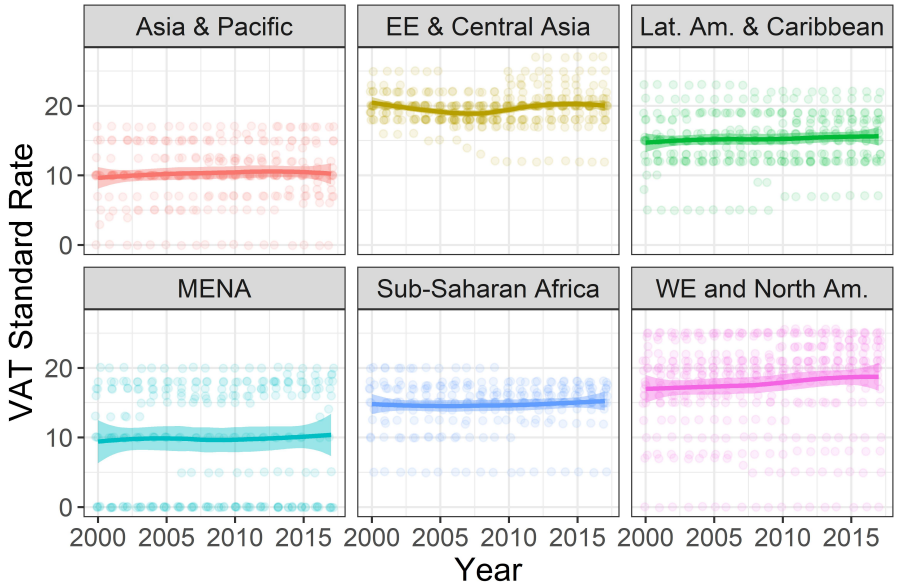
4 Empirical Approach

I rely on a new, self-coded TSCS dataset on standard VAT rates worldwide since the year 2000 to test my hypothesis empirically. Coding is mainly based on KPMG (2020b) as well as on Ebrill et al. (2001) for earlier years. Furthermore, I make use of the Tax Introduction Database (Seelkopf et al., 2021) in order to identify countries that have never introduced a VAT. In addition, I use several IMF country reports to fill gaps in the dataset for tax rates in specific years. I look at standard VAT rates, i.e. the baseline rate under which all goods and services are taxed by default, unless specifically exempted via selected reduced rates. In case a country does not have a VAT in a specific year, the rate is coded as zero.

Notably, looking at the standard tax rates does not take into account the definition of the tax base. There is a fruitful academic discussion on whether to use tax rates or alternative measures of taxation which take into account tax exemptions, deductions, and credits (Genschel, 2002). I have chosen to focus on the standard VAT rate because of three reasons. First, I am interested in whether governments expand the tax state by strengthening their VAT toolkit. In other words, I look at policy change (Knill & Tosun, 2012). This analytical focus is in line with extensive work on the political economy of taxation which looks at changes in tax rates in order to detect policy change (Lierse & Seelkopf, 2016b; Scheve & Stasavage, 2010, 2012). Note that such an approach differs from other studies that look at tax policy outcomes such as public revenues (Genschel & Seelkopf, 2016; Prichard et al., 2018). Importantly, examining policy change has the advantage that it allows me to test the revenue effect of tax increases. I will come back to this point in Section 6. Second, standard VAT rates are the most important policy instrument for VAT (Bird & Gendron, 2011). Standard VAT rates apply to all goods and service by default. Divergence from this in the form of lower or higher rates must be specifically legislated via the tax code. Thus, the standard VAT rate remains the fiscal and political focal point of consumption taxation. Third, the standard VAT rate has the advantage that it is relatively easy to compare cross-nationally. All countries with a VAT have a clearly defined standard

rate, standard VAT rates are predominantly levied on the national level, and they fall on a similar tax base (consumption). This comparability makes them particularly suitable for analyses of a worldwide country sample.

Figure 3: VAT Standard Rates in Different World Regions, 2000–2017



Note: Data on VAT standard rates come from a self-constructed database. Trends were calculated via locally estimated scatterplot smoothing.

Figure 3 shows the development of VAT rates for six different world regions. At least three things stand out. First, we can see that there is a lot of variation across regions. Average VAT rates in Western Europe and North America[2] as well as in Eastern Europe and Central Asia are almost twice as high as average VAT rates in Asia and the Pacific region as well as in the Middle East and North Africa. Furthermore, we can also see a lot of variation between countries in the same region. For instance, standard VAT rates in the Asia and Pacific region range from zero for countries that had not introduced a VAT by 2017 (e.g. Kuwait and Libya) to almost 20% for countries such as Algeria, Morocco, and Israel. Third, we cannot see catch-up dynamics in VAT policy-making. Rates have not been increasing stronger in regions with a relatively low initial average. In fact, the only region where VAT rates have steadily increased since 2000 is Western Europe and North America. This is surprising as public policy

[2]Note that high average VAT rates in this region are primarily driven by European countries. In fact, the USA is one of the few remaining countries worldwide that have not introduced a VAT on the federal level.

theory might lead us to expect a convergence at the top in VAT rates (Kemmerling, 2010; Knill, 2005).

Let us now turn to the model specifications. While the VAT standard rate is my main dependent variale of interest, I use data on public debt as a percentage of GDP as an independent variable to measure fiscal problem pressure (*Hypothesis 1*). Data come from the IMF (2020a). However, I am mainly interested in how changes in fiscal problem pressure affect changes in tax rates. In the main models, I control for unobserved unit heterogeneity by including country fixed effects. Country fixed effects put the analytical focus on within-country variance. Most importantly, this means that the models are looking at the effect of changes in public debt, i.e deficits, on changes in VAT rates, i.e. reforms that increase or decrease VAT rate. Hence, the approach of including country fixed effects fits perfectly to the theoretical focus on within-country variance (Plümper & Troeger, 2019). In addition, year fixed effects control or common trends across the country sample.

To test whether the effect of fiscal problem pressure on VAT rates varies by political regime (*Hypothesis 2*), I include a variable measuring the level of democracy. More specifically, I use the liberal democracy index from the Varieties of Democracy dataset (Coppedge et al., 2019). This widely used index measures the degree to which a country fulfils the ideal of a liberal democracy. It is based on expert surveys and covers aspects of electoral democratic rule as well as the degree to which a political system protects civic liberties, guarantees an independent judiciary, and ensures a system of checks and balances. The index ranges from 0 to 1, with higher values indicating a higher liberal democracy level.[3] I interact this variable with my variable on public debt.

In order to ensure that my results are not driven by my choice of covariates, I proceed as follows. First, I run minimum models that solely include the variables for public debt and democracy. Then, I add the interaction effect. Subsequently, I

[3]Importantly, the liberal democracy index applies a continous definition of democracies. Thus, it does not provide a clear cut-off point when a regime is considered as autocratic or democratic. In the robustness section, I run alternative models where I use a dichotomous measure of democracy provided by Boix, Miller, and Rosato (2013).

rerun these two models by including an array of covariates. I control for GDP per capita (logged values) and GDP growth to account for the impact of macroeconomic dynamics. Furthermore, price development might affect VAT policy-making. Therefore, I control for the inflation rate. Several authors have stressed the importance of country size for tax policy-making. I include a variable measuring the total population size (logged values) that accounts for this. Data for these variables come from the Bank (2018b). Also, I control for the level of international economic integration by including the KOF Index of economic globalisation (Dreher, 2006a; Dreher, Gaston, & Martens, 2008). Since countries which are rich in oil might be less likely to increase taxes, I include oil rents as a share of GDP as a covariate (Bank, 2018b). Moreover, I control for the agricultural employment share (Bank, 2018b). Finally, I account for the impact of domestic federal structures by adding a dummy variable that measures the existence of an independent sub-federal unit constraining fiscal policy-making. Data come from Henisz (2017).

All independent variables are lagged by one year to reduce simultaneity bias. In total, my dataset includes 108 countries and 1914 country-year observations.[4] I use normal OLS standard errors instead of panel corrected standard errors (PCSE) because my TSCS data consists of more units than years (N>T). However, I provide robustness checks where I use PCSE as well as robust standard errors clustered at the country level.

5 Fiscal Problem Pressure and VAT Policy-Making

Table 1 presents the results from the main models. The first column shows a model that only includes public debt and the liberal democracy index. In line with *Hypothesis 1*, I find that increasing public debt predicts higher VAT rates. The coefficient is statistically highly significant ($p<0.001$). On average, an increase in public debt by 10 percentage points is associated with a subsequent VAT rate raise by 0.13 percentage

[4] I exclude countries for which more than 1/3 of observations are missing for any variable. For the remaining missing values, I use a exponentially weighted moving average imputation. However, all models remain robust when using the original (unimputed) data. Table A1 shows the country sample.

points. The finding is also in line with previous OECD-centered research that has found fiscal pressure to lead to VAT increases (Lierse & Seelkopf, 2016a). Furthermore, results are robust to adding the battery of covariates (Model 3).

Table 1: Fiscal Problem Pressure and VAT Policy-Making

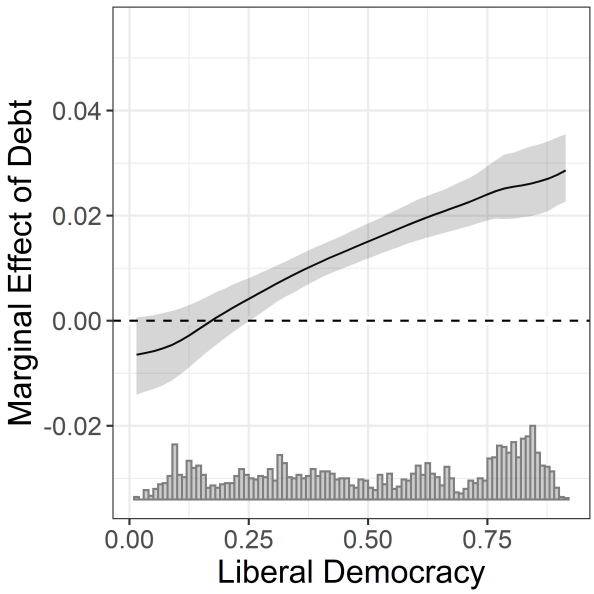
	DV: VAT Standard Rate			
	Model 1	Model 2	Model 3	Model 4
Public Debt	0.0130^{***}	-0.0046^{*}	0.0072^{***}	-0.0075^{***}
	(0.0012)	(0.0020)	(0.0015)	(0.0021)
Liberal Democracy	0.1750	-2.7835^{***}	0.0955	-2.6569^{***}
	(0.4793)	(0.5373)	(0.4711)	(0.5403)
Public Debt * Liberal Democracy		0.0468^{***}		0.0431^{***}
		(0.0043)		(0.0045)
GDP pc (logged)			-0.7125^{***}	-0.3197^{*}
			(0.1482)	(0.1501)
Growth			-0.0021	-0.0019
			(0.0071)	(0.0069)
Inflation			-0.0001	0.0002
			(0.0024)	(0.0023)
Population (logged)			-0.8626^{**}	-0.5208
			(0.3270)	(0.3208)
Oil Rent			0.0145	0.0239^{*}
			(0.0105)	(0.0103)
Economic Globalisation			0.0235^{***}	0.0287^{***}
			(0.0063)	(0.0062)
Employment Share Agriculture			0.0256^{**}	0.0241^{**}
			(0.0079)	(0.0077)
Sub-Federal Units			-1.0549^{**}	-0.8284^{*}
			(0.3519)	(0.3439)
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
R^2	0.9713	0.9731	0.9727	0.9741
Num. countries	108	108	108	108
Num. obs.	1914	1914	1914	1914

