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The rise of modern taxation: A new comprehensive dataset of tax introductions worldwide

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Abstract

This article describes the new Tax Introduction Dataset (TID). Listing the year and the mode of the first permanent introduction of six major taxes (inheritance tax, personal income tax, corporate income tax, social security contributions, general sales tax and value added tax) in 220 countries, 1750-2018, TID is the most comprehensive dataset of its kind. The comprehensiveness of our measure is of critical value to empirical work on the causes of tax innovation and its consequences for state, society and economy. In this paper, we explain the selection of our tax sample and the structure of the dataset, descriptively map temporal and regional patterns of tax introductions around the world, and draw on TID to investigate associations between tax introductions and economic development, war, and democratization.

Keywords: Taxation – Tax Introduction Dataset – Economic Development – War – Democratization

1. Why TID?

The modern state is a ‘tax state’ (Schumpeter 1917). Non-tax revenues are scarce. The availability of tax revenue crucially determines what a state can and cannot do, how many public goods and services it can deliver, how modestly or ambitiously it can define its policy goals, and how effectively it can impose its authority domestically and internationally (Besley and Persson 2011). Taxation, in turn, leaves its imprint on society. The level and structure of taxation determine who pays and who benefits, who owes and who deserves, who invests and who consumes. Taxes are at the heart of the social contract and constitute a core theme of political discourse and a core issue in distributive struggle. Tax states shape tax societies (Martin, Mehrotra, and Prasad 2009).

Virtually all states around the world rely on a small number of key taxes: taxes on income including the personal income tax (PIT), the corporate income tax (CIT) and social security contributions (SSCs); taxes on general consumption of either the general sales tax (GST) or the value-added tax (VAT) variety, and taxes on wealth, such as the inheritance tax (INH). While these key taxes are widespread, and account for roughly two-thirds of global tax revenue, the timing and sequence of their introduction vary significantly across countries. These differences are causally and symptomatically important. The introduction of a new tax is ‘usually a quite public event’ (Levi 1989, 49), accompanied by a high degree of negotiation and contestation. It taps new revenue streams, changes the distributive bias of the tax system, and seals a new fiscal contract with potentially important downstream effects on state capacity, political institutions, and socio-economic structure: ‘how fiscal systems develop depends significantly on how they started’ (Zolt and Bird 2005, 24). Different starts may lead to different trajectories.

In this paper, we introduce a new global dataset that greatly enhances our ability to identify and map the timing of tax introductions, analyze their causes and explore their long-term consequences: the tax introduction dataset (TID). Covering the introduction of six taxes (INH, PIT, CIT, SSCs, GST and VAT) in 220 countries between 1750 and 2018, TID helps to correct three prevalent biases in the fiscal literature. The first is a *geographical bias* in historical research to focus on the specific Western and to a lesser extent Latin American experience (see e.g. Peters 1991, Steinmo 1993, Centeno 2003, Aidt and Jensen 2009a, Dincecco and Katz 2016, Scheve and Stasavage 2016). Historically comparative tax data on non-Western countries, let alone colonies is difficult to get. This makes it difficult to set Western tax history into comparative perspective. Second is a *recency bias* of many large-N comparative analyses of taxation (see e.g. Cheibub 1998, Kenny and Winer 2006, Genschel and Seelkopf 2016, Bastiaens and Rudra 2016). While international organizations such as the IMF and the OECD now routinely provide comparative revenue data for large country samples, these data often go back only two or three decades. The same holds for the statutory tax rate or tax base data provided by international consultancies such as KPMG or PWC. Hence, a large-N design usually implies a fairly short period of observation. This makes it hard to put fit current findings into a historical perspective. Finally, there is a *substantive bias* in sociology, and political economy towards the PIT (and to a lesser extent the INH) as the hallmark of progressive taxation (see e.g. Ganghof 2006, Aidt and Jensen 2009b; Scheve and Stasavage 2012, Mares and Queralt 2015) and to the VAT as the quintessential tax on general consumption (see e.g. Kato 2003, Beramendi and Rueda 2007, Keen and Lockwood 2010). Much less attention is paid to the CIT, arguably the lynchpin of modern capital taxation, to SSCs even though they often raise more revenue than PIT, or to the GST, arguably the first modern tax on general consumption.

In the following section 2, we briefly describe TID's formal features. We explain its variables and data structure and compare it to other existing tax introduction datasets. In section 3, we discuss the main coding decisions behind TID. We explain why the dataset focuses on tax introductions rather than other indicators of fiscal development. We justify the selection of taxes covered (basically all main revenue sources of the modern tax state), and review issues of operationalization. In section 4, we use TID data to map the global diffusion of modern taxation. We find that virtually all states worldwide have, at one point in their history, adopted most or all of the six TID taxes. However, the timing and sequence of adoption varies markedly by tax, geographical region, and mode of introduction (sovereign, colonial or inherited). In section 5, we assess the ability of three standard explanations of fiscal policy change to account for differences in tax introductions: economic development, war, and democratization. All three are imbued by the historical experience of Western states. How well do they travel to the rest of the world? We find positive associations between tax introductions and all three factors. However, the pattern of association differs markedly between Western and non-Western countries: war is strongly associated with Western tax introductions but not with non-Western ones; democratization, by contrast, is associated with many tax introductions in non-Western but not in Western countries. Even if the taxes are the same in both country groups, the logic of their adoption seems to differ. Section 6 concludes by summarizing our main findings and suggesting avenues for further research.

2. TID: variables and data structure

In this section, we present the Tax Introduction Dataset (TID), and explain its main features: tax introductions, country coverage, data structure, and data sources.

Tax introductions

TID codes the *year* and the *mode* of the first *permanent* introduction at the *national level* of six *major taxes*: the personal income tax (PIT), the corporate income tax (CIT), social security contributions (SSCs), the inheritance tax (INH), the general sales tax (GST) and the value added tax (VAT). We focus on tax introductions at the national level because central government typically dominates domestic taxation, and also in order to ensure that data are comparable across countries. We focus on permanent introductions in order to exclude special cases of emergency finance, usually for wars (Aidt and Jensen 2009a).¹ We distinguish three modes of tax introduction: *sovereign* (when an independent state introduces a tax), *colonial* (when a tax is introduced under colonial rule and maintained after independence) and *inherited* (when a tax is introduced in a state and then maintained in a new breakaway state after secession).

Country coverage

TID provides tax introduction information for 220 countries, past and present, of which 195 are still in existence today.² The TID country list builds on the Correlates of War (COW) ‘State System Membership List’, 1816-2016 (Correlates of War Project 2017). Yet, TID frequently applies different country starting dates. This is because the COW criteria focus on the international legal recognition of a country’s independence, while the relevant issue for TID is domestic sovereignty (fiscal independence). COW includes all jurisdictions that have (or had) a population greater than 500,000 and had diplomatic missions with Britain and France (prior to 1920), and/or have been a member of the League of Nations or the United Nations or have received diplomatic missions from at least two major powers (after 1920).³ Yet, many countries achieved effective domestic, including fiscal, sovereignty before they achieved international legal recognition. Hungary, for instance, had effective fiscal sovereignty since the constitutional compromise of 1867, even though it remained part of Austria-Hungary for international purposes until 1918. In other words, since 1867 Hungary was ‘at risk’ of introducing new taxes independently of Austria. TID thus treats Hungary’s SSC introduction in 1891 as a sovereign introduction.⁴

Data Structure

For each tax and country pair, TID provides three types of information.⁵

- The **status** of tax introduction scored by three categories:
 - *Introduced*: at one point of the country’s history the tax was introduced at the national level on a permanent basis;
 - *not introduced*: at no point of the country’s history was the tax permanently introduced;
 - *missing*: information on the status of tax introduction is currently lacking.

¹ Obviously, temporary emergency taxes may turn into permanent taxes. The relevant criteria for TID is the factual permanence of a tax. See the code book for further detail (Anonymous 2019). The codebook, the dataset as well as further supplementary material is available on the Review of International Organizations’ webpage. Please visit www.anonymous.com for the most recent data version.

² 25 countries no longer exist. They include historical states that have since been enveloped by larger states, such as the Republic of Vietnam or East Germany, as well as large historical states that have since fragmented, such as Great Colombia, Czechoslovakia and Yugoslavia.

³ Note that small UN member states such as Andorra or Antigua and Barbuda *are* included in COW/TID even though they have populations substantially smaller than 500.000. This is important for tax research because many tax havens are very small (Genschel, Lierse, and Seelkopf 2016).

⁴ For more information on the TID country list and its differences to the COW list, please consult the TID codebook (Anonymous 2019).

⁵ In addition, we also collected information on the *tax rate* in the year of introduction as well as a dummy for *subnational tax introduction*: was the national introduction of a tax preceded by an introduction of the same tax at the subnational level? The data on these two variables are not exhaustive, hence we don’t present them here.

- The calendar **year** of the first permanent introduction of the tax.
- The **mode** of the first permanent introduction of the tax scored by six categories:
 - *Sovereign*: the tax was introduced by a fiscally sovereign national government;
 - *Colonial*: the tax was introduced under colonial rule and maintained by the country upon independence;
 - *Inherited*: the tax was introduced by a predecessor state and maintained by the country upon independence from that state;
 - *Never introduced*: the tax was never introduced;
 - *Not applicable*: the country could not have introduced a tax because it ceased to exist before this tax was conceived (most commonly applies with VAT);
 - *Missing*: no information on the mode of tax introduction is currently available.

Each data entry is linked to a source and a comment section. Comments provide qualitative background information on the historical circumstances of tax introduction. Comments on *missing* cases contain a probability estimate of how likely the missing data reflect a case of *never introduced*. Given the chronic difficulties of proving non-events, many of TID's *missings* are *likely never introduced*.⁶ Where appropriate the comments also discuss source conflicts. Source conflicts typically concern the demarcation between modern taxes (Is a new tax a GST or a VAT?) or between modern and pre-modern taxes (Does a new 'income tax' qualify as a fully fledged PIT, and is therefore coded as PIT introduction, or not?). We discuss these coding problems further below (section 3).