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Let us now turn to the interaction effects. Model 2 presents the finding for the interactive model. The interaction term is positive and statistically highly significant. Findings also remain similar when including the control variables (Model 4). Thus,

rising public debt has a stronger effect on VAT rates in more democratic countries. To ensure a better interpretation of the interaction effect, I calculate the marginal effects of increasing public debt on VAT rates conditional on the democracy level (Brambor, Clark, & Golder, 2006). Hainmueller, Mummolo, and Xu (2019) argue that such marginal effects plots often overlook two crucial factors. First, they are interpreted for values where the moderating variable lacks common support. Second, they do not take into account that the interaction might solely be driven by subsamples. I follow their suggestion and add histograms to my plot that show the distribution of the democracy variable. Furthermore, I relax the linearity assumption by using a kernel smoothing estimator of the marginal effect (Hainmueller et al., 2019). This allows me to identify how the interaction effect varies across different levels of democracy. Figure 4 shows the results. The findings show strong support for *Hypothesis 2*. Whereas rising public debt is not associated with higher VAT rates in autocracies, countries with more democratic institutions react to fiscal problem pressure by raising VAT. In highly democratic states, an increase in public debt by 10 percentage points leads to a subsequent increase in VAT standard rates by around 0.25 percentage points.

Figure 4: Effect of Public Debt on VAT Standard Rates Conditional on the Political Regime



Note: Grey shaded area shows 95% confidence intervals. Calculations based on Table 1, Model 4.

With regard to the covariates, worse economic development is associated with higher VAT rates. In contrast, the coefficient for inflation is neither statistically nor substantially significant. Country size is negatively correlated with VAT rates. However, the effect is not robust. Furthermore, we have to keep in mind that the fixed effects approach changes the focus of the analysis towards looking at within-variance. Hence, the coefficient estimates the impact of changes in country size. International economic integration is highly correlated with VAT policy-making (Haffert & Schulz, 2020) while the coefficient for changes in oil rents (% of GDP) is not robust. Finally, the coefficient for agricultural employment share is positive and significant, whereas the dummy variable for sub-federal political units is negatively correlated with VAT rates.

5.1 Robustness Checks

Several authors have argued that TSCS models are sensitive to modelling choices (Kittel & Winner, 2005; Wilson & Butler, 2007). Therefore, testing the robustness of my findings is crucial (Neumayer & Plümper, 2017). I run a variety of specifications to check whether my results hold across different models. I start by running subset analyses to check whether the findings are driven by specific country groups. First, I exclude all countries from the analyses that had not introduced a VAT by 2017 (Genschel & Seelkopf, 2019). The results stay both statistically as well as substantially robust (Table B1 in the Appendix). Second, I drop all high income countries to ensure that my results apply to countries with lower and medium income. I follow the definition of the Bank (2018b) and exclude all countries that had a GNI per capita higher than 12055 US Dollars (current values) in 2017. Table B2 presents the results. My findings stay robust. Third, Sub-Saharan Africa is the world region with the lowest fiscal capacity (Moore, Prichard, & Fjeldstad, 2018). Therefore, tooling up the tax state is of utmost importance in this area. I restrict my sample to only those countries in Sub-Saharan Africa to find out whether my results hold for this region. Findings hold

(Table B3).[5]

In a second set of robustness checks, I change my models by adding further covariates. First, VAT policy-making might be affected by international organisations. In particular, previous research has identified the role of the IMF in advocating VAT reforms (Bird & Gendron, 2011; Keen & Lockwood, 2010). To account for this, I add two dummy variables that measure whether a country has participated in an IMF programme in a respective year for more than 6 months. In line with Keen and Lockwood (2010), I differentiate between crisis (SBA, EFF) and non-crisis programmes (SAF, ESAF, PRGF). Data come from Dreher (2006b). The results stay robust to adding these two dummies (Table C1).[6] The results also indicate that IMF crisis programmes are more likely to lead to VAT rate increases than non-crisis programmes. Some countries have experienced major debt relief and debt restructuring programmes. Hence, they have experienced sudden reductions in debt. To account for this, I add a control variable that equals 1 when a country's debt dropped by more than 20% (Table C2). I also run models where I include the World Bank's government effectiveness index (Bank, 2018c) which proxies overall levels of state capacity (Table C3). Furthermore, in Table C4 I include a measure on political corruption from the VDEM Dataset (Coppedge et al., 2019). Results hold throughout all models.

Third, I check my results by using different democracy indicators. Instead of using the liberal democracy index, I include a dichotomous measurement of democracy from Boix et al. (2013). Findings stay robust: while rising debt does not affect VAT policy-making in autocracies, it leads to a significant increase in VAT standard rates in democracies (Table D1). Findings also hold when replacing VDEM's liberal democracy index with the electoral democracy index (Table D2).

Finally, I calculate a set of robustness checks that adjusts econometric specifications. First, I add a lagged dependent variable to account for autocorrelation (Beck & Katz, 2011). Results hold (Table E1). Second, there has been a recent econometric

[5]None of the countries in Sub-Saharan Africa has had an independent sub-federal unit restricting fiscal policy-making according to Henisz (2017). Therefore, I drop this variable.

[6]Unfortunately, data for IMF programmes are only available until 2015. Thus, the number of observations drops to 1806.

discussion about the usage of two-way fixed effects (Kropko & Kubinec, 2020). Therefore, I check my results by dropping the year fixed effects and running models that do not control for time trends (Table E2). Furthermore, I calculate estimations that include cubic time approximations instead of year fixed effects (Table E3). Results stay robust for both specifications. Third, I use PCSE as well as robust standard errors clustered at the country level (Table E4 and E5). I also calculate a model that uses a Prais-Winsten estimation to account for first-order autocorrelation (Table E6). Furthermore, I run a specification that follows the so-called de facto Beck & Katz standard (Beck & Katz, 1995) by including a lagged dependent variable, two-way fixed effects and PCSE (Table E7). Results hold across all of these different models.

5.2 Alternative Fiscal Pressure Measurements

So far, I have used public debt as my main indicator for fiscal problem pressure. Furthermore, I have solely looked at within-variation in public debt by applying country fixed effects models. However, this approach has its shortcomings. First, it solely looks at changes in public debt. However, in addition to within-variation in public debt, the overall level of public debt in a country might be a crucial factor as well. Second, similar increases in debt might come at varying costs for different countries. Ultimately, this depends on the conditions under which country's can issue government bonds.

In order to deal with these issues, I run two sets of additional analyses. First, I use a model that looks at the first difference of VAT rates. This allows me to analyse the impact of changes in public debt while also controlling for overall levels of debt. Such an approach bears similarities to an Error Correction Model where independent variables enter with their first difference and their lagged level (De Boef & Keele, 2008). Table F1 in the Appendix shows the results. Two things stand out. First, increases in public debt have a positive effect on VAT rates even when controlling for overall debt levels. Second, this effect is moderated by political regime type. The interaction effect between the first difference of public debt and the liberal democracy

index is positive and statistically significant. Thus, the findings prove to be robust to this alternative analytical approach.

Second, I use the yearly average of interest rates for 10-year government bonds as a different measurement of fiscal pressure instead of public debt. In doing so, I follow previous OECD-centered analyses which have found that rising bond yields lead to VAT hikes (Lierse & Seelkopf, 2016b). Data come from the IMF's International Finance Statistics Database (IMF, 2020c). Table F2 presents the results. Models 1 and 3 show that rising bond yields lead to higher VAT rates. Hence, governments that face higher costs when borrowing money are more likely to increase VAT rates. Furthermore, this relation is moderated by political regime type. While bond yields have no effect on VAT rates in autocracies, the coefficient becomes positive in more democratic countries. Thus, the results are also robust to using bond yields instead of public debt as a proxy for fiscal problem pressure.

6 Constraints on Raising VAT in Autocracies

So far, my analysis has shown that the effect of fiscal problem pressure on VAT policy-making depends on the political regime (*Hypotheses 1 & 2*). However, I have not investigated the underlying assumptions of my theoretical model. Do VAT hikes in autocracies really lead to less bountiful consumption tax revenue? Furthermore, are autocratic rulers actually more likely to experience political backlashes in the form of protests and riots when raising VAT? I start by looking at the effects of VAT increases on revenue generation (*Hypotheses 3*). I take public revenue from taxes on consumption as % of GDP as my main dependent variable. The standard VAT rate (t-1) becomes my main independent variable of interest in these models. Again, I calculate an interaction effect with the liberal democracy index. As in the previous analysis, I start by running minimal models and subsequently add my battery of covariates. I use the same models specifications as in the previous analysis.

Table 2 presents the results.[7] First, the findings show that VAT increases lead to

[7] Due to missing values for the variable on consumption tax revenue, the number of countries in my

higher consumption tax revenue (Models 1 & 3). On average, raising the standard VAT rate by 1 percentage point is associated with a subsequent consumption tax revenue increase by almost 0.1 % of GDP (Models 3). This finding is hardly surprising. After all, revenue generation is the primary function of tax hikes. Since governments might be likely to increase VAT rates when revenue deteriorates, this is even a conservative estimate. Model 2 shows that the interaction effect between VAT standard rates and the liberal democracy indicator is positive and statistically significant. This finding holds when adding the covariates (Model 4). To interpret this finding substantially, Figure 5 shows the marginal effects plot based on the Kernel smoothing operator. The results support *Hypothesis 3*: increasing VAT rates leads to more revenue generation in democracies. In other words, democracies have higher benefits from raising VAT. In full autocracies, the revenue increases from VAT raises are statistically undistinguishable from 0. In contrast, a VAT standard rate raise by one percentage point in the most democratic countries leads to a consumption tax revenue increase by 0.15% of GDP.

Table 2: VAT Policy-Making and Revenue

	DV: Consumption Tax Revenue (% of GDP)			
	Model 1	Model 2	Model 3	Model 4
VAT Standard Rate	0.0707**	−0.0514	0.0973***	−0.0093
	(0.0252)	(0.0466)	(0.0262)	(0.0464)
Liberal Democracy	0.2418	−3.4599**	0.3520	−2.9835*
	(0.5372)	(1.3042)	(0.5234)	(1.3066)
VAT Standard Rate * Liberal Democracy		0.2347**		0.2100**
		(0.0754)		(0.0754)
Public Debt			−0.0098***	−0.0103***
			(0.0021)	(0.0021)
GDP pc (logged)			−0.2994	−0.2680
			(0.1747)	(0.1747)
Growth			0.0053	0.0053
			(0.0088)	(0.0088)
Inflation			0.0131***	0.0130***
			(0.0033)	(0.0033)
Population (logged)			−2.9510***	−2.7201***
			(0.5228)	(0.5282)

sample decreases to 104.

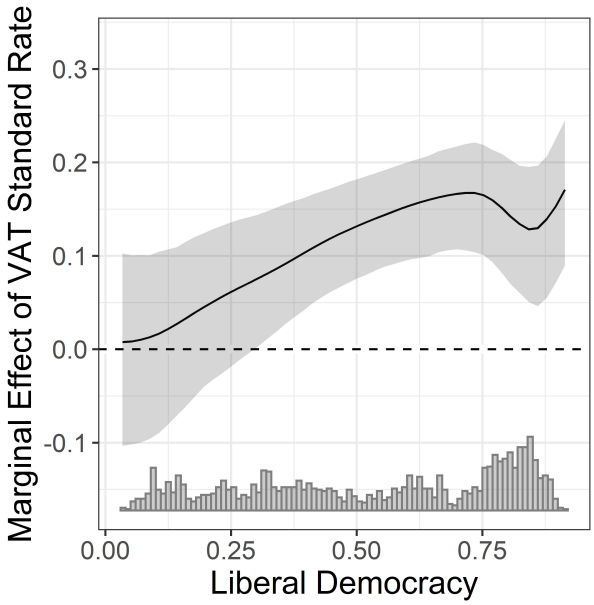
	Model 1	Model 2	Model 3	Model 4
Oil Rent			−0.0150	−0.0146
			(0.0173)	(0.0173)
Economic Globalisation			0.0233**	0.0258***
			(0.0072)	(0.0072)
Employment Share Agriculture			−0.0488***	−0.0462***
			(0.0087)	(0.0087)
Sub-Federal Units			−0.1003	−0.1105
			(0.4023)	(0.4014)
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
R^2	0.9373	0.9377	0.9417	0.9420
Num. countries	104	104	104	104
Num. obs.	1621	1621	1621	1621

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

This analysis shows support for the theoretical assumption that VAT raises in autocracies generate less revenue due to lower levels of quasi-voluntary compliance. However, two issues arise. First, there are other factors than quasi-voluntary compliance that might explain the worse revenue performance in autocracies. For instance, one might argue that the interaction effect can be explained by the fact that autocracies have lower levels of state capacity and are therefore less effective when collecting taxes. Alternatively, higher corruption levels in autocracies might account for lacking tax compliance independent of democratic structures. I test for these two alternative explanations by running interaction effects where I replace the liberal democracy index with the government effectiveness indicator (Table G1) and the VDEM corruption index (Table G2). The results show that neither government effectiveness nor levels of corruption have a moderating effect on the revenue performance of VAT policy-making. Hence, these factors do not account for the interaction effect between VAT standard rates and democracy levels.

Second, although looking at the relation between VAT rates and consumption tax revenue is often used in the empirical literature (Aizenman & Jinjarak, 2008), there are alternative ways of measuring VAT compliance. One dominant approach is the

Figure 5: Effect of VAT Standard Rates on Consumption Tax Revenue Conditional on the Political Regime



Note: Grey shaded area shows 95% confidence intervals. Calculations based on Table 2, Model 4.

so-called VAT gap (Andreoni, Erard, & Feinstein, 1998). The VAT gap measures the difference between expected VAT revenue – based on a country's VAT policy framework – and VAT revenue that is actually collected. Hence, its basic idea is similar to my analysis in Table 2, but the VAT gap allows for a more fine grained view that takes the definition of the tax base into account. Unfortunately, cross-nationally comparative data on the VAT gap is only available for a set of 28 European countries (Śmietanka, Bonch-Osmolovskiy, & Poniatowski, 2020). Crucially, all of these countries score fairly high on the liberal democracy index. Nevertheless, we can still see that levels of liberal democracy are negatively and statistically highly significantly correlated with the VAT gap (see Figure G1 and Figure G2). Hence, countries with higher scores of the liberal democracy index have higher levels of VAT compliance and lose less revenue due to tax evasion. This finding provides further support for the theoretical assumption that VAT hikes generate more revenue in democracies.

Finally, I have argued that VAT hikes raise the likelihood of anti-government protests and riots (*Hypothesis 4*). Thus, VAT hikes are more costly in autocratic regimes as they endanger regime stability (Baskaran, 2014; Kato & Tanaka, 2019). To test this

argument, I look at two different dependent variables. First, I analyse whether VAT increases lead to anti-government protests.[8] Second, I look at the effect of raising VAT on the yearly number of riots in a country.[9] Data for both variables come from the Cross-National Time-Series Data Archive (Banks & Wilson, 2020). One shortcoming of this measurement is that it does not solely focus on tax-induced protests and riots (Martin & Gabay, 2018). However, taxation is a common cause of protests and riots (Kato & Tanaka, 2019; Moore, 2004). In addition, protests and riots are often not single policy issues (Wang & Soule, 2016). Since disentangling the reasons for these events becomes a tricky empirical endeavour, looking at the total number of protests and riots offers a comprehensive picture on aggregate developments. Furthermore, this measurement is also widely used in the literature (Acemoglu, Naidu, Restrepo, & Robinson, 2019; Krishnarajan & Rørbæk, 2020).

I analyse whether the VAT standard rate (t-1) affects the number of anti-government protests and riots. Moreover, I run interaction effects between the VAT rate and the liberal democracy index to check whether tax policy induced protests and riots are less likely in democracies. In principle, riots as a reaction to VAT policy-making might also be more likely in autocracies because citizens cannot use elections to punish the government. In contrast, one could expect that protests are more likely to emerge after VAT hikes in liberal democracies because individuals do not have to fear state repression and prosecution. Thus, looking at both protests and riots raises the robustness of my findings against such alternative explanations. If I find consistent effects on both protests and riots, these concerns should not bias my results fundamentally.

[8] Anti-government protests cover "any peaceful public gathering of at least 100 people for the primary purpose of displaying or voicing their opposition to government policies or authority, excluding demonstrations of a distinctly anti-foreign nature." (Banks & Wilson, 2020)

[9] Riots are defined as "any violent demonstration or clash of more than 100 citizens involving the use of physical force." (Banks & Wilson, 2020)

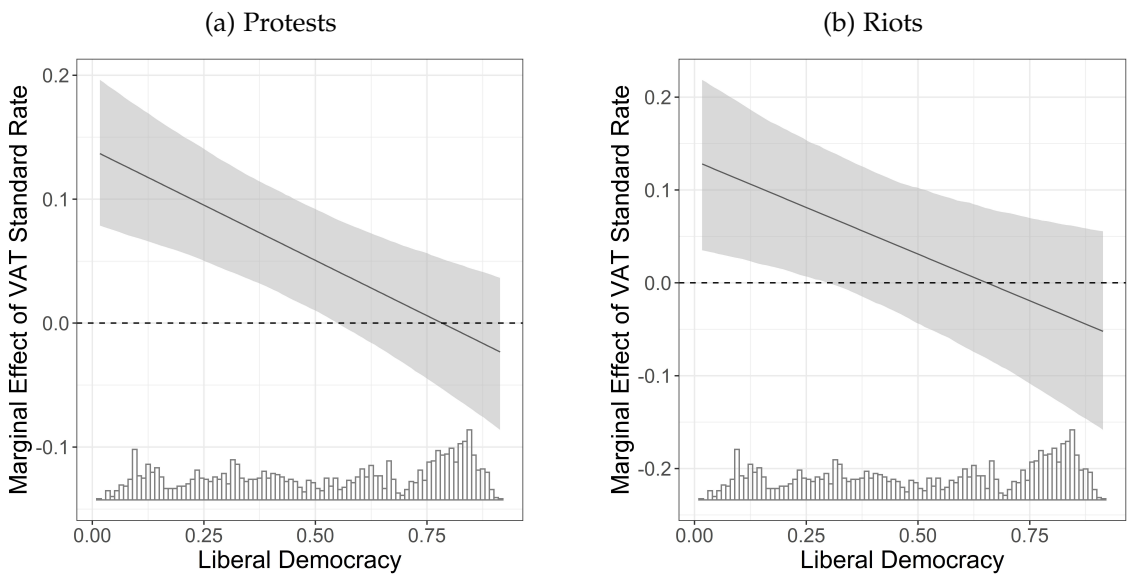
Table 3: VAT Policy-Making and Protests/Riots

	DV: Protests				DV: Riots			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
VAT Standard Rate	0.1116***	0.1944***	0.0605**	0.1394***	0.0674	0.1402**	0.0540	0.1318**
	(0.0208)	(0.0299)	(0.0212)	(0.0307)	(0.0356)	(0.0466)	(0.0364)	(0.0471)
Liberal Democracy	1.1586**	3.7061***	1.1401**	3.5896***	−1.1345*	1.4429	−1.0655*	1.9590
	(0.3816)	(0.7789)	(0.3972)	(0.8019)	(0.5068)	(1.2056)	(0.5299)	(1.2955)
VAT Standard Rate * Liberal Democracy		−0.1831***		−0.1783***		−0.1750*		−0.2023*
		(0.0487)		(0.0508)		(0.0743)		(0.0796)
Public Debt			−0.0025	−0.0009			−0.0043*	−0.0027
			(0.0014)	(0.0014)			(0.0020)	(0.0022)
GDP pc (logged)			−0.6760***	−0.6340***			−0.2829	−0.3008
			(0.1497)	(0.1503)			(0.2086)	(0.2097)
Growth			0.0075	0.0065			0.0009	−0.0006
			(0.0059)	(0.0060)			(0.0087)	(0.0090)
Inflation			−0.0012	−0.0009			0.0048***	0.0051***
			(0.0015)	(0.0015)			(0.0014)	(0.0014)
Population (logged)			0.1152	0.1665			0.6098	0.5182
			(0.4600)	(0.4582)			(0.7827)	(0.7780)
Oil Rent			0.0582***	0.0570***			0.0533***	0.0547***
			(0.0089)	(0.0089)			(0.0125)	(0.0125)
Economic Globalisation			0.0054	0.0070			0.0318**	0.0310**
			(0.0067)	(0.0067)			(0.0103)	(0.0103)
Employment Share Agriculture			−0.0763***	−0.0779***			−0.0090	−0.0103
			(0.0102)	(0.0102)			(0.0129)	(0.0129)
Sub-Federal Units			−0.4457	−0.4585			0.0053	−0.0207
			(0.3491)	(0.3492)			(0.7430)	(0.7430)
Country FE	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
AIC	5710.7273	5698.5612	5581.1762	5570.8946	3428.5784	3425.0021	3389.4600	3385.0406
Num. countries	108	108	108	108	108	108	108	108
Num. obs.	1825	1825	1825	1825	1825	1825	1825	1825

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Since I look at the yearly number of protests and riots in a country, I analyse count data. Therefore, standard OLS models can produce biased results because of two reasons. First, OLS models assume normally distributed data. However, count data is typically positively skewed. Second, count data consist of non-negative integer values. OLS regressions, however, can produce theoretically impossible negative predictions. To deal with these problems, I use Poisson regressions which were designed to analyse count data. Two-way fixed effects control for unit heterogeneity and common time trends.

Figure 6: Effect of VAT Standard Rates on Protests and Riots Conditional on the Political Regime



Note: Grey shaded areas show 95% confidence intervals. Calculations based on Table 3, Models 4 & 8.