Table 1: Overview of Tax Introduction Databases / Descriptions

<i>Authors</i>	<i>Tax</i>	<i>Countries</i>	<i>Time</i>
Webber and Wildavsky 1986	PIT	Western World (16 countries)	1799 – 1909
Aidt and Jensen 2009b	PIT	OECD (17 countries)	1815-1939
Genovese, Scheve, and Stasavage 2016	PIT	OECD (20 countries)	1800 – 2010
Brambor 2016	PIT	World w/o Africa (39 / 50 countries)	1842-1975 / 1842 – 1980
Webber and Wildavsky 1986	INH	Western World (9 countries)	1799 – 1909
Plagge, Scheve, and Stasavage 2010	INH	OECD (18 countries)	1796 – 2009
Brambor 2016	GST/VAT	World w/o Africa (60 countries)	1864 – 2006
International Tax Dialogue 2013	VAT	World (215 countries)	1961-2012

⁶ For further information on coding rules for *missings* and *never introduced* see the code book (Anonymous 2019). The current version of the dataset includes just around 4% (57 cases) of fully missing cases. For another 7% we know that the tax was introduced, but have no information on the mode and/or the year. For a very small minority of cases (10 or 0.8%) we know the mode but not the year of introduction, implying that we have full information for 1169 or 88% of our cases.

TID	INH/SSC/PIT/ CIT/GST/VAT	World (220 countries)	1750-2017
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Data sources

TID is based on more than 1200 source documents. Wherever possible these documents are from official sources (legislative acts, and official reports from national governments and intergovernmental organizations). Other sources include reports by NGOs and private consultancies as well as the scholarly literature. The primary search method for documents is the desk-based online query.⁷ In addition, we rely extensively on interlibrary loans, the IMF's online catalogue, material from the US Social Security Administration as well as archival sources at the British *National Archives*, the *British Library*, the French *Archives Nationales d'Outre-Mer*, and the International Bureau of Fiscal Documentation. We started with a pre-study based on existing tax introduction data bases and some first coding (Anonymous). Yet, as table 1 demonstrates, TID is by now far more comprehensive in terms of tax coverage, country coverage, and length of period of observation than any of these databases.

3. Coding modern taxation

Taxes are compulsory payments to the state 'in exchange for nothing in particular' (Martin, Mehrotra, and Prasad 2009). Tax payments do not create any concrete entitlements for the individual tax payer. Their primary purpose is to generate public revenue. Hence, revenue data is an obvious and commonly used measure in fiscal sociology and political economy (e.g. Lieberman 2002). Why then is it useful to construct a tax introduction database? Why code tax adoptions rather than tax income? Also, given the myriad of different taxes, past and present, how can any particular selection of taxes be justified? Why code the introduction of the six TID taxes rather than that of other taxes? We answer both questions in turn and close with a note on coding problems.

Why code tax introductions?

The permanent introduction of a tax is an important indicator for two main reasons. The first reason is substantive. Tax introduction is a necessary condition of tax revenue: without tax no tax collections. The adoption of a new tax gives the state access to new revenue streams, with potentially far-reaching consequences for state capacity, economic development, and distributive fairness (Besley and Persson 2013, 57). It often marks a critical juncture in fiscal development, and a substantial change of the fiscal contract. Importantly, the introduction of a new tax matters even if it does not immediately result in more revenue because a new tax improves the state's capacity to tax regardless of the extent to which this capacity is actually used. Revenue data, by contrast, conflate revenue outcomes with tax capacity (Andersson 2017). This is misleading because a state that raises a given revenue level with a couple of underused taxes clearly has a higher tax capacity than a state that raises the same level by using all available taxes to the tilt. The conflation of revenue and tax capacity is also misleading because revenues do not only reflect the policy choices of the government but also macroeconomic conditions beyond the government's control.

⁷ For more information on our search strategy, see the Codebook (Anonymous 2019).

The second reason is pragmatic: tax introduction is comparatively easy to code. In an ideal world, of course, researchers would combine data on tax introduction, with revenue data as well as data on statutory rates, and base definitions. Yet, comparative time series data on revenues and statutory rates are sketchy or non-existent for non-Western states. Even for Western states they are difficult to get for before 1950.⁸ Sometimes only information on total tax revenues is available. Comparative time-series data on statutory tax bases are almost non-existent. Whenever fine-grained information on rates, revenues or bases is missing, data on tax introductions may help to proxy tax capacity and the tax mix (Andersson 2017, 4). Since tax introductions are easier to collect, they allow for a much broader coverage of countries, taxes and time periods.

Which taxes to include?

TID focuses on the introduction of six main taxes: PIT, CIT, SSCs, INH, GST and VAT. These taxes were selected because they embody three defining features of *modern taxation* that set them apart from pre-modern forms of taxation: revenue capacity, administrative complexity and redistributive potential.

Revenue capacity: All taxes, modern and pre-modern, ultimately fall on three broad macroeconomic tax bases: income, wealth, and consumption. Premodern taxes tapped into these bases selectively and by proxy (Kiser and Karceski 2017, 69). Income and wealth were targeted through taxes on people (forced labor, poll taxes, hut taxes, etc.), taxes on land and its produce (e.g. the tithe), taxes on features of real assets (e.g. the number of windows or chimneys), and stamp duties on legal transactions (e.g. marriage licenses, military commissions, land transactions, inheritance). Consumption was taxed selectively through trade taxes (at external borders), tolls (at internal borders) and excises on specific goods (salt, beer, matches, etc.). Modern taxes, by contrast, draw on the underlying macroeconomic tax bases immediately and comprehensively: PIT and CIT fall on personal and corporate income from virtually all sources; SSCs fall on all of wage income;⁹ INH falls on wealth of potentially all types; GST and VAT fall on all goods and services unless specifically exempted. Due to their broad base, modern taxes generate more revenue with less economic distortion than the old narrow based taxes they displaced. Due to their immediate link to the macroeconomic base, their revenue increases elastically with growth and fluctuates automatically with the business cycle without any need for tax rate adjustments or other legal changes (Peters 1991, 52). Revenue from pre-modern taxes, by contrast, is inelastic. It varies by physical factors of the tax environment (country size, length of the border, level of urbanization, etc.) more than by economic development and the business cycle.

The revenue capacity of modern taxes enabled the emergence of big government as we know it today. Even developing countries have higher tax ratios today than the most developed Western states had before WWI. The six TID taxes contributed to this fiscal expansion in a major way. As table 2 (below) demonstrates, they account for roughly two-thirds of contemporary global tax receipts. To be sure, the revenue contribution of the INH is very small. However, it was an important revenue source during the takeoff phase of the Western tax state. The British INH, for instance, raised around 12 percent of total revenue in 1900 (Flora 1983, 339), i.e. about the share the CIT raises in the global median country today.

⁸ The Financing the State dataset covering 31 countries from the early nineteenth century is probably the best source available (Andersson and Brambor 2018).

⁹ Sometimes, SSCs are charged on other forms of income as well. For instance, the SSC system adopted in Chile in 1924 included mandatory contribution for self-employed persons with a weekly turnover of up to five thousand pesos (Chile 1924 art. 1-11).

Administrative complexity: The price of enhanced revenue capacity is administrative complexity. Pre-modern taxes were administratively simple because they attached to easily observable proxies of the underlying macroeconomic tax base: Counting heads is administratively easier than assessing personal net-income, surveying land is easier than measuring actual production, levying a stamp duty on wealth transactions is easier than valuating wealth, levying trade taxes at the border is easier than taxing consumption throughout the domestic economy. Modern taxes, by contrast, are information-intensive and logistically complicated. Their introduction is premised on, and in turn gives rise to, a large professionalized tax administration as well as to extensive record keeping requirements for taxpayers (Penndorf 1930). The introduction of the PIT and the CIT was associated with a drastic increase in ‘bureaucratic inquisition’ (Seligman 1914, 34–35), with new reporting duties for income earners, and, in many cases, new withholding duties for employers and financial intermediaries.¹⁰ The adoption of the GST and, even more so, the VAT, increased the record keeping requirements for small traders and businessmen, and implied extensive monitoring problems for the tax administration (Lynch 2013, 79–80). The introduction of the inheritance tax required the registration of the assets, rules on asset valuation, and the hiring of assessors to apply them (Davis 1992, 35). The introduction of SSCs spawned sprawling social security administrations (Peters 1991, 33).

The link between modern taxation and state capacity is so close that the former often serves as a measure of the latter (e.g. Besley and Persson 2011, 6). Yet, the state’s ability to handle modern taxes depends not only on its own administrative capacities but also on citizens’ attitudes. Strong taxpayer resistance may make the introduction of modern taxes difficult even for high capacity states. Hence, the presence of broad-based modern taxes also indicates a high level of ‘quasi-voluntary compliance’ on the part of citizens, a generalized willingness to cooperate with tax authorities without coercion (Levi 1989). Their adoption reflects the rise of the “infrastructural power” (Mann 1993, 59) of the modern state.

Redistributive potential: Modern taxes offer governments more policy options for redistribution and socio-economic management than pre-modern taxes. European pre-modern taxes were extremely regressive because they exempted the rich either *de jure* by granting special tax privileges for the nobility and the church, or *de facto* by failing to tap into the wealth and income of new industrial or financial elites. The introduction of progressive INH and PITs during the nineteenth and early twentieth centuries redressed this balance by shifting a larger tax burden onto the rich (Scheve and Stasavage 2016, 10). Some have concluded that the main difference between pre-modern and modern taxation is regressivity versus progressivity (e.g. (Kiser and Karceski 2017, 80). Yet, modern taxes can also produce regressive effect, for instance, if a notionally progressive income tax is combined with home mortgage interest deductions and other perks to the well-to-do (Reid 2017, 88–89). The difference is rather that modern taxes give governments more levers to adjust the impact of taxation to its distributive preferences.

Since they have a broader base than pre-modern taxes, modern taxes facilitate differentiating the (statutory) tax burden across classes, sectors and activities. Governments can fine tune tax progressivity through the adjustment of rate schedules and basic exemptions (PIT) or through income caps (SSCs)¹¹ (Peters 1991). They can reward cronies through targeted (CIT) incentives (Genschel, Lieser, and Seelkopf 2016). They can support national growth models by shifting more of the tax burden onto domestic consumption (through the VAT) or on export sectors (through PIT, CIT and SSCs) (Haffert and Mertens

¹⁰ Withholding at source means that income tax is remitted by the payer of income rather than the income-recipient, i.e. the employer remits tax on behalf of its employees (before paying out net-wages), the bank remits tax on behalf of savers (before paying out net-interest earnings) (Slemrod 2007).

¹¹ Low income caps tend to increase the regressivity of SSCs, high caps tend to lower it (Ganghof 2007, 1075).

2017). They can use PIT deductions and exemptions for married couples and children as a social policy instrument (Peters 1991; Steinmo 2003). They can shape the structure of family capitalism through the INH treatment of productive capital. Importantly, given the broad base of modern taxes, governments can also use them to ‘level the playing field’ and to improve ‘market neutrality’ (Swank and Steinmo 2002). One major selling point of the VAT is its supposed tax neutrality (Charlet and Buydens 2012, 176).

In short, by introducing modern taxes, governments enable themselves to implement widely varying rate levels and tax mixes so as to manipulate distributive and regulatory impacts (Hinrichs 1966; Steinmo 1993). The redistributive potential of pre-modern taxes is limited, by contrast. The narrowness of their tax bases makes tax neutrality all but impossible. The distribution of the tax burden is often an unintended byproduct of technical or administrative exigency, rather than of conscious policy choice. Early colonial tax systems, for example, were typically shaped by local geographies and indigenous responses more than by metropolitan ‘policy blueprint’ (Frankema and van Waijenburg 2014; Grafe and Irigoien 2006).

We conclude with two disclaimers. First, we do not claim that the six TID taxes are the only modern taxes. A more comprehensive dataset would also include, inter alia, environmental taxes, property taxes and capital gains taxes. Second, we do not claim that contemporary taxation is completely modern. Some premodern taxes still exist and have fiscal significance, as, for instance, trade taxation in many developing countries.

Coding problems

While the conceptual differences between pre-modern and modern taxation are pronounced, real world taxes are often hybrids combining elements of both. In particular, early adopters often introduce peculiar mixtures of old and new that make it hard to decide whether a tax is already modern (and hence coded in TID) or still premodern (not coded). Take PIT. There are two basic systems (Genser and Reutter 2007). The *comprehensive* PIT applies uniformly to the total personal income of the taxpayer. *Schedular* PIT systems, by contrast, tax income from different sources (labor, capital, rent) separately under different rules and schedules. Conceptually, the comprehensive PIT is often considered superior in terms of neutrality (income from all sources treated equally for tax purposes) and equity (adjustment of the tax burden to the subjective ‘ability to pay’ of the taxpayer). Administratively, however, the schedular PIT is easier to operate. It often constitutes a first entry point into income taxation, and remains popular among developing countries with limited state capacity. Yet it is also common among developed countries aiming to reduce the PIT burden on internationally mobile capital without sacrificing PIT progressivity altogether. The Nordic ‘Dual Income Tax’ is a prominent example (Ganghof 2006, 56).

Coding only comprehensive income tax systems as PIT would greatly undervalue the prevalence of income taxation. Counting every tax on a separate income stream (dividends, interest, rent income, etc.) would grossly overvalue it. We therefore compromised by coding scheduler income taxes as a PIT if they provide for the coordinated taxation of at least two of the three major sources of personal income (capital, labor, land rent): coordinated in order to make sure the income tax system sought to tax according to the ‘ability to pay’ principle; two out of three in order not to be too restrictive as regards the administrative sophistication of revenue collection. Similar issues of classification occurred for instance with respect to the distinction between GST and VAT or between PIT and CIT. Our coding rules for resolving them are explained in the TID codebook (Anonymous 2019).

The codebook also explains our decision to include SSCs in TID. The status of SSCs is contested. Some argue that SSCs are not taxes because they are paid in exchange for individual welfare benefits – pensions, sickness insurance, or unemployment benefits. Others respond that the benefit level and the criteria of

entitlement are usually at the sole discretion of the government (Williams 1996, 6). In this view, SSCs are ‘just another form of income taxation’ (Peters 1991, 237), and are treated as such by all relevant international tax statistics. The inclusion of SSCs in TID does not settle this debate but brings new evidence to bear on it. By offering comparative data on the introduction of SSCs and other main taxes, TID allows investigating across a large sample of countries whether SSCs follow a different political logic than other modern taxes. This could provide new impetus to classical research on “contribution-financed” and “tax-financed” welfare regimes (see e.g. Titmuss 1958; Esping-Andersen 1990; Bonoli 1997).

4. The global diffusion of modern taxation

Based on TID data, we map global patterns of tax introductions, 1750-2018. Our findings challenge important ‘stylized facts’ in the literature, and suggest new questions for research. We start by surveying the *status quo* 2018: how many countries have introduced any of the six TID taxes in the past and still levy them today? Next, we plot the *timing* of the very first modern tax introduction in each country: which countries were frontrunners, which countries were latecomers? Third, we investigate *sequences* of tax introduction: which tax was first, and in what order did the others follow? Finally, we look into the *mode* of tax introduction: sovereign, colonial or inherited?

Status Quo

Table 2 surveys the current spread of the six TID taxes among the 195 currently existing countries in the TID sample. It lists how many of these countries have ever permanently introduced any of the six TID taxes in the past (based on TID data), and how many still levy these taxes today (based on other data). As the table shows, direct taxes on income are very common. More than 90 percent of the 195 countries levied a PIT, a CIT, and SSCs in 2017. Very few countries never introduced these taxes. Even fewer introduced them only to abolish them later. The VAT is slightly less prevalent (diffusion rate of 84 percent). Countries without a VAT mostly never introduced it in the first place. Iran is the only country to permanently introduce the VAT (in 2008) only to replace it again by a GST (in 2017).¹²

Table 2: Taxation in 195 states, 2018

	PIT	CIT	SSC	INH	GST	VAT
Median share of tax revenue worldwide (2010-2014)	14.1	12.2	17.8	0.4*	26.5	
States with tax in place	178	186	179	74	13	163
States w/o tax in place	17	9	16	121	182	32
of which						
<i>a) introduced & abolished tax</i>	5	3	10	55	131	1
<i>b) never introduced tax</i>	11	6	3	35	47	31
<i>c) missing information</i>	1	0	3	31	4	0

¹² It is suggestive of the perceived success that an existing VAT has only ever been removed in six cases — Vietnam (in the 1970s), Grenada (introduced 1986, dismantled shortly thereafter), Ghana (introduced March 1995, removed two months later), Malta (introduced 1995, removed 1997), Belize (introduced 1996, removed 1999) and British Columbia (introduced 2010, removed 2011). However, in all cases, except for British Columbia, the tax has since been reintroduced: Ghana in 1998, Malta and Vietnam in 1999, Belize in 2006 and Grenada in 2010 (International Tax Dialogue 2013, 17; Financial Tribune 2017).

*OECD only. Sources: OECD 2017; ICTD/UNU-WIDER 2017 (revenue); PwC 2017 and Deloitte 2017 (states with tax (not) in place), TID (tax introduction).

INH and GST present a different picture. Only 38 percent of contemporary TID states levied an INH, and only 7 percent levied a GST in 2017. Some countries never introduced these taxes. More frequently, however, countries first introduced them and then abolished them again: of the 129 countries having introduced an INH in the past, only 74 retained it; and of the 144 that adopted a GST, 131 abolished it again. Both taxes are in decline. Yet, while the GST is usually replaced by a more efficient tax on general consumption, the VAT (Ganderson and Limberg 2017), the INH is simply abandoned with no new wealth tax emerging in lieu. Given vocal concerns about rising wealth inequality (e.g. Piketty and Saez 2014), the uncompensated erosion of the INH is remarkable. Whether this is due to tax competition (Genschel and Schwarz 2011; Brühlhart and Parchet 2014), the spread of “neoliberal tax policy ideas” (Steinmo 2003; Swank 2006; Rixen 2011), democracy failure (Bartels 2005) or other factors is an interesting question for future study.

In sum, modern taxation is not a specifically Western phenomenon. Most countries worldwide have introduced all six TID taxes. Non-introductions are rare, and mostly limited to oil-producing states such as the United Arab Emirates (never introduced PIT, CIT, SSCs, INH or GST) and Kuwait (never introduced PIT, INH, GST, or VAT), and to small tax havens such as Vanuatu (never introduced PIT, CIT or INH) and the Marshall Islands (never introduced CIT, GST or VAT).

Timing

Figure 1 gives a rough overview of the timing of the introduction of the first modern tax. It shows that only one quarter of countries worldwide had adopted at least one TID tax before the end of the nineteenth century. All other countries only started the transition to modern taxation in the twentieth century. The quartile of early adopters (colored in black) includes the usual suspects from Western Europe (the UK, France, Germany, Italy, Spain, and the Scandinavian countries) but excludes the United States. It also includes Russia, Japan, most of Latin America, and former British India (India, Pakistan, and Bangladesh).

Figure 1 around here

At the turn of the nineteenth century, the rate of tax introductions accelerated.¹³ While the first quartile had taken almost one and a half centuries to introduce their first modern tax (1750s to 1890s), the second quartile (dark grey) took only roughly forty years (1890s to early-1930s). It includes the United States and Canada, but also, perhaps more surprisingly, large parts of colonial Asia and Africa as well as pre-revolutionary China. After the 1930s the rate of introductions accelerated even further. The third quartile (light grey) of countries only took roughly 25 years to introduce their first modern tax (early-1930s to early-1950s). It consists mostly of African and Asian countries. The latecomers (very light grey), introducing their first modern tax after the mid-1950s consist mostly of newly founded countries that emerged after the breakdown of the Soviet Union and Yugoslavia in the 1990s.

In sum, modern taxation has a longer history in non-Western countries than the European focus of much of fiscal sociology and comparative political economy may suggest (Seligman 1914; Hinrichs 1966; Webber and Wildavsky 1986; Peters 1991; Aidt and Jensen 2009b; Mares and Queralt 2015). Not all Western

¹³ Is the differences in diffusion speed ‘real’ or is it driven by changes in the composition of the country sample (i.e. by a secular increase in the number of tax jurisdictions)? We address this question below.

countries were among the frontrunners of modern taxation and not all non-Western countries were laggards. Latin America, for instance, was often ahead of North America in tax innovation.

Sequence

Figure 2 compares temporal patterns of tax diffusion across different tax types. It suggests a clear chronological order: the inheritance tax was the first modern tax to spread widely.¹⁴ By the early twentieth century, more than sixty countries had introduced it. VAT is the youngest tax. The median country adopted it only in the 1990s. The other taxes cluster in between, with the median introduction occurring either just before (PIT) or slightly after (CIT, SSC, GST) 1950. The figure also suggests considerable variance in the speed of tax diffusion. The spread of the inheritance tax was comparatively slow. It took over a century until half of the countries in our sample had adopted it. VAT diffusion was comparatively rapid. Only slightly over 20 years on from its initial introduction, half the countries in our sample had adopted it.