Let us first look at the models without the interaction effects (Table 3, Models 1, 3, 5 & 7). The coefficient of VAT standard rates is positive and statistically significant for the number of anti-government protests. The coefficient of VAT standard rates for the number of riots is positive, yet fails to reach conventional levels of statistical significance. Furthermore, the coefficient of the liberal democracy index is positive for protests, whereas it is negative for riots. This finding is in line with the previous discussion about the difference between protests and riots across political regimes. Thus, it supports my approach of looking at both phenomena to rule out alternative

explanations. When calculating the interaction models, we see a consistent pattern: for both the number of protests and riots, the coefficient is negative and statistically significant. This finding holds for the minimal specifications (Table 3, Models 2 & 6) as well as for the models with control variables (Table 3, Models 4 & 8). Figure 6 shows the marginal effects plots. The results show strong support for *Hypthesis 4*: in more autocratic regimes, VAT hikes increase the likelihood of subsequent protests and riots. In democracies, however, this effect disappears.

7 Alternatives to the VAT

As I have argued above, the VAT's efficiency and its revenue raising potential make it an attractive tax policy instrument in times of fiscal problem pressure. Furthermore, I have shown that, despite VAT's advantages, autocracies are less likely than democracies to raise VAT rates in dire fiscal times. This is because VAT hikes have a worse cost-benefit ratio for autocratic rulers. However, it is important to note that the VAT is not the only type of fiscal policy tool. Governments have several other policy options at hand to deal with dire fiscal stuations. In this section, I will test two alternatives: 1) raising other taxes which are less volnerable to quasi-voluntary compliance and 2) cutting government spending.

7.1 Raising Other Taxes

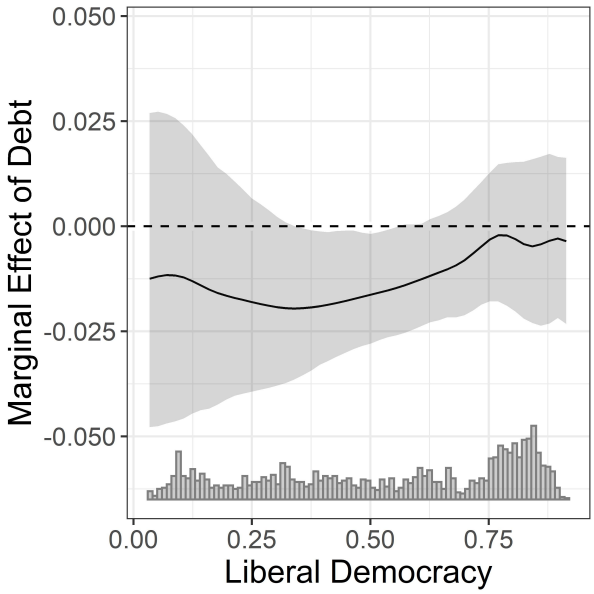
One straightforward alternative is to raise other types of taxes. After all, states have a broad toolkit of modern taxes in order to increase revenue in addition to the VAT (Seelkopf et al., 2021). More specifically, autocratic rulers who are reluctant to increase VAT rates might choose to generate additional revenue by raising other taxes. One major example for this is the CIT. CIT has two advantages for autocratic rulers. First, it falls upon a smaller group of (corporate) taxpayers and, therefore, does not require encompassing individual compliance. Second, the CIT is a progressive tax with a more concentrated tax base (Messere, de Kam, & Heady, 2003). Hence, it is not a

broad-based mass tax like the VAT. This makes large scale protest against CIT hikes less likely. However, despite the domestic advantages that the CIT has, there are general international factors that constraint governments' ability to raise CIT. Most importantly, international competition for mobile capital has put downward pressure on CIT rates worldwide in the last decades (Devereux, Lockwood, & Redoano, 2008; Kanbur & Keen, 1993). Hence, both democracies' and autocracies' ability to raise CIT as a reaction to fiscal shocks – their *room to maneuver* – is severely limited (Swank, 2016). Based on these considerations, we would expect that neither democracies nor autocracies raise CIT in dire fiscal times.

In order to test whether autocratic governments make use of the CIT as an alternative tax policy tool to the VAT, I look at data on CIT standard rates. Similar to the VAT, CIT relies on one headline tax rate. This makes it easier to look at tax policy changes from a comparative perspective in contrast to a tax with a variety of brackets like the personal income tax. Data on CIT rates come from Genschel et al. (2016). I expand their dataset with data from KPMG (2020a) for more recent years. To find out whether fiscal problem pressure affects CIT rates and whether the relation varies by regime type, I run the same models as in Table 1. Table H1 in the Appendix shows the results. Two findings stand out. First, we can see that increasing public debt is not associated with rising CIT rates in the subsequent year. In fact, the coefficient for public debt is negative. However, it only turns significant for the models that include all covariates. Hence, governments even have a slight tendency to lower CIT rates after fiscal shocks. One dominant explanation for this could be that such CIT cuts promise to broaden the tax base by luring foreign capital (Genschel & Schwarz, 2011). Hence, this finding is more in line with theories that stress the role of international competitive constraints on CIT policy-making. In addition, I do not find significant differences between democracies and autocracies when looking at the interaction effect. Figure 7 visualises this by plotting the average marginal effects of rising debt on CIT rates based on the kernel smoothing estimator. We can see that autocratic countries are not more likely to increase CIT rates when debt increases. Furthermore,

the coefficient is negative for all levels of liberal democracy.

Figure 7: Effect of Public Debt on CIT Rates Conditional on the Political Regime



Note: Grey shaded area shows 95% confidence intervals. Calculations based on Table H1, Model 4.

These findings show that raising tax policy alternatives to the VAT – like the CIT – does not seem to be a viable solution for autocratic rulers in times of fiscal problem pressure. A view on the control variables gives an indication why this might be the case. In particular, the economic globalisation variable has a negative and highly significant coefficient. This insight square well with the literature on tax policy-making in a globalised world. Scholars have found that raising most types of taxes faces severe international constraints (Genschel, 2002; Moore et al., 2018; Wibbels & Arce, 2003). The VAT has been identified as the major exemption as many governments raised VAT rates when fiscal pressure was mounting. However, as I have shown in this article, even the option of raising VAT is severly limited in autocracies.

7.2 Cutting Spending

So far, I have shown that autocracies are less likely than democracies to expand their capacity to tax as a reaction to fiscal problem pressure. This leaves us with the question how autocracies consolidate their public finances. The big alternative to rais-

ing taxes is cutting public expenditure. This so-called expenditure-based consolidation aims to balance public households by reducing overall government expenditure. Thus, in contrast to rasising taxes, expenditure-based consolidation does not lead to long-term fiscal expansion. I test whether autocracies have cut spending in dire fiscal times by rerunning the previous models and using general government expenditure (measured as % of GDP) as the dependent variable. Data come from the IMF's Government Finance Statistics Database (IMF, 2020b).

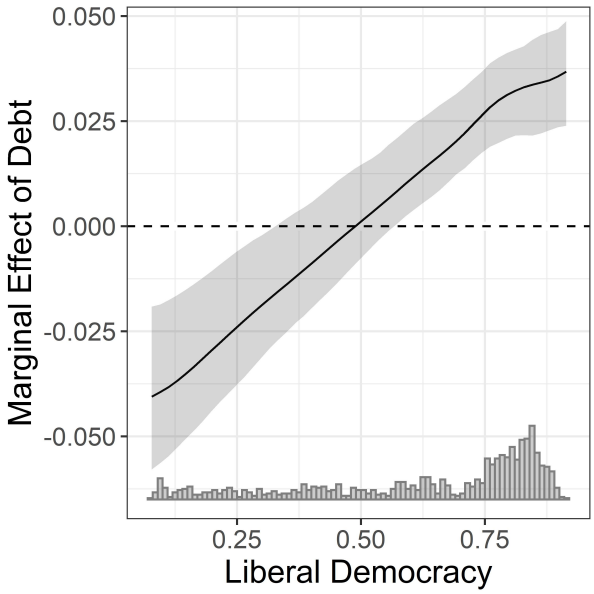
Table H2 presents the results.[10] Models 1 and 3 show that rising public debt is often associated with increases in government spending. Large-scale countercyclical spending programmes which are levied in order to boost economic growth are likely to account for this correlation.[11] Most importantly, however, Models 2 and 4 show that this relation varies by regime type. The interaction effect is positive and statistically significant. Figure 8 visualises this. While overall government spending is more likely to decrease in autocracies when debt is rising, the coefficient becomes positive for more democratic countries. On average, an increase in public debt by 10 percentage points is associated with a 0.2 percentage point drop in spending in countries with a liberal democracy score of 0.25.

In sum, the results show that autocracies facing fiscal problem pressure are more likely to engage in expenditure-based consolidation instead of expanding fiscal capacity. This leads to the important follow-up questions why autocratic rulers choose to cut spending instead of expanding taxation in times of fiscal problem pressure. After all, autocratic rulers often use public spending in order to generate regime support (Grünewald, 2021; Knutsen & Rasmussen, 2018). One potential explanation is that expenditure-based consolidation allows different autocratic rulers to target spending cuts towards groups which are not part of their support coalition. In other words, it allows them to consolidate while risking less political backlash, i.e. by cutting spending for groups that are less relevant for their political survival (Eibl, 2020; Mesquita,

[10]Note that the number of observation drops due to data availability for public spending.

[11]Note that spending is already a policy outcome rather than a sole indicator of policy change. For instance, welfare spending can increase without any policy change if the number of welfare recipients increases (e.g. due to rising unemployment).

Figure 8: Effect of Public Debt on Public Spending Conditional on the Political Regime



Note: Grey shaded area shows 95% confidence intervals. Calculations based on Table H2, Model 4.

Smith, Morrow, & Siverson, 2005). Hence, there is likely to be substantial variation in the shape of austerity packages across autocratic regimes, and investigating such variation in expenditure-based consolidation amongst autocracies could be a fruitful avenue for future research.

8 Conclusion

How can countries build a tax state in the 21st century? While taxes on income and assets helped to expand fiscal capacity building in the 19th and early 20th century, the modern VAT is widely regarded as the most potent revenue-raising tool nowadays (Ebrill et al., 2001; Genschel & Seelkopf, 2021; James, 2015). A sizeable body of research has identified fiscal imperatives as the main drivers of VAT policy-making in OECD countries (Ganghof, 2006; Huo, 2020; Kato, 2003; Lierse & Seelkopf, 2016b). Using a new dataset on VAT rates worldwide since 2000, this article has shown that fiscal problem pressure does not always lead to an expansion of the VAT. Most importantly, the type of political regime matters. While democracies are likely to expand the usage of the VAT in times of fiscal problem pressure, autocracies do not raise VAT

in dire fiscal times. On the first view, this finding appears counter-intuitive. After all, the VAT is a regressive tax instrument. Yet, classic median voter theory would lead us to expect that democracies are less likely to expand the usage of the VAT (Meltzer & Richard, 1981). I have argued that a worse cost-benefit ratio of VAT increases in autocracies can account for this puzzling finding because 1) VAT increases are less effective in raising revenue in autocratic regimes and 2) the costs for autocratic rulers to raise VAT rates are higher since tax hikes can fuel revolutionary uprisings. Panel data analyses have shown strong support for these arguments. VAT hikes are associated with higher consumption tax revenue increases in democracies than in autocracies. Furthermore, autocracies are more likely to experience anti-government protests and riots after VAT increases.