Note, however, that the differences in diffusion speed may reflect historical change in the composition of the country sample rather than ‘real’ differences in rate of diffusion. To disentangle these effects, we would need a time-series-cross-section dataset of countries, both independent and colonial, at risk of tax introduction in any given year, 1750-2018. Such a dataset does not currently exist and would require considerable effort to construct.¹⁵ It is well known, of course, that the number of independent states has increased dramatically over the past 100 years (Correlates of War Project 2017; Alesina and Spolaore 1997). Yet, a large number of newly independent states were former colonies. Hence, by including colonial tax introductions, TID attenuates one important source of historical variation in the country sample. Still, jurisdictional change after decolonization may bias our results. For instance, the apparent slowness of INH diffusion may simply reflect the very late entry of Post-Communist countries into the risk set. We checked this possibility by recalculating figure 2’s INH boxplot without the 27 Post-Communist states that gained independence after 1990. The result remains essentially unchanged. Obviously, this is not conclusive proof that the slow diffusion rate is real. But it warns against excluding that possibility lightly.

Figure 2 around here

While Figure 2 suggests a standard sequence of tax introductions, starting with the INH and ending with the VAT, closer inspection reveals that only two countries follow this exact pattern (Colombia and Sweden). All others introduced their taxes in different orders. For the 110 countries in our sample for which full information on all six taxes is available, we observe 76 different sequences of tax introductions. Even among classical Western tax states, there is little uniformity, as the following examples demonstrate:

- France: INH- PIT-GST-SSC-CIT-VAT (1798-1914-1920-1928-1948-1968)
- Germany: SSC-INH-GST-PIT-CIT-VAT (1883-1906-1918-1920-1920-1968)
- UK: INH-PIT-SSC-GST-CIT-VAT (1796-1842-1911-1940-1965-1973)

¹⁴ Note, however, that the first modern tax ever to be introduced was a SSC: In 1758 the German principality of Baden, an independent state until German unification in 1871, introduced a contribution-based survivor pension system for its civil servants.

¹⁵ We have searched quite extensively for such a dataset, but could not find a solution. Building such a dataset ourselves would require at least as much effort to create than TID. Hence, we decided to rely on the COW state list, one of the most commonly used political science databases, and extend it wherever necessary (see Codebook 2019).

- US: CIT-PIT-INH-SSC (1909-1913-1916-1935; no federal GST or VAT)

In sum, while the adoption of the six TID taxes is standard around the world, there is no standard sequence of adoption. Trajectories differ widely across countries and regions. This is surprising given historical accounts emphasizing common developmental pathways in modern taxation (e.g. Steinmo 1993, chap. 2; Peters 1991, chap. 7; Hinrichs 1966). It is also surprising in light of the literature on policy diffusion emphasizing the contagiousness of tax innovation (Swank 2006; Appel and Orenstein 2013). If taxes spread in transnational waves, this should synchronize the timing and sequence of introductions across countries. Yet, this is not obvious from our preliminary evidence. Perhaps cross-national differences in economic development, political democratization or bellicosity blunt the harmonizing influences. We come back to this issue in section 5 below.

Mode of tax introduction

Figure 3 compares tax introductions by mode. While most countries adopted modern taxes by independent decision (sovereign), others simply continued to levy the taxes that former colonial rulers had imposed on them before independence (colonial) or that they inherited from their predecessor state (inherited). For instance, India and Pakistan kept the PIT that had been introduced by their former British masters (colonial); Azerbaijan and Belarus inherited their SSC system from the Soviet Union (inherited). As Lieberman (2002) suggests, colonial introductions of PIT and other direct taxes are very common. Colonial introductions of GSTs are rare, and in no case was the VAT introduced during colonial times. Inherited introductions are mostly limited to SSCs. This finding is driven primarily by the Soviet Union which introduced SSCs in 1990 and bequeathed them on its multiple descendant states.

Figure 3 around here

While virtually the entire tax literature in political economy and fiscal sociology focuses on the tax policy of sovereign states, a sizeable share of modern taxes were introduced under colonial rule or, less frequently, under the rule of a predecessor state. Even economic historians contribute little to analyzing the causes and conditions of such non-sovereign introductions. To the extent they deal with these issues at all, they tend to focus on pre-modern colonial taxation, from forced labor to hut taxes and trade taxation (Frankema and van Waijenburg 2014; Grafe and Irigoin 2006; Yun-Casalilla 2012). Modern forms of taxation are mostly ignored (but see Gardner 2012). Yet, colonial tax modernization constitutes a potentially interesting field of study. Why, for instance, did British colonies introduce the CIT so much earlier than Britain itself?¹⁶ What are the consequences of colonial introduction? Does it facilitate or hinder fiscal modernization and development after independence?

In conclusion, our preliminary survey of the TID data yields some important insights. First, wide differences in social, political, and economic conditions notwithstanding almost all countries worldwide have introduced all TID taxes. PIT, CIT, SSC, GST/VAT and to a lesser extent INH are truly global taxes. Second, the timing and sequence of tax introductions vary widely not only between country groups but also within them. Western countries are not always the frontrunners of tax modernization; the rest of the world is not always trailing behind. Third, non-sovereign tax introductions are common. Newly independent states regularly carry on with the old taxes inherited from colonial rule or a predecessor state.

¹⁶ British India introduced the CIT already in 1886, Britain only in 1965.

5. The correlates of tax introduction

How can differences in the timing and sequence of tax introductions be explained? Three potential drivers of fiscal development have attracted particular attention in the literature: economic development, war, and democratization (e.g. Kenny and Winer 2006; Kiser and Karceski 2017; Genschel and Seelkopf 2016; Steinmo 1993; Kato 2003; Scheve and Stasavage 2016). We discuss theoretically how these factors may fuel the introduction of modern taxes, and explore empirically how tightly they are associated to tax introductions across different taxes and world regions.

Theories of fiscal development

Economic development, war, and democratization are associated with three broad theories of fiscal development: modernization theory (Wagner and Weber 1977; Hinrichs 1966), bellicist theories of state building (Hintze 1906; Tilly 1990; Scheve and Stasavage 2016) and (positive) theories of democracy (Boix 2003; Levi 1989; Peters 1991). While none of these theories is a theory of tax introduction, all of them provide arguments why there may be increasing demand for, or a growing supply of modern taxes. We briefly review them in turn.

Economic development: According to the 19th century German economist Adolph Wagner public revenue ratios grow with economic development (Wagner's law): as societies get richer, states can *and* must tax more (e.g. Kiser and Karceski 2017; Wagner and Weber 1977). They *can* tax more because their taxable surplus is higher: the economy presents more income streams, wealth and consumption activities that can be taxed after the basic needs of the population are taken care of (Hinrichs 1966, 8; Webber and Wildavsky 1986, 333); the society is highly monetized, formalized, industrialized and urbanized; the public bureaucracy is better endowed, better staffed, and generally more capable to handle complicated modern taxes than in poor countries (Besley and Persson 2013, 78–79; Dincecco and Katz 2016). At the same time, rich societies *must* tax more because their wealth facilitates political mobilization for more public goods and for more public redistribution (Hinrichs 1966, 8), and because Baumol's cost disease increases spending requirements (Baumol 1993).¹⁷ In short then, economic development may fuel the introduction of modern taxes by increasing a country's need for revenue capacity and redistributive potential and by improving its capacity to cope with administrative complexity.

War: It is almost a truism in fiscal sociology that war is "the usual reason for imposing new taxes and increasing old ones" (Spencer 1898, 567; see also Tilly 1990; Hintze 1906; Dincecco, Federico, and Vindigni 2011; Scheve and Stasavage 2010). This is because wars are expensive, and governments usually need extra revenue to fund them (Peters 1991, 232; Dincecco and Prado 2012; Gennaioli and Voth 2015; Kiser and Linton 2001; Zielinski 2016). It is also because wars create inequities that need to be compensated through taxation. Thus, allegedly, the 'universal conscription' of young men during WWI led to political demands for a compensatory 'conscription of [old] wealth', which in turn ushered in a turn towards progressive taxation, including the PIT, CIT and INH (Scheve and Stasavage 2016). Finally, war create powerful incentives for administrative capacity building (Besley and Persson 2009, 1218; Tilly 1990, 75; Dincecco and Prado 2012; Besley and Persson 2011; Ardant 1975; Brewer 1990; Hoffman 1994). This capacity, in turn, facilitates tax administration and allows for the introduction of more complicated taxes. In short, war creates demand for

¹⁷ In a nutshell, the cost diseases argument goes like this: government is labor-intensive; labor-intensive industries tend to have lower productivity gains than more capital-intensive businesses; as a consequence, the government has to spend more on the provision of labor-intensive public services in order to keep the ratio of these services constant with the rising output of income and wealth by the more capital-intensive private sector.

revenue capacity and redistributive potential and, in turn, facilitates coping with administrative complexity. In all these ways it increases the likelihood of modern tax introductions.

Democratization: There is considerable debate in political science about the effects of regime type on taxation. Some argue that democracy and the extension of the suffrage facilitate higher and more progressive taxation (Acemoglu and Robinson 2006; Boix 2003). Others contend that non-democracies tend to introduce progressive income taxes earlier than democracies (Mares and Queralt 2015), or claim that regime type is largely irrelevant for tax progressivity (Scheve and Stasavage 2010). The debate focuses on two mechanisms. First, according to the median voter theorem, the extension of the franchise to lower classes fuels political demand for bigger and more redistributive government (Meltzer and Richard 1981). This could imply that democratization brings the introduction of new, revenue-efficient and progressive taxes in its wake (Peters 1991, 231; McCarty and Pontusson 2011). It could also imply, however, that autocracies adopt new redistributive sources of revenue so as to preempt democratization (Acemoglu and Robinson 2001, 2000; see also Boix 2003; Borge and Rattsø 2004; Gouveia and Masia 1998). The empirical implications are thus ambiguous. Second, to the extent the extension of the suffrage increases the ‘quasi-voluntary compliance’ of citizens and taxpayers (Levi 1989), it may indirectly improve the state’s capacity to handle complex taxes (Alm, Jackson, and McKee 1993; Tilly 1990; Wahl, Kastlunger, and Kirchler 2010). This effect should unambiguously increase the capacity of democracies to introduce modern taxes.

Correlational evidence

What is the evidence? Are economic development, war, and democratization to the introduction of modern taxes empirically? To find out, we run a series of event history analyses of tax introductions for each of the six TID taxes. Unfortunately, our data on the covariates is limited. Therefore we have to limit our analysis to *sovereign* introductions. For the same reason, the period of analysis is restricted to 1816-2015.

We assess the likelihood of sovereign tax introductions with probit models using a maximum likelihood estimation. Once a specific tax is invented, countries are at risk of introducing it.¹⁸ Countries gaining independence after this date enter the risk set with the year of their independence. Once a country has introduced a tax, it drops out of the sample for that specific tax. As to our explanatory variables, we proxy economic development by GDP per capita (ln values) based on data by Gapminder (2015).¹⁹ Warfare is measured by a dummy variable that takes the value ‘1’ when a country faces a major interstate war (+/- 5 years) (Sarkees and Wayman 2010).²⁰ Finally, we include a democratization dummy indicating whether or not a country has introduced male suffrage recently (+/- 5 years). Data come from Przeworski et al. (2013). To model the temporal dimension of our data (Beck, Katz, and Tucker 1998), we use a cubic polynomial approximation as suggested by Carter and Signorino (2010). We include region fixed effects to account for unobserved spatial heterogeneity. For each tax (but VAT), we estimate three models (see figure 4 and tables 3 – 8 in the appendix): one for all independent TID countries, one for a subsample of key Western

¹⁸ We define the risk-of-introduction year of a tax as 10 years prior to its first introduction worldwide. As a consequence, the analysis of the following three taxes does not start 1816 but at a later date: CIT (1863-2015), GST (1894-2015), VAT (1957-2015). PIT, INH and SSCs already existed by 1816.

¹⁹ Gapminder merges data from various sources to arrive at a comprehensive dataset that covers both colonies and independent states from 1800 until today. More information on the variable creation can be found here: <https://www.gapminder.org/data/documentation/gd001/>

²⁰ We follow the convention in the literature and count conflicts with more than 1000 battle death as major wars. As a robustness check, we also include a dummy that takes on the value 1 for conflict years and observations 10 years before/after a conflict took place.

countries ('OECD-18')²¹, and one for the 'rest of the world' (RoW).²² For VAT we only calculate two models (all countries and RoW) because hardly any OECD-18 country experienced war and democratization during the historical period of VAT diffusion. We also run a series of robustness checks. Since they do not substantially change the findings presented below, we relegate them to the appendix (see tables 9-45 and figures 5-10).

Figure 4 around here

Figure 4 plots the average marginal effects of our models. The graphs show that neither economic development, nor war, nor democratization is significantly associated with tax introduction all the time. There is nothing to suggest that any of them is a necessary condition for tax introduction. As the plots also show, however, each factor is significantly and positively associated with tax introductions some of the time. In no case is economic development, war or democratization related to a significantly lower likelihood of tax adoption. This is compatible with the view that all three factors are conditionally effective causes of tax introduction.

One condition shaping the pattern of association is the type of tax to be introduced. As figure 4 shows, factors that are associated with the introduction of one tax often are not associated with the introduction of other taxes. For instance, economic development is related to the introduction of income taxes (SSCs, CIT, and to a lesser extent PIT) but not to INH introductions. Democratization matters for VAT but not for GST introductions even though both taxes fall on the same macroeconomic tax base.

Even more pronounced are variations by country group: factors related to the introduction of a specific tax in OECD-18 countries tend not to be related to the introduction of the same tax in RoW countries and vice versa.²³ Thus, war is an important covariate of tax introductions in OECD-18 countries. It is associated not only with INH and PIT introductions as routinely highlighted in the literature (Scheve and Stasavage 2010, 2012, 2016; Mares and Queralt 2015) but also with GST adoptions, as, for instance, in France, where the most important legacy of WWI was not the progressive PIT but the invention of the turnover tax (Lynch 2013). In RoW countries, by contrast, war is associated with the introduction of one tax only, the INH. Democratization presents the mirror image. Here the association is strong for RoW countries but not in OECD-18 countries. In the former country group, democracy is related to the introduction of four taxes (INH, PIT, CIT, VAT). In the latter, it matters only for the introduction of INH.

The differences between the two country groups are important because they warn against assuming lightly that fiscal developments in non-Western countries will follow the trodden Western path. Rather, the close association between the 'all countries' and the RoW effects in figure 4 (and the dissociation between the 'all countries' and the OECD-18 effects) suggests that there are different logics at work in both country groups. The Western experience seems to be an outlying case rather than a standard mode. This qualifies ongoing debates in important ways. For instance, a lot of attention has been devoted to the puzzling non-effect of democratisation on PIT introduction in Western countries (Aidt and Jensen 2009b; Mares and Queralt 2015; Scheve and Stasavage 2016). Yet, figure 4 suggests that this is a rather OECD-specific puzzle. Globally, the correlation between democratization and PIT is quite pronounced.

²¹ These are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom and the United States.

²² RoW includes all sovereign countries, for which data is available, minus the OECD-18.

²³ There are only three exceptional cases, in which the same factor is associated with the same tax introduction in both country groups. These are modernization in the case of SSC introduction, as well as war and democratization in the case of INH introduction.

Other conditions potentially shaping tax introductions are not apparent from figure 4 but can be analysed with TID data. One is historical timing. Closer inspection of the data reveals, for instance (see figure 5 in the appendix), that the association between democratization and VAT introduction (see lower right plot in figure 4 for the aggregate effect) varies over time. In the early years of VAT diffusion (the 1970s and 1980s) it is virtually absent. It only emerges in the 1990s when a host of formerly communist countries transition to democracy and introduce the VAT both essentially at the same time. Re-running the two VAT models plotted in figure 4 while excluding 27 ex-Communist countries from the sample, completely vitiates the democratization effect (see figure 6 in the appendix).

In conclusion, the effects of economic development, war and democratization on sovereign tax introduction vary by tax, by country group, and by time period. This warns against generalizing lightly from the experience of one particular world region (the West) to other regions, from the analysis of one particular tax (the PIT or the VAT) to other taxes, or from the recent past to the more distant past, and vice versa. Arguably, the effects of development, war and democratization also vary between sovereign and colonial tax introductions. Yet, this is an issue for further research.

6. Findings and implications

In this paper we presented the ‘Tax Introduction Dataset’ (TID). TID provides comparative data on the year and mode of the first permanent introduction of six major taxes (INH, PIT, CIT, SSCs, GST, VAT) in 220 countries, 1750-2018. As our exploration of the data has shown, the six taxes have spread globally. Virtually all states worldwide have adopted them, with the notable exception of oil-producing countries and tax havens. Tax introductions are sticky: once adopted, taxes tend to remain in force. Repeals are rare, except for the INH, which has recently undergone a wave of abolitions, and for the GST which has been succeeded by the VAT since the 1970s. The mode, timing and sequence of tax introductions vary widely. While most taxes in the TID sample were introduced by independent states (sovereign), others were imposed by colonial rulers (colonial) or inherited from predecessor states (inherited). We found more than 70 different introduction sequences of the six taxes. We also found that economic development, war, and democratization are important correlates of tax introduction but that the pattern of correlation varies over time, over taxes, and over countries.

Our preliminary analyses of TID have highlighted various ways in which this new data source can help improve previous research. First, TID covers a larger *country sample* than any other tax introduction dataset. This allows correcting the implicit Western bias in much of the existing literature. Our event history analyses suggest, for instance, that important causal explanations derived from Western experience may not travel easily to other world regions. While we found economic development to be fairly equally associated with sovereign tax introductions in Western and non-Western countries, there were marked differences with respect to war and democratization. On the one hand, major inter-state war was more pervasive among Western states than among non-Western states, and, consequently, is more strongly associated with tax innovations in these states. On the other hand, Western autocracies were at the forefront of tax innovation during the nineteenth century (Aidt and Jensen 2009b; Mares and Queralt 2015), yet democratization seems to be an important driver of tax innovation outside the West. Obviously, TID’s large country sample also allows for more fine grained analyses of regional and country differences. Perhaps most importantly, it offers the opportunity to bring non-sovereign, colonial introductions into the analysis.

Second, TID's broad *tax sample* allows for a comparison of the causes of tax introduction across different taxes thus correcting for a substantive bias in the literature towards the PIT and the VAT. Our preliminary inspection of the data reveals both similarities and differences across taxes. On the one hand, for instance, colonial introductions of direct taxes (PIT, CIT, SSCs, INH) are common while colonial introductions of indirect taxes (GST) are uncommon. On the other hand, PIT and GST are almost equally popular instruments of Western war finance. TID's broad tax coverage also brings two often neglected but fiscally important taxes into the analysis, SSCs and GST.

Third, TID's long *period of observation* (more than 250 years) allows for the study of period effects on tax introduction over the very long term. Arguably, the effects of economic development, warfare, and democratization on tax introductions vary over time. Factors that are associated with tax introductions in the nineteenth century are not necessarily also associated with twenty-first century introductions. TID allows investigating what travels and what does not travel over time and hence what we can learn from the past for future tax introductions.

Finally, and beyond the analyses offered in this paper, TID lends itself to investigating not only the causes of tax introductions but also their consequences. Previous research has suggested, for instance, that the circumstances of tax introduction shape long-run fiscal outcomes. Thus, purportedly, PITs are more buoyant when initially introduced under democracy than under autocracy (Brambor 2016). TID allows studying also other legacy effects, including the long run effects of colonial tax introductions on post-colonial revenue, state capacity and growth, or the effect of pre-communist tax introductions on post-communist states and societies. Does it make a difference that Kenya inherited its PIT from colonial times while Ethiopia introduced it on its own? Does it matter for Romanian tax policy after 1990 that Romania already had a range of modern taxes (including INH, SSCs, PIT and GST) before communism? Taxation is a key to understanding the modern state. TID offers an important new key to understanding taxation.