In sum, the findings show that democracies do have an advantage in fiscal policy-making in the 21st century. Most importantly, they are in a better position to expand the usage of unpopular tax policy measures like the VAT in dire fiscal times (Bremer & Bürgisser, 2020). This might have important consequences. First, expanding the usage of a tax like the VAT could have fiscal knock-on effects. If additional revenue is used to expand administrative capacities, states might find it easier to tap into more difficult tax bases such as personal income (Genschel & Seelkopf, 2016). Investigating whether such knock-on effects and interdependencies with other tax policy items exist is an interesting topic for further research.

Second, I have shown that instead of expanding fiscal capacity, autocratic governments tend to lower public sending when they face fiscal pressure. However, many autocratic rulers use public spending in order to ensure enduring regime support. Spending patterns often crucially depend on autocrats' support coalitions (Mesquita et al., 2005). Hence, we might expect that the shape of austerity packages varies substantially across autocracies. In particular, autocratic rulers might be more likely to cut spending in policy areas that are less beneficial to their support coalitions. Further research could zoom in on this important issue by analysing expenditure-based consolidation packages in autocracies.

Finally, the results have implications for studying the link between the tax state and inequality dynamics worldwide. The capability of democracies to expand VAT more easily could come with distributional consequences. On the one hand, expanding regressive taxation via raising VAT might facilitate dynamics of increasing inequality (Saez & Zucman, 2019). On the other hand, the effect of VAT policy-making on inequality depends on how states make use of additional revenue (Bird & Zolt, 2015). If tax income is used to expand social insurance schemes, VAT increases might even strengthen redistributive policy-making. While several studies have investigated the connection between regressive taxation and social policy-making in the OECD, our knowledge of global patterns is still limited (Castañeda & Doyle, 2019; Schmitt, 2015; Schmitt, Lierse, & Obinger, 2020). Studying this connection might also profit from a closer look at variation amongst autocratic regimes and autocratic ruler's usage of social policy-making funded by regressive taxation in the light of varying regime support groups. Furthering this research agenda will help to gain additional insights into the causes and consequences of building a tax state in the 21st century.

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Online Appendix

Part A: General Information

Table A1: Country Sample of the Analyses

Country Sample		
Albania	Algeria	Argentina
Armenia	Australia	Austria
Bahrain	Bangladesh	Barbados
Belarus	Belgium	Bosnia and Herzegovina
Botswana	Brazil	Bulgaria
Cambodia	Canada	Chile
China	Colombia	Costa Rica
Croatia	Cyprus	Czech Republic
Denmark	Dominican Republic	Ecuador
Egypt	El Salvador	Estonia
Fiji	Finland	France
Georgia	Germany	Ghana
Greece	Guatemala	Honduras
Hungary	Iceland	India
Indonesia	Iraq	Ireland
Israel	Italy	Jamaica
Japan	Jordan	Kazakhstan
Kenya	Korea, Republic of	Kuwait
Latvia	Lebanon	Lithuania
Luxembourg	Macedonia	Malawi
Malaysia	Malta	Mauritius
Mexico	Montenegro	Morocco
Mozambique	Namibia	Netherlands
New Zealand	Nigeria	Norway
Oman	Pakistan	Panama
Papua New Guinea	Peru	Philippines
Poland	Portugal	Qatar
Romania	Russia	Serbia
Sierra Leone	Singapore	Slovakia
Slovenia	South Africa	Spain
Sri Lanka	Sudan	Sweden
Switzerland	Tanzania	Thailand
Trinidad and Tobago	Tunisia	Turkey
Uganda	Ukraine	United Kingdom
United States	Uruguay	Venezuela
Vietnam	Yemen	Zambia

Part B: Subgroup Analyses

Table B1: Robustness Check: Only Countries with VAT

	DV: VAT Standard Rate			
	Model 1	Model 2	Model 3	Model 4
Public Debt	0.0185***	−0.0112**	0.0139***	−0.0126***
	(0.0015)	(0.0035)	(0.0019)	(0.0037)
Liberal Democracy	−0.1837	−3.1782***	−0.2386	−3.0292***
	(0.4953)	(0.5776)	(0.4883)	(0.5835)
Public Debt * Liberal Democracy		0.0590***		0.0539***
		(0.0062)		(0.0064)
GDP pc (logged)			−0.5414***	−0.2856
			(0.1599)	(0.1597)
Growth			−0.0026	−0.0043
			(0.0083)	(0.0082)
Inflation			0.0006	0.0001
			(0.0025)	(0.0024)
Population (logged)			0.2460	0.0044
			(0.5334)	(0.5236)
Oil Rent			0.0480***	0.0299*
			(0.0140)	(0.0139)
Economic Globalisation			0.0256***	0.0308***
			(0.0067)	(0.0066)
Employment Share Agriculture			0.0240**	0.0290***
			(0.0082)	(0.0081)
Sub-Federal Units			−1.1610**	−0.8437*
			(0.3589)	(0.3538)
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
R^2	0.9554	0.9577	0.9576	0.9593
Num. countries	102	102	102	102
Num. obs.	1806	1806	1806	1806

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table B2: Robustness Check: Only Developing Countries

	DV: VAT Standard Rate			
	Model 1	Model 2	Model 3	Model 4
Public Debt	0.0054***	−0.0068**	0.0060***	−0.0049
	(0.0015)	(0.0023)	(0.0018)	(0.0025)
Liberal Democracy	−0.6108	−3.6286***	−0.9257	−3.4880***
	(0.5204)	(0.6567)	(0.5141)	(0.6562)
Public Debt * Liberal Democracy		0.0533***		0.0465***
		(0.0074)		(0.0076)
GDP pc (logged)			−0.2947	−0.1144
			(0.2004)	(0.1988)
Growth			0.0033	0.0056
			(0.0093)	(0.0091)
Inflation			0.0045	0.0040
			(0.0029)	(0.0029)
Population (logged)			1.6324*	1.7835**
			(0.6447)	(0.6332)
Oil Rent			−0.0288	−0.0092
			(0.0153)	(0.0153)
Economic Globalisation			0.0306***	0.0296**
			(0.0092)	(0.0090)
Employment Share Agriculture			0.0317***	0.0254**
			(0.0089)	(0.0088)
Sub-Federal Units			−0.9733**	−0.9413**
			(0.3523)	(0.3457)
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
R^2	0.9443	0.9472	0.9472	0.9492
Num. countries	59	59	59	59
Num. obs.	1032	1032	1032	1032

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table B3: Robustness Check: Only Sub-Saharan Africa

	DV: VAT Standard Rate			
	Model 1	Model 2	Model 3	Model 4
Public Debt	0.0066	−0.0602***	0.0062	−0.0445***
	(0.0035)	(0.0070)	(0.0032)	(0.0066)
Liberal Democracy	−3.2165	−11.8187***	−9.1093***	−15.5155***
	(3.0116)	(2.5785)	(2.7092)	(2.4553)
Public Debt * Liberal Democracy		0.1786***		0.1390***
		(0.0170)		(0.0165)
GDP pc (logged)			3.8563***	2.9283***
			(0.4535)	(0.4061)
Growth			−0.0263	−0.0191
			(0.0203)	(0.0175)
Inflation			0.0749***	0.0411***
			(0.0116)	(0.0108)
Population (logged)			−4.7003*	−3.6295*
			(1.9016)	(1.6439)
Oil Rent			0.0571*	−0.0030
			(0.0255)	(0.0231)
Economic Globalisation			0.0104	−0.0025
			(0.0186)	(0.0161)
Employment Share Agriculture			0.1073***	0.0949***
			(0.0211)	(0.0183)
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
R^2	0.8957	0.9316	0.9352	0.9521
Num. countries	14	14	14	14
Num. obs.	243	243	243	243

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Part C: Additional Covariates

Table C1: Robustness Check: Additional Dummies for IMF Programmes

	DV: VAT Standard Rate			
	Model 1	Model 2	Model 3	Model 4
Public Debt	0.0130***	−0.0046*	0.0062***	−0.0071***
	(0.0012)	(0.0020)	(0.0015)	(0.0021)
Liberal Democracy	0.1750	−2.7835***	0.2839	−2.1792***
	(0.4793)	(0.5373)	(0.5003)	(0.5686)
Public Debt * Liberal Democracy		0.0468***		0.0393***
		(0.0043)		(0.0046)
GDP pc (logged)			−0.7639***	−0.4116**
			(0.1522)	(0.1546)
Growth			−0.0087	−0.0071
			(0.0072)	(0.0070)
Inflation			0.0010	0.0016
			(0.0027)	(0.0027)
Population (logged)			−0.9459**	−0.6940*
			(0.3435)	(0.3376)
Oil Rent			0.0140	0.0247*
			(0.0109)	(0.0108)
Economic Globalisation			0.0266***	0.0316***
			(0.0064)	(0.0063)
Employment Share Agriculture			0.0219**	0.0206**
			(0.0081)	(0.0080)
Sub-Federal Units			−0.8499*	−0.6550
			(0.3544)	(0.3478)
IMF Crisis Programme			0.2653**	0.1520
			(0.0889)	(0.0881)
IMF Non-Crisis Programme			0.2103	0.1813
			(0.1347)	(0.1319)
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
R^2	0.9713	0.9731	0.9740	0.9751
Num. countries	108	108	108	108
Num. obs.	1914	1914	1806	1806

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table C2: Robustness Check: Additional Dummy for Debt Restructuring

	DV: VAT Standard Rate			
	Model 1	Model 2	Model 3	Model 4
Public Debt	0.0130***	−0.0046*	0.0079***	−0.0070**
	(0.0012)	(0.0020)	(0.0015)	(0.0022)
Liberal Democracy	0.1750	−2.7835***	0.1166	−2.6256***
	(0.4793)	(0.5373)	(0.4710)	(0.5419)
Public Debt * Liberal Democracy		0.0468***		0.0428***
		(0.0043)		(0.0045)
GDP pc (logged)			−0.7098***	−0.3215*
			(0.1481)	(0.1501)
Growth			−0.0016	−0.0016
			(0.0071)	(0.0069)
Inflation			0.0003	0.0004
			(0.0024)	(0.0023)
Population (logged)			−0.8776**	−0.5303
			(0.3270)	(0.3211)
Oil Rent			0.0164	0.0247*
			(0.0106)	(0.0104)
Economic Globalisation			0.0235***	0.0286***
			(0.0063)	(0.0062)
Employment Share Agriculture			0.0257**	0.0241**
			(0.0079)	(0.0077)
Sub-Federal Units			−1.0510**	−0.8284*
			(0.3517)	(0.3439)
Debt Restructuring			−0.3771	−0.1709
			(0.2249)	(0.2204)
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
R^2	0.9713	0.9731	0.9728	0.9741
Num. countries	108	108	108	108
Num. obs.	1914	1914	1914	1914

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table C3: Robustness Check: Additional Government Effectiveness Covariate

	Model 1	Model 2	Model 3	Model 4
Public Debt	0.0130***	−0.0046*	0.0069***	−0.0085***
	(0.0012)	(0.0020)	(0.0015)	(0.0021)
Liberal Democracy	0.1750	−2.7835***	0.1047	−2.7209***
	(0.4793)	(0.5373)	(0.4709)	(0.5399)
Public Debt * Liberal Democracy		0.0468***		0.0443***
		(0.0043)		(0.0045)
GDP pc (logged)			−0.6547***	−0.2146
			(0.1524)	(0.1549)
Growth			−0.0014	−0.0008
			(0.0071)	(0.0069)
Inflation			−0.0001	0.0003
			(0.0024)	(0.0023)
Population (logged)			−0.9168**	−0.5990
			(0.3286)	(0.3216)
Oil Rent			0.0145	0.0242*
			(0.0105)	(0.0103)
Economic Globalisation			0.0267***	0.0339***
			(0.0066)	(0.0064)
Employment Share Agriculture			0.0260***	0.0247**
			(0.0079)	(0.0077)
Sub-Federal Units			−1.0538**	−0.8202*
			(0.3517)	(0.3433)
Government Effectiveness			−0.2700	−0.4381**
			(0.1674)	(0.1639)
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
R^2	0.9713	0.9731	0.9728	0.9742
Num. countries	108	108	108	108
Num. obs.	1914	1914	1914	1914

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table C4: Robustness Check: Additional Corruption Covariate

	Model 1	Model 2	Model 3	Model 4
Public Debt	0.0130***	−0.0046*	0.0073***	−0.0073***
	(0.0012)	(0.0020)	(0.0015)	(0.0021)
Liberal Democracy	0.1750	−2.7835***	0.6350	−2.2256***
	(0.4793)	(0.5373)	(0.5311)	(0.5982)
Public Debt * Liberal Democracy		0.0468***		0.0427***
		(0.0043)		(0.0045)
GDP pc (logged)			−0.7041***	−0.3174*
			(0.1481)	(0.1500)
Growth			−0.0023	−0.0020
			(0.0071)	(0.0069)
Inflation			0.0001	0.0003
			(0.0024)	(0.0023)
Population (logged)			−0.9490**	−0.5889
			(0.3291)	(0.3232)
Oil Rent			0.0150	0.0242*
			(0.0105)	(0.0103)
Economic Globalisation			0.0234***	0.0285***
			(0.0063)	(0.0062)
Employment Share Agriculture			0.0255**	0.0240**
			(0.0079)	(0.0077)
Sub-Federal Units			−1.0949**	−0.8606*
			(0.3520)	(0.3442)
Corruption			1.0520*	0.7857
			(0.4799)	(0.4690)
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
R^2	0.9713	0.9731	0.9728	0.9741
Num. countries	108	108	108	108
Num. obs.	1914	1914	1914	1914

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Part D: Different Democracy Indicators

Table D1: Robustness Check: Democracy Dummy Instead of Liberal Democracy Indicator

	DV: VAT Standard Rate			
	Model 1	Model 2	Model 3	Model 4
Public Debt	0.0130***	0.0027	0.0066***	−0.0010
	(0.0013)	(0.0016)	(0.0015)	(0.0017)
Democracy Dummy	0.3373*	−0.9589***	0.3063*	−0.8168***
	(0.1584)	(0.2022)	(0.1549)	(0.2029)
Public Debt * Democracy Dummy		0.0245***		0.0211***
		(0.0025)		(0.0025)
GDP pc (logged)			−0.7868***	−0.5042**
			(0.1540)	(0.1547)
Growth			−0.0115	−0.0056
			(0.0073)	(0.0071)
Inflation			0.0010	0.0009
			(0.0027)	(0.0027)
Population (logged)			−1.0077**	−0.7818*
			(0.3465)	(0.3406)
Oil Rent			0.0143	0.0214*
			(0.0110)	(0.0108)
Economic Globalisation			0.0259***	0.0268***
			(0.0064)	(0.0063)
Employment Share Agriculture			0.0331***	0.0311***
			(0.0093)	(0.0091)
Sub-Federal Units			−0.8702*	−0.7156*
			(0.3565)	(0.3498)
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
R^2	0.9722	0.9738	0.9738	0.9749
Num. countries	107	107	107	107
Num. obs.	1785	1785	1785	1785

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table D2: Robustness Check: Electoral Democracy Indicator Instead of Liberal Democracy Indicator

	Model 1	Model 2	Model 3	Model 4
Public Debt	0.0131^{***}	-0.0095^{***}	0.0073^{***}	-0.0119^{***}
	(0.0013)	(0.0024)	(0.0015)	(0.0024)
Electoral Democracy	0.3879	-2.9007^{***}	0.1692	-2.8572^{***}
	(0.4436)	(0.5213)	(0.4385)	(0.5265)
Public Debt * Electoral Democracy		0.0469^{***}		0.0433^{***}
		(0.0042)		(0.0044)
GDP pc (logged)			-0.7126^{***}	-0.3114^{*}
			(0.1481)	(0.1500)
Growth			-0.0021	-0.0014
			(0.0071)	(0.0069)
Inflation			-0.0001	0.0001
			(0.0024)	(0.0023)
Population (logged)			-0.8698^{**}	-0.5024
			(0.3277)	(0.3214)
Oil Rent			0.0146	0.0246^{*}
			(0.0105)	(0.0103)
Economic Globalisation			0.0234^{***}	0.0281^{***}
			(0.0063)	(0.0062)
Employment Share Agriculture			0.0254^{**}	0.0239^{**}
			(0.0079)	(0.0077)
Sub-Federal Units			-1.0548^{**}	-0.8446^{*}
			(0.3519)	(0.3434)
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
R^2	0.9713	0.9732	0.9727	0.9741
Num. countries	108	108	108	108
Num. obs.	1806	1806	1806‘	1806

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Part E: Different Econometric Specifications

Table E1: Robustness Check: Lagged Dependent Variable

	DV: VAT Standard Rate			
	Model 1	Model 2	Model 3	Model 4
Lagged Dependent Variable	0.8017***	0.7867***	0.8022***	0.7894***
	(0.0134)	(0.0137)	(0.0137)	(0.0140)
Public Debt	0.0030***	−0.0012	0.0026**	−0.0011
	(0.0007)	(0.0012)	(0.0009)	(0.0013)
Liberal Democracy	−0.0989	−0.8411**	−0.0677	−0.7959*
	(0.2802)	(0.3256)	(0.2804)	(0.3322)
Public Debt * Liberal Democracy		0.0114***		0.0111***
		(0.0026)		(0.0027)
GDP pc (logged)			−0.0485	0.0529
			(0.0879)	(0.0911)
Growth			−0.0108**	−0.0109**
			(0.0040)	(0.0040)
Inflation			0.0019	0.0020
			(0.0017)	(0.0017)
Population (logged)			−0.2185	−0.1229
			(0.1933)	(0.1939)
Oil Rent			−0.0005	0.0028
			(0.0061)	(0.0061)
Economic Globalisation			−0.0065	−0.0048
			(0.0038)	(0.0038)
Employment Share Agriculture			0.0046	0.0046
			(0.0047)	(0.0046)
Sub-Federal Units			−0.3549	−0.3084
			(0.2001)	(0.1995)
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
R^2	0.9917	0.9918	0.9918	0.9919
Num. countries	108	108	108	108
Num. obs.	1806	1806	1806	1806

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table E2: Robustness Check: No Year FE

	DV: VAT Standard Rate			
	Model 1	Model 2	Model 3	Model 4
Public Debt	0.0134***	−0.0091***	0.0150***	−0.0068**
	(0.0012)	(0.0020)	(0.0013)	(0.0021)
Liberal Democracy	0.5122	−3.3390***	−0.0164	−3.4886***
	(0.4959)	(0.5422)	(0.4842)	(0.5318)
Public Debt * Liberal Democracy		0.0593***		0.0549***
		(0.0042)		(0.0042)
GDP pc (logged)			0.4324***	0.3396***
			(0.0853)	(0.0818)
Growth			−0.0100	−0.0076
			(0.0067)	(0.0064)
Inflation			−0.0005	−0.0003
			(0.0024)	(0.0023)
Population (logged)			0.9686***	0.5949*
			(0.2905)	(0.2788)
Oil Rent			0.0064	0.0186
			(0.0105)	(0.0101)
Economic Globalisation			0.0352***	0.0342***
			(0.0061)	(0.0058)
Employment Share Agriculture			0.0316***	0.0248**
			(0.0079)	(0.0076)
Sub-Federal Units			−0.7615*	−0.6151
			(0.3619)	(0.3457)
Country FE	✓	✓	✓	✓
Year FE	✗	✗	✗	✗
R^2	0.9685	0.9717	0.9706	0.9732
Num. countries	108	108	108	108
Num. obs.	1914	1914	1914	1914

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table E3: Robustness Check: Cubic Time Approximation

	DV: VAT Standard Rate			
	Model 1	Model 2	Model 3	Model 4
Public Debt	0.0136***	−0.0045*	0.0077***	−0.0072***
	(0.0012)	(0.0020)	(0.0014)	(0.0021)
Liberal Democracy	0.2313	−2.7858***	0.1707	−2.6009***
	(0.4782)	(0.5361)	(0.4695)	(0.5386)
Public Debt * Liberal Democracy		0.0475***		0.0433***
		(0.0043)		(0.0044)
GDP pc (logged)			−0.7716***	−0.3917**
			(0.1431)	(0.1448)
Growth			−0.0017	−0.0025
			(0.0066)	(0.0064)
Inflation			−0.0007	−0.0004
			(0.0024)	(0.0023)
Population (logged)			−0.8637**	−0.5301
			(0.3264)	(0.3200)
Oil Rent			0.0147	0.0231*
			(0.0103)	(0.0101)
Economic Globalisation			0.0210***	0.0262***
			(0.0062)	(0.0060)
Employment Share Agriculture			0.0241**	0.0223**
			(0.0078)	(0.0076)
Sub-Federal Units			−1.0715**	−0.8427*
			(0.3511)	(0.3430)
Country FE	✓	✓	✓	✓
Year FE	✗	✗	✗	✗
Cubic Year Approximation	✓	✓	✓	✓
R^2	0.9711	0.9730	0.9726	0.9739
Num. countries	108	108	108	108
Num. obs.	1914	1914	1914	1914

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table E4: Robustness Check: PCSE