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Figures

Figure 1: The Worldwide Introduction of the First Permanent Modern Tax

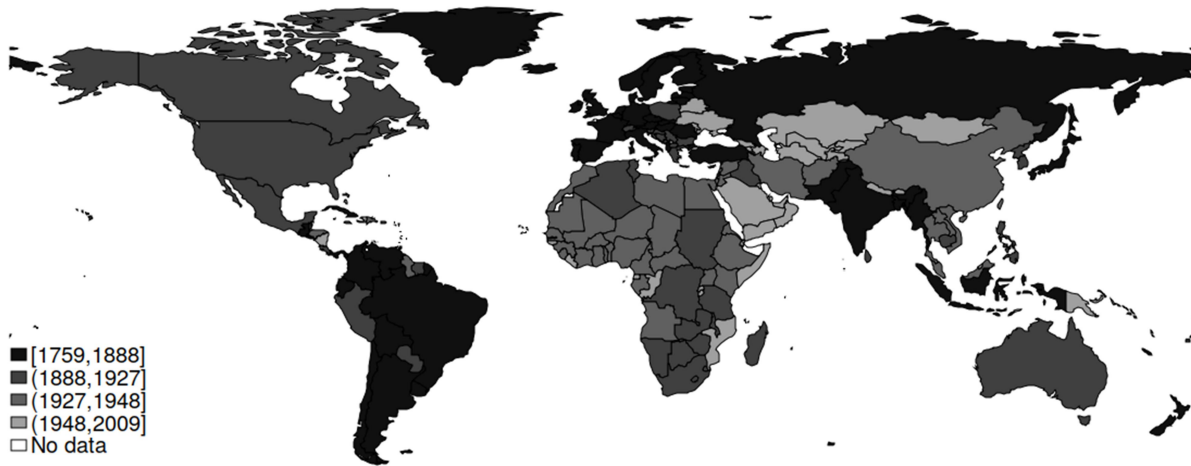


Figure 2: The Timing of Modern Tax Introductions

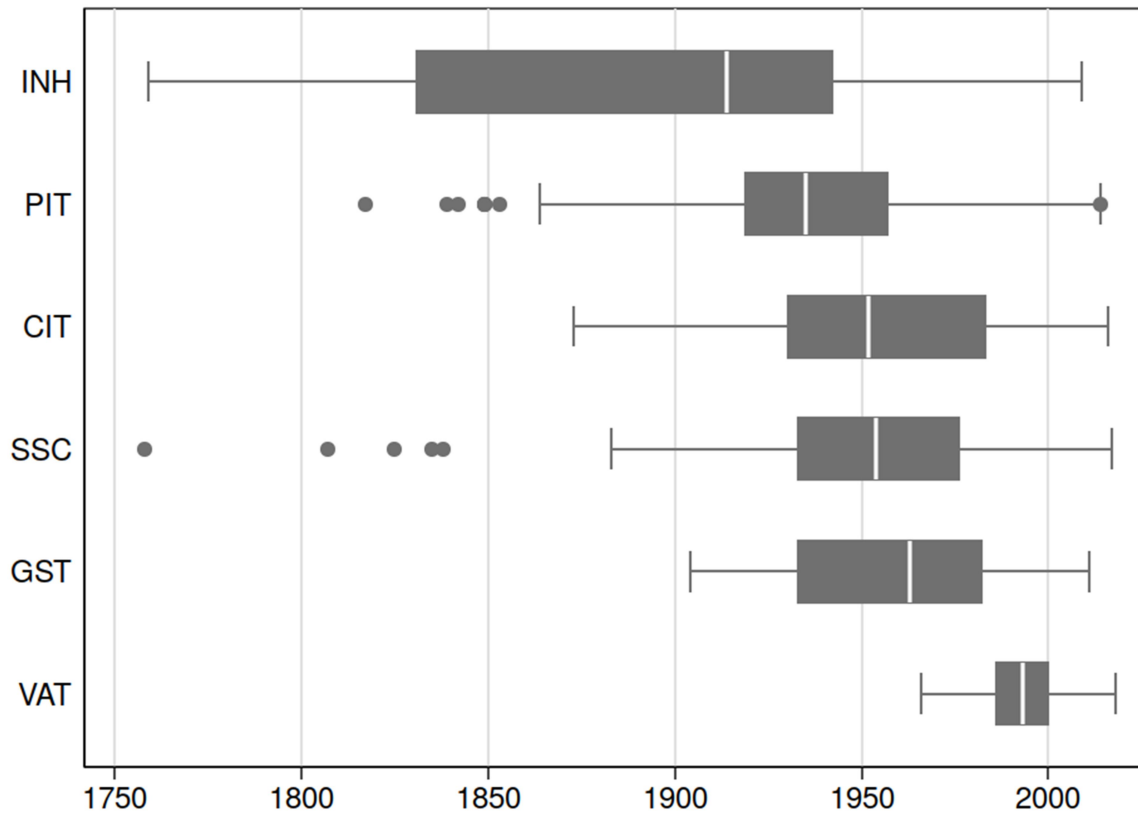


Figure 3: The Mode of Tax Introductions

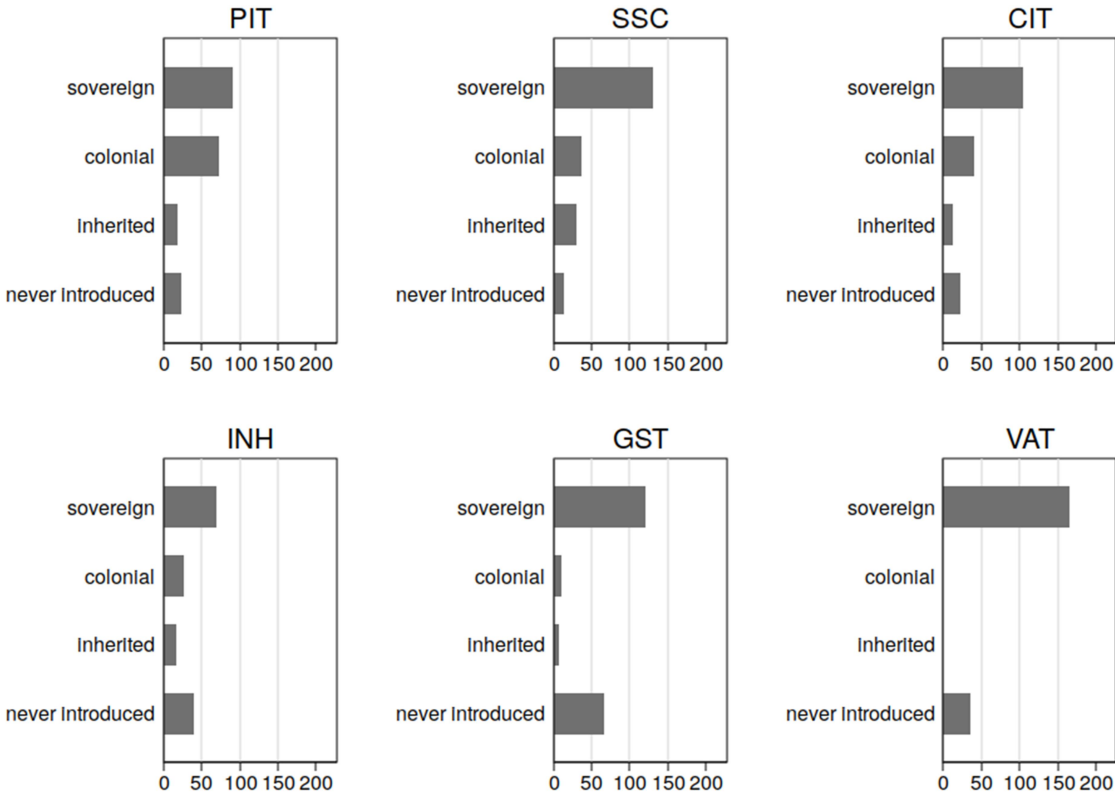
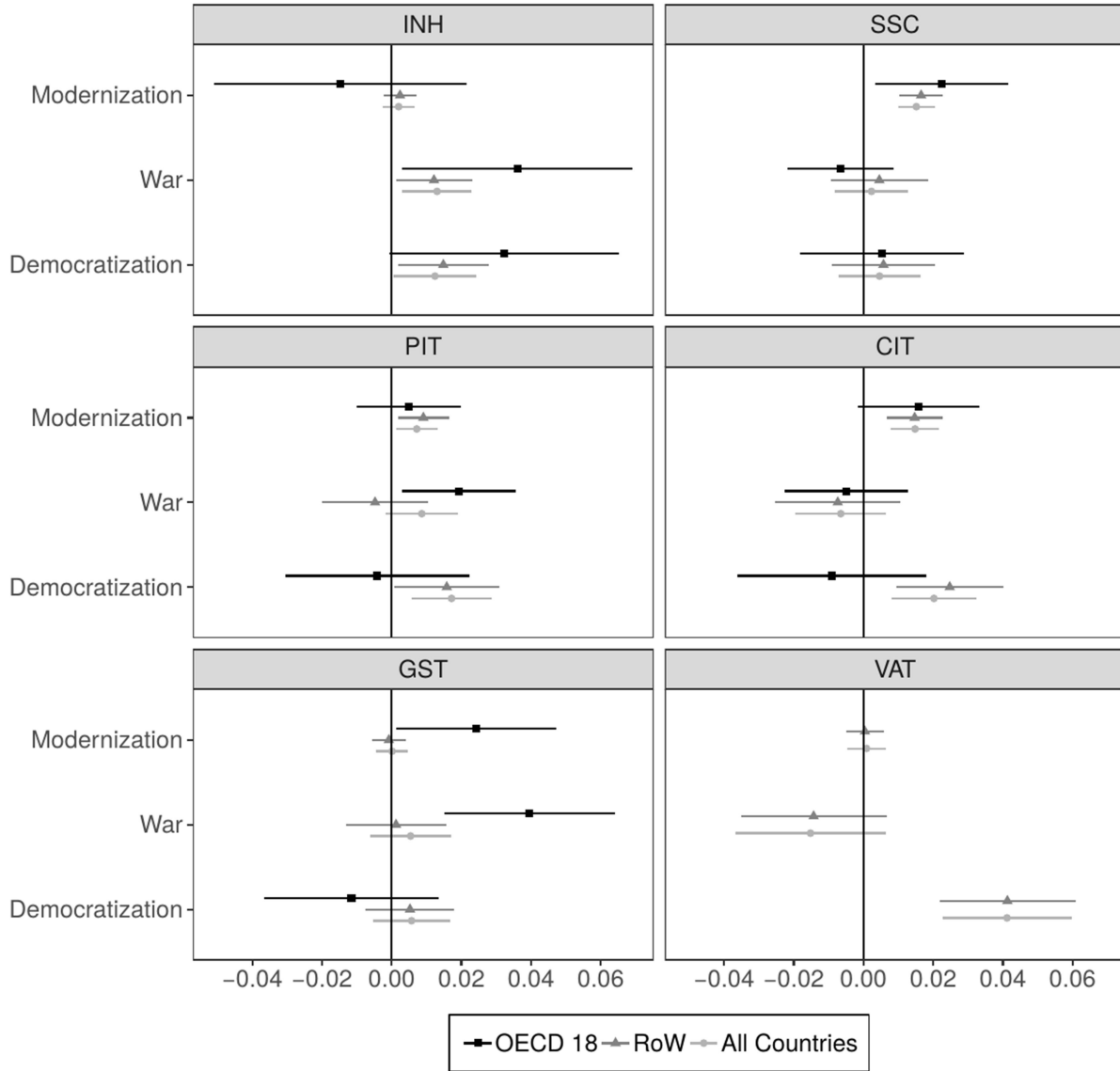


Figure 4: Average Marginal Effects of Modernization, War, and Democratization on Tax Introductions



AME. Time trends and region FE not reported.