	DV: VAT Standard Rate			
	Model 1	Model 2	Model 3	Model 4
Public Debt	0.0130***	−0.0046***	0.0072***	−0.0075***
	(0.0014)	(0.0012)	(0.0013)	(0.0015)
Liberal Democracy	0.1750	−2.7835***	0.0955	−2.6569***
	(0.5011)	(0.5444)	(0.4524)	(0.5234)
Public Debt * Liberal Democracy		0.0468***		0.0431***
		(0.0041)		(0.0048)
GDP pc (logged)			−0.7125***	−0.3197*
			(0.1219)	(0.1445)
Growth			−0.0021	−0.0019
			(0.0080)	(0.0068)
Inflation			−0.0001	0.0002
			(0.0026)	(0.0026)
Population (logged)			−0.8626**	−0.5208
			(0.2825)	(0.2839)
Oil Rent			0.0145	0.0239*
			(0.0087)	(0.0117)
Economic Globalisation			0.0235***	0.0287***
			(0.0067)	(0.0065)
Employment Share Agriculture			0.0256***	0.0241***
			(0.0050)	(0.0044)
Sub-Federal Units			−1.0549*	−0.8284
			(0.4724)	(0.4522)
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
PCSE	✓	✓	✓	✓
R^2	0.9713	0.9731	0.9727	0.9741
Num. countries	108	108	108	108
Num. obs.	1914	1914	1914	1914

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table E5: Robustness Check: Standard Errors Clustered at Country Level

	DV: VAT Standard Rate			
	Model 1	Model 2	Model 3	Model 4
Public Debt	0.0130**	−0.0046	0.0072	−0.0075
	(0.0047)	(0.0053)	(0.0043)	(0.0048)
Liberal Democracy	0.1750	−2.7835*	0.0955	−2.6569*
	(1.2272)	(1.3208)	(1.1243)	(1.3122)
Public Debt * Liberal Democracy		0.0468***		0.0431**
		(0.0115)		(0.0132)
GDP pc (logged)			−0.7125	−0.3197
			(0.4977)	(0.5444)
Growth			−0.0021	−0.0019
			(0.0121)	(0.0110)
Inflation			−0.0001	0.0002
			(0.0051)	(0.0049)
Population (logged)			−0.8626	−0.5208
			(0.6750)	(0.6273)
Oil Rent			0.0145	0.0239
			(0.0253)	(0.0197)
Economic Globalisation			0.0235	0.0287
			(0.0195)	(0.0192)
Employment Share Agriculture			0.0256	0.0241
			(0.0168)	(0.0164)
Sub-Federal Units			−1.0549	−0.8284
			(0.6652)	(0.6626)
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
Robust SE	✓	✓	✓	✓
R^2	0.9713	0.9731	0.9727	0.9741
Num. countries	108	108	108	108
Num. obs.	1914	1914	1914	1914

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table E6: Robustness Check: PCSE and AR(1)

	DV: VAT Standard Rate			
	Model 1	Model 2	Model 3	Model 4
Public Debt	0.0078***	−0.0022	0.0061***	−0.0026
	(0.0017)	(0.0019)	(0.0017)	(0.0021)
Liberal Democracy	−0.1728	−1.6676*	−0.0812	−1.4575*
	(0.6164)	(0.6730)	(0.6090)	(0.6734)
Public Debt * Liberal Democracy		0.0274***		0.0243***
		(0.0051)		(0.0052)
GDP pc (logged)			−0.3210	−0.2255
			(0.1788)	(0.1724)
Growth			−0.0054	−0.0031
			(0.0034)	(0.0035)
Inflation			0.0005	0.0003
			(0.0029)	(0.0029)
Population (logged)			−0.9183	−0.8115
			(0.5621)	(0.5004)
Oil Rent			−0.0024	−0.0043
			(0.0075)	(0.0076)
Economic Globalisation			0.0040	0.0073
			(0.0069)	(0.0069)
Employment Share Agriculture			0.0272***	0.0260***
			(0.0070)	(0.0065)
Sub-Federal Units			−0.4131	−0.3969
			(0.5918)	(0.5864)
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
PCSE	✓	✓	✓	✓
AR(1)	✓	✓	✓	✓
R^2	0.9212	0.9310	0.9282	0.9337
Num. countries	108	108	108	108
Num. obs.	1914	1914	1914	1914

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table E7: Robustness Check: Full Beck & Katz Model

	DV: VAT Standard Rate			
	Model 1	Model 2	Model 3	Model 4
Lagged Dependent Variable	0.8017***	0.7867***	0.8022***	0.7894***
	(0.0350)	(0.0357)	(0.0352)	(0.0358)
Public Debt	0.0030***	−0.0012	0.0026**	−0.0011
	(0.0008)	(0.0008)	(0.0009)	(0.0009)
Liberal Democracy	−0.0989	−0.8411*	−0.0677	−0.7959*
	(0.3354)	(0.3619)	(0.3329)	(0.3506)
Public Debt * Liberal Democracy		0.0114***		0.0111***
		(0.0026)		(0.0027)
GDP pc (logged)			−0.0485	0.0529
			(0.0835)	(0.0852)
Growth			−0.0108**	−0.0109**
			(0.0040)	(0.0039)
Inflation			0.0019	0.0020
			(0.0032)	(0.0032)
Population (logged)			−0.2185	−0.1229
			(0.2097)	(0.2075)
Oil Rent			−0.0005	0.0028
			(0.0050)	(0.0052)
Economic Globalisation			−0.0065	−0.0048
			(0.0040)	(0.0038)
Employment Share Agriculture			0.0046	0.0046
			(0.0028)	(0.0028)
Sub-Federal Units			−0.3549	−0.3084
			(0.2881)	(0.2886)
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
PCSE	✓	✓	✓	✓
R^2	0.992	0.992	0.992	0.992
Num. countries	108	108	108	108
Num. obs.	1806	1806	1806	1806

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Part F: Different Measures For Fiscal Pressure

Table F1: Results From Models With ΔVAT Standard Rate as the Dependent Variable

	DV: ΔVAT Standard Rate			
	Model 1	Model 2	Model 3	Model 4
ΔPublic Debt	0.0063***	0.0016	0.0042*	−0.0014
	(0.0017)	(0.0028)	(0.0018)	(0.0031)
Public Debt	0.0013**	0.0011*	0.0010*	0.0007
	(0.0004)	(0.0004)	(0.0004)	(0.0005)
Liberal Democracy	0.0880	0.0863	0.0632	0.0394
	(0.0559)	(0.0558)	(0.0805)	(0.0811)
ΔPublic Debt * Liberal Democracy		0.0129*		0.0141*
		(0.0060)		(0.0062)
GDP pc (logged)			0.0144	0.0156
			(0.0244)	(0.0243)
Growth			−0.0136***	−0.0133***
			(0.0036)	(0.0036)
Inflation			0.0015	0.0013
			(0.0015)	(0.0015)
Population (logged)			−0.0015	−0.0014
			(0.0105)	(0.0105)
Oil Rent			−0.0033	−0.0045*
			(0.0020)	(0.0020)
Economic Globalisation			−0.0012	−0.0011
			(0.0016)	(0.0016)
Employment Share Agriculture			−0.0004	−0.0004
			(0.0014)	(0.0014)
Sub-Federal Units			−0.1295*	−0.1268*
			(0.0535)	(0.0535)
Country FE	✗	✗	✗	✗
Year FE	✗	✗	✗	✗
R^2	0.0134	0.0160	0.0267	0.0295
Num. countries	104	104	104	104
Num. obs.	1806	1806	1806	1806

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table F2: Results From Models With Government Bond Yields as the Main Independent Variable

	DV: VAT Standard Rate			
	Model 1	Model 2	Model 3	Model 4
Gov. Bond Yields	0.1518***	0.0642	0.1309***	0.0101
	(0.0197)	(0.0408)	(0.0208)	(0.0409)
Liberal Democracy	−1.3597	−2.1951*	−1.4927	−2.6948**
	(0.9230)	(0.9812)	(0.8960)	(0.9564)
Gov. Bond Yields * Liberal Democracy		0.1791*		0.2473***
		(0.0731)		(0.0722)
GDP pc (logged)			−1.4836***	−1.5269***
			(0.2849)	(0.2832)
Growth			−0.0143	−0.0119
			(0.0161)	(0.0160)
Inflation			−0.0036	−0.0040
			(0.0044)	(0.0044)
Population (logged)			−1.8396	−2.0154
			(1.0833)	(1.0768)
Oil Rent			0.1811***	0.1559***
			(0.0432)	(0.0436)
Economic Globalisation			0.0008	0.0043
			(0.0113)	(0.0113)
Employment Share Agriculture			−0.0043	0.0105
			(0.0235)	(0.0237)
Sub-Federal Units			−0.9695*	−1.0520**
			(0.3760)	(0.3741)
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
R^2	0.9715	0.9717	0.9746	0.9750
Num. countries	53	53	53	53
Num. obs.	828	828	828	828

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Part G: Alternative Explanations for Link between VAT Rates and Revenue

Table G1: Robustness Check: Interaction VAT Rate and Government Effectiveness

	DV: Consumption Tax Revenue (% of GDP)			
	Model 1	Model 2	Model 3	Model 4
VAT Standard Rate	0.0783**	0.0730**	0.0996***	0.0942***
	(0.0250)	(0.0255)	(0.0262)	(0.0266)
Government Effectiveness	0.8516***	0.4637	0.4030*	−0.0449
	(0.1694)	(0.4225)	(0.1869)	(0.4284)
VAT Standard Rate * Government Effectiveness		0.0230		0.0262
		(0.0229)		(0.0225)
Public Debt			−0.0092***	−0.0093***
			(0.0021)	(0.0021)
GDP pc (logged)			−0.3626*	−0.3568*
			(0.1772)	(0.1772)
Growth			0.0052	0.0051
			(0.0088)	(0.0088)
Inflation			0.0134***	0.0133***
			(0.0033)	(0.0033)
Population (logged)			−2.6707***	−2.6620***
			(0.5336)	(0.5336)
Oil Rent			−0.0168	−0.0158
			(0.0173)	(0.0173)
Economic Globalisation			0.0193**	0.0197**
			(0.0074)	(0.0074)
Employment Share Agriculture			−0.0485***	−0.0486***
			(0.0087)	(0.0087)
Sub-Federal Units			−0.1288	−0.1114
			(0.4017)	(0.4019)
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
R^2	0.9383	0.9384	0.9418	0.9419
Num. countries	104	104	104	104
Num. obs.	1621	1621	1621	1621