Appendix

Main Regression Results

Table 3: Regression Results INH

	All Countries	OECD 18	RoW
Modernization	0.0626 (0.0743)	-0.4481 (0.5572)	0.0791 (0.0788)
War	0.4079*** (0.1514)	1.0912** (0.4766)	0.4006** (0.1774)
Democratization	0.3892** (0.1816)	0.9767** (0.4699)	0.4891** (0.2078)
t	-0.0306* (0.0163)	-0.1268*** (0.0479)	-0.0157 (0.0206)
t2	0.0008** (0.0003)	0.0027** (0.0011)	0.0004 (0.0005)
t3	-0.0000** (0.0000)	-0.0000** (0.0000)	-0.0000 (0.0000)
AIC	430.0367	102.8725	328.2512
Log Likelihood	-202.0184	-42.4362	-151.1256
Deviance	404.0367	84.8725	302.2512
Num. obs.	3117	654	2463

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 4: Regression Results SSC

	All Countries	OECD 18	RoW
Modernization	0.3477*** (0.0550)	0.8933*** (0.3122)	0.3265*** (0.0570)
War	0.0529 (0.1224)	-0.2579 (0.3069)	0.0899 (0.1396)
Democratization	0.1058 (0.1380)	0.2094 (0.4768)	0.1134 (0.1476)
t	0.0008 (0.0115)	-0.0375 (0.0372)	0.0086 (0.0125)
t2	-0.0002 (0.0002)	0.0005 (0.0007)	-0.0003 (0.0003)
t3	0.0000* (0.0000)	-0.0000 (0.0000)	0.0000** (0.0000)
AIC	851.3427	158.1392	696.4183
Log Likelihood	-412.6713	-70.0696	-335.2091
Deviance	825.3427	140.1392	670.4183
Num. obs.	4748	1411	3337

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 5: Regression Results PIT

	All Countries	OECD 18	RoW
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Modernization	0.1865** (0.0749)	0.1828 (0.2906)	0.2170** (0.0851)
War	0.2240* (0.1350)	0.7321*** (0.2639)	-0.1136 (0.1842)
Democratization	0.4452*** (0.1448)	-0.1586 (0.5095)	0.3771** (0.1756)
t	-0.0347*** (0.0126)	0.0456 (0.0562)	-0.0338** (0.0151)
t2	0.0007*** (0.0002)	-0.0007 (0.0009)	0.0007** (0.0003)
t3	-0.0000* (0.0000)	0.0000 (0.0000)	-0.0000** (0.0000)
AIC	612.7534	146.3619	449.4140
Log Likelihood	-293.3767	-64.1810	-212.7070
Deviance	586.7534	128.3619	425.4140
Num. obs.	3789	1223	2566

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 6: Regression Results CIT

	All Countries	OECD 18	RoW
Modernization	0.3338*** (0.0740)	0.4604* (0.2517)	0.3125*** (0.0802)
War	-0.1465 (0.1494)	-0.1418 (0.2611)	-0.1568 (0.1944)
Democratization	0.4557*** (0.1308)	-0.2633 (0.3986)	0.5263*** (0.1547)
t	-0.0329*** (0.0117)	0.0484 (0.0482)	-0.0336** (0.0137)
t2	0.0007*** (0.0002)	-0.0005 (0.0008)	0.0007** (0.0003)
t3	-0.0000** (0.0000)	0.0000 (0.0000)	-0.0000** (0.0000)
AIC	763.9873	171.3784	592.1917
Log Likelihood	-368.9936	-76.6892	-284.0958
Deviance	737.9873	153.3784	568.1917
Num. obs.	4166	1116	3050

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 7: Regression Results GST

	All Countries	OECD 18	RoW
Modernization	0.0023	0.8037**	-0.0167

	(0.0494)	(0.3704)	(0.0515)
War	0.1158	1.3132***	0.0262
	(0.1251)	(0.3742)	(0.1545)
Democratization	0.1217	-0.3829	0.1105
	(0.1208)	(0.4192)	(0.1352)
t	0.0014	1.1417***	0.0015
	(0.0120)	(0.3440)	(0.0131)
t2	0.0002	-0.0271***	0.0001
	(0.0003)	(0.0082)	(0.0003)
t3	-0.0000	0.0002***	-0.0000
	(0.0000)	(0.0001)	(0.0000)
AIC	1000.2684	122.6117	836.9500
Log Likelihood	-487.1342	-52.3058	-405.4750
Deviance	974.2684	104.6117	810.9500
Num. obs.	5166	921	4245

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 8: Regression Results VAT

	All Countries	OECD 18	RoW
Modernization	0.0152	-0.0670	0.0077
	(0.0484)	(0.4143)	(0.0507)
War	-0.2653	28.3676	-0.2591
	(0.1909)	(1340.3502)	(0.1922)
Democratization	0.7190***	-4.9144	0.7485***
	(0.1598)	(1901.5120)	(0.1743)
t	-0.0253	0.9000***	-0.0426
	(0.0263)	(0.3293)	(0.0287)
t2	0.0032***	-0.0433***	0.0040***
	(0.0011)	(0.0156)	(0.0012)
t3	-0.0000***	0.0006***	-0.0001***
	(0.0000)	(0.0002)	(0.0000)
AIC	1227.8436	128.1544	1093.9261
Log Likelihood	-600.9218	-55.0772	-533.9630
Deviance	1201.8436	110.1544	1067.9261
Num. obs.	5380	415	4965

*** p < 0.01, ** p < 0.05, * p < 0.1

Robustness Checks

Figure 5: Regression Results VAT: Variation over Time

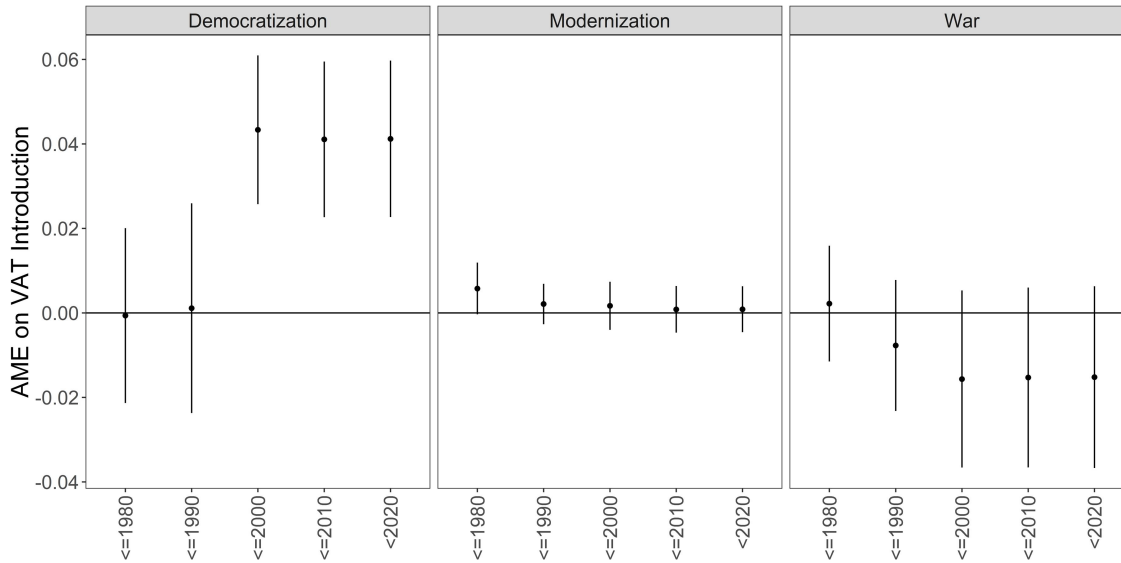


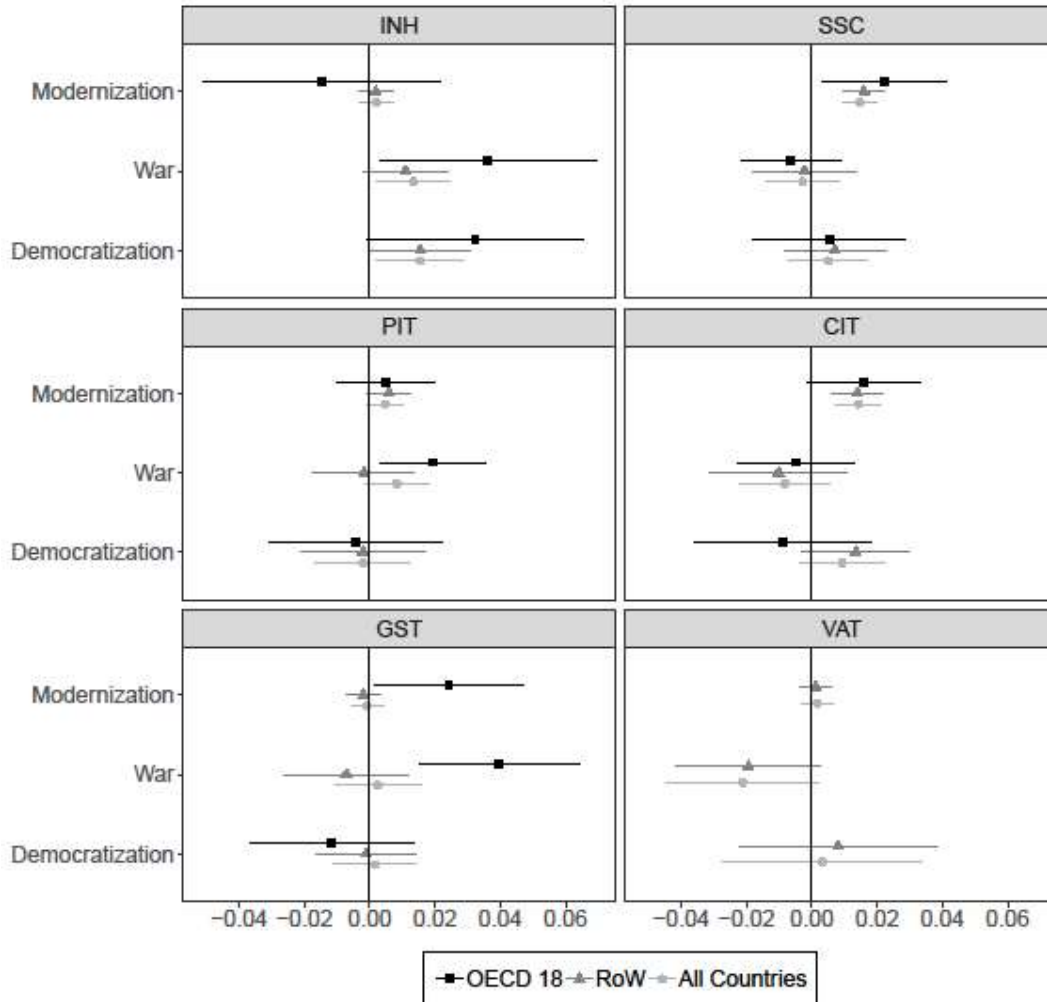
Table 9: Regression Results VAT: Variation over Time