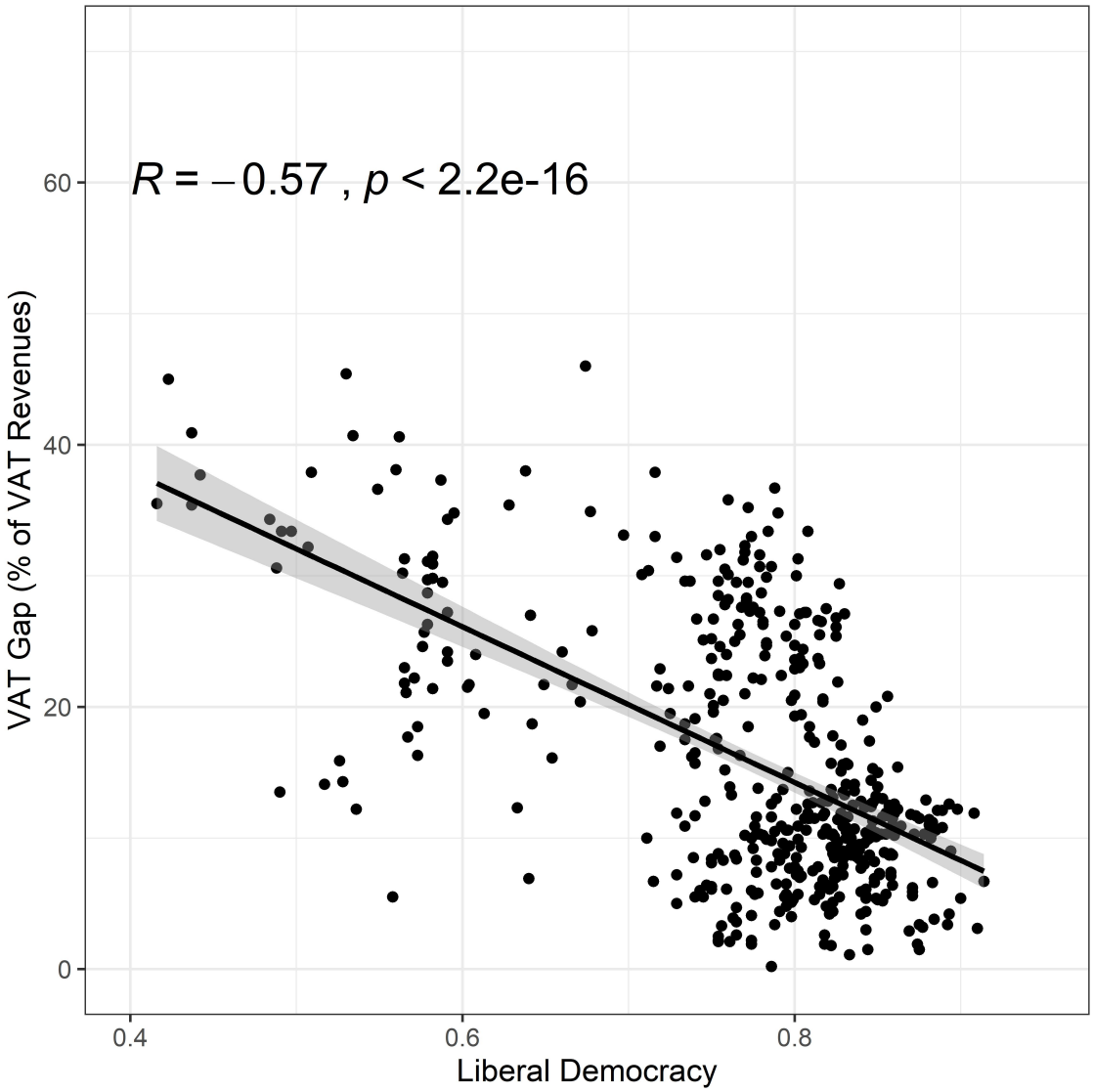
$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table G2: Robustness Check: Interaction VAT Rate and Corruption

	DV: Consumption Tax Revenue (% of GDP)			
	Model 1	Model 2	Model 3	Model 4
VAT Standard Rate	0.0762**	0.0922*	0.1040***	0.1291**
	(0.0248)	(0.0404)	(0.0259)	(0.0424)
Corruption	−3.1295***	−2.4824	−2.7924***	−1.8253
	(0.4482)	(1.3683)	(0.4405)	(1.3671)
VAT Standard Rate * Corruption		−0.0358		−0.0538
		(0.0716)		(0.0720)
Public Debt			−0.0098***	−0.0099***
			(0.0021)	(0.0021)
GDP pc (logged)			−0.3301	−0.3156
			(0.1721)	(0.1732)
Growth			0.0060	0.0059
			(0.0087)	(0.0087)
Inflation			0.0123***	0.0123***
			(0.0033)	(0.0033)
Population (logged)			−2.5720***	−2.5265***
			(0.5174)	(0.5211)
Oil Rent			−0.0174	−0.0164
			(0.0171)	(0.0171)
Economic Globalisation			0.0228**	0.0233**
			(0.0070)	(0.0071)
Employment Share Agriculture			−0.0486***	−0.0483***
			(0.0086)	(0.0086)
Sub-Federal Units			0.0195	0.0315
			(0.3974)	(0.3978)
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
R^2	0.9393	0.9393	0.9432	0.9432
Num. countries	104	104	104	104
Num. obs.	1621	1621	1621	1621

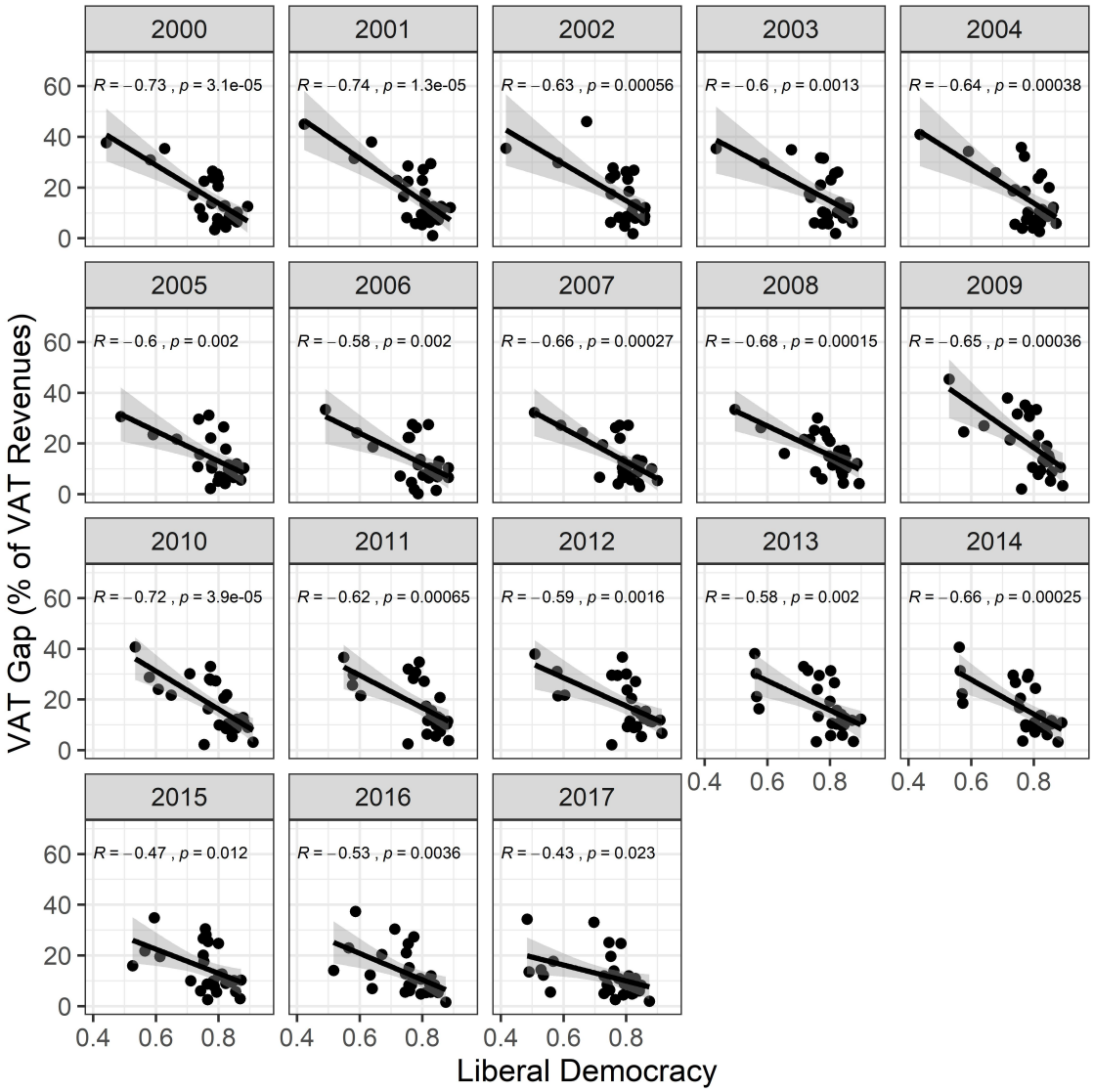
$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Figure G1: Correlation Between Liberal Democracy Scores and the VAT Gap in 28 European Countries, 2000-2017



Note: Grey shaded area shows 95% confidence intervals.

Figure G2: Correlation Between Liberal Democracy Scores and the VAT Gap in 28 European Countries by Year, 2000-2017



Note: Grey shaded area shows 95% confidence intervals.

Part H: Alternatives to the VAT: Raising CIT and Cutting Spending

Table H1: Results With CIT Rate As the Main Dependent Variable

	DV: CIT Rate			
	Model 1	Model 2	Model 3	Model 4
Public Debt	−0.0057	−0.0152	−0.0165*	−0.0219
	(0.0056)	(0.0133)	(0.0065)	(0.0134)
Liberal Democracy	−2.2508	−3.1723	−1.1560	−1.7059
	(1.7354)	(2.0917)	(1.6866)	(2.0786)
Public Debt * Liberal Democracy		0.0179		0.0104
		(0.0227)		(0.0230)
GDP pc (logged)			−1.4279*	−1.3718*
			(0.5665)	(0.5799)
Growth			0.1226***	0.1220***
			(0.0282)	(0.0283)
Inflation			0.0241*	0.0241*
			(0.0113)	(0.0113)
Population (logged)			−10.0846***	−10.0807***
			(1.2093)	(1.2096)
Oil Rent			−0.1269**	−0.1294**
			(0.0405)	(0.0409)
Economic Globalisation			−0.1063***	−0.1050***
			(0.0227)	(0.0229)
Employment Share Agriculture			−0.0960**	−0.0948**
			(0.0315)	(0.0317)
Sub-Federal Units			2.4786*	2.5372*
			(1.1816)	(1.1890)
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
R^2	0.8239	0.8240	0.8362	0.8362
Num. countries	108	108	108	108
Num. obs.	1714	1714	1714	1714

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table H2: Results With Public Spending (% of GDP) As the Main Dependent Variable

	DV: Public Spending (% of GDP)			
	Model 1	Model 2	Model 3	Model 4
Public Debt	0.0136***	−0.0351***	0.0140***	−0.0456***
	(0.0029)	(0.0084)	(0.0035)	(0.0084)
Liberal Democracy	1.8154*	−1.4815	2.4116**	−1.6722
	(0.8378)	(0.9812)	(0.8109)	(0.9470)
Public Debt * Liberal Democracy		0.0736***		0.0899***
		(0.0119)		(0.0116)
GDP pc (logged)			0.7679**	0.8414**
			(0.2703)	(0.2628)
Growth			−0.1243***	−0.1371***
			(0.0138)	(0.0135)
Inflation			0.0002	−0.0007
			(0.0038)	(0.0037)
Population (logged)			−1.4902	−1.6564
			(1.0070)	(0.9788)
Oil Rent			0.0625	0.0409
			(0.0393)	(0.0383)
Economic Globalisation			−0.0231*	−0.0115
			(0.0098)	(0.0096)
Employment Share Agriculture			0.0692**	0.0770***
			(0.0229)	(0.0223)
Sub-Federal Units			1.0975	1.2984
			(1.2382)	(1.2035)
Country FE	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
R^2	0.9622	0.9635	0.9659	0.9678
Num. countries	77	77	77	77
Num. obs.	1113	1113	1113	1113

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$