	<=1980	<=1990	<=2000	<=2010	<=2020
Modernization	0.2641*	0.0754	0.0330	0.0148	0.0152
	(0.1385)	(0.0872)	(0.0571)	(0.0498)	(0.0484)
War	0.1004	-0.2765	-0.3078	-0.2703	-0.2653
	(0.3192)	(0.2822)	(0.2093)	(0.1913)	(0.1909)
Democratization	-0.0291	0.0395	0.8524***	0.7260***	0.7190***
	(0.4832)	(0.4541)	(0.1681)	(0.1607)	(0.1598)
t	0.7575	0.5223**	0.0037	-0.0254	-0.0253
	(0.8377)	(0.2102)	(0.0382)	(0.0288)	(0.0263)
t2	-0.0305	-0.0234**	0.0015	0.0032***	0.0032***
	(0.0536)	(0.0105)	(0.0019)	(0.0012)	(0.0011)
t3	0.0003	0.0003**	-0.0000	-0.0000***	-0.0000***
	(0.0011)	(0.0002)	(0.0000)	(0.0000)	(0.0000)
AIC	259.1481	455.8186	969.8542	1179.7366	1227.8436
Log Likelihood	-116.5741	-214.9093	-471.9271	-576.8683	-600.9218
Deviance	233.1481	429.8186	943.8542	1153.7366	1201.8436
Num. obs.	2713	3873	4746	5229	5380

*** p < 0.01, ** p < 0.05, * p < 0.1

Robustness I: Without Post-Communist Countries

Figure 6: Regression Results Without Post-Communist Countries



AME. Former Eastern Communist Countries Excluded.

Table 10: Regression Results INH Without Post-Communist Countries

	All Countries	OECD 18	RoW
Modernization	0.0588 (0.0763)	-0.4481 (0.5572)	0.0570 (0.0804)
War	0.3908** (0.1616)	1.0912** (0.4766)	0.3270* (0.1921)
Democratization	0.4484** (0.1912)	0.9767** (0.4699)	0.4626** (0.2242)
t	-0.0307* (0.0162)	-0.1268*** (0.0479)	-0.0083 (0.0217)
t2	0.0007** (0.0003)	0.0027** (0.0011)	0.0002 (0.0005)
t3	-0.0000* (0.0000)	-0.0000** (0.0000)	-0.0000 (0.0000)
AIC	397.7923	102.8725	298.5596
Log Likelihood	-185.8961	-42.4362	-136.2798
Deviance	371.7923	84.8725	272.5596
Num. obs.	2680	654	2026

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 11: Regression Results SSC Without Post-Communist Countries

	All Countries	OECD 18	RoW
Modernization	0.3408*** (0.0552)	0.8933*** (0.3122)	0.3127*** (0.0572)
War	-0.0658 (0.1345)	-0.2579 (0.3069)	-0.0437 (0.1563)
Democratization	0.1158 (0.1429)	0.2094 (0.4768)	0.1395 (0.1530)
t	0.0020 (0.0118)	-0.0375 (0.0372)	0.0106 (0.0129)
t2	-0.0002 (0.0002)	0.0005 (0.0007)	-0.0004 (0.0003)
t3	0.0000* (0.0000)	-0.0000 (0.0000)	0.0000** (0.0000)
AIC	811.9052	158.1392	658.1773
Log Likelihood	-392.9526	-70.0696	-316.0886
Deviance	785.9052	140.1392	632.1773
Num. obs.	4536	1411	3125

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 12: Regression Results PIT Without Post-Communist Countries

	All Countries	OECD 18	RoW
Modernization	0.1479* (0.0838)	0.1828 (0.2906)	0.1723* (0.0956)
War	0.2576* (0.1552)	0.7321*** (0.2639)	-0.0533 (0.2337)
Democratization	-0.0636 (0.2326)	-0.1586 (0.5095)	-0.0609 (0.2848)
t	-0.0024 (0.0167)	0.0456 (0.0562)	-0.0077 (0.0197)
t2	0.0003 (0.0003)	-0.0007 (0.0009)	0.0004 (0.0004)
t3	-0.0000 (0.0000)	0.0000 (0.0000)	-0.0000 (0.0000)
AIC	479.5105	146.3619	333.6856
Log Likelihood	-226.7552	-64.1810	-154.8428
Deviance	453.5105	128.3619	309.6856
Num. obs.	3516	1223	2293

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 13: Regression Results CIT Without Post-Communist Countries

	All Countries	OECD 18	RoW
Modernization	0.3538*** (0.0798)	0.4604* (0.2517)	0.3270*** (0.0877)
War	-0.2037 (0.1742)	-0.1418 (0.2611)	-0.2378 (0.2513)
Democratization	0.2282 (0.1613)	-0.2633 (0.3986)	0.3168* (0.1895)
t	-0.0186 (0.0133)	0.0484 (0.0482)	-0.0254* (0.0154)
t2	0.0005* (0.0003)	-0.0005 (0.0008)	0.0006** (0.0003)
t3	-0.0000* (0.0000)	0.0000 (0.0000)	-0.0000* (0.0000)
AIC	644.4038	171.3784	481.4040
Log Likelihood	-309.2019	-76.6892	-228.7020
Deviance	618.4038	153.3784	457.4040
Num. obs.	3810	1116	2694

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 14: Regression Results GST Without Post-Communist Countries

	All Countries	OECD 18	RoW
Modernization	-0.0151 (0.0510)	0.8037** (0.3704)	-0.0396 (0.0537)
War	0.0509 (0.1401)	1.3132*** (0.3742)	-0.1431 (0.1917)
Democratization	0.0326 (0.1340)	-0.3829 (0.4192)	-0.0217 (0.1542)
t	0.0034 (0.0125)	1.1417*** (0.3440)	0.0036 (0.0137)
t2	0.0001 (0.0003)	-0.0271*** (0.0082)	0.0000 (0.0003)
t3	-0.0000 (0.0000)	0.0002*** (0.0001)	-0.0000 (0.0000)
AIC	924.8949	122.6117	761.0228
Log Likelihood	-449.4474	-52.3058	-367.5114
Deviance	898.8949	104.6117	735.0228
Num. obs.	4596	921	3675

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 15: Regression Results VAT Without Post-Communist Countries

	All Countries	OECD 18	RoW
Modernization	0.0326 (0.0489)	-0.0670 (0.4143)	0.0221 (0.0512)
War	-0.4057* (0.2248)	28.3676 (1340.3502)	-0.3895* (0.2259)
Democratization	0.0625 (0.2978)	-4.9144 (1901.5120)	0.1612 (0.3084)
t	0.0523 (0.0360)	0.9000*** (0.3293)	0.0399 (0.0409)
t2	0.0005 (0.0013)	-0.0433*** (0.0156)	0.0011 (0.0015)
t3	-0.0000 (0.0000)	0.0006*** (0.0002)	-0.0000 (0.0000)
AIC	1076.1109	128.1544	945.4602
Log Likelihood	-525.0555	-55.0772	-459.7301
Deviance	1050.1109	110.1544	919.4602
Num. obs.	5149	415	4734

*** p < 0.01, ** p < 0.05, * p < 0.1

Robustness II: Cox Models

Table 16: Regression Results INH – Cox Model

	All Countries	OECD 18	RoW
Modernization	0.2188 (0.1922)	-0.1754 (1.3509)	0.2596 (0.2131)
War	0.9953** (0.3944)	37.2951 (23684.7560)	0.9562** (0.4741)
Democratization	0.4050 (0.4533)	1.8074 (1.8243)	0.5661 (0.5495)
AIC	281.3417	35.7408	199.8575
Num. obs.	3117	654	2463
PH test	0.4711	0.0889	0.4191

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 17: Regression Results SSC – Cox Model

	All Countries	OECD 18	RoW
Modernization	0.7124*** (0.1214)	1.8529** (0.7437)	0.6732*** (0.1256)
War	0.1041 (0.2997)	-0.3928 (0.8058)	0.2318 (0.3287)
Democratization	0.3939 (0.3209)	0.3334 (1.3716)	0.3580 (0.3378)
AIC	646.6212	65.9704	512.5340
Num. obs.	4748	1411	3337
PH test	0.6319	0.4617	0.7533

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 18: Regression Results PIT – Cox Model

	All Countries	OECD 18	RoW
Modernization	0.4014** (0.1855)	0.6580 (0.7594)	0.4574** (0.2037)
War	0.3236 (0.3218)	1.6497** (0.7809)	-0.3249 (0.4247)
Democratization	0.8123** (0.3429)	-0.3326 (1.1789)	0.5065 (0.4405)
AIC	426.2714	58.0280	294.3831
Num. obs.	3789	1223	2566
PH test	0.0000	0.5705	0.0025

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 19: Regression Results CIT – Cox Model

	All Countries	OECD 18	RoW
Modernization	0.7251*** (0.1700)	0.8281 (0.6231)	0.7009*** (0.1902)
War	-0.5027 (0.3702)	-0.8150 (0.6988)	-0.3208 (0.4835)
Democratization	0.9029*** (0.3285)	-1.0774 (1.1017)	1.2837*** (0.4195)
AIC	555.0556	69.1979	411.6530
Num. obs.	4166	1116	3050
PH test	0.1048	0.8453	0.2847

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 20: Regression Results GST – Cox Model

	All Countries	OECD 18	RoW
Modernization	0.0248 (0.1156)	1.7860** (0.7930)	-0.0170 (0.1221)
War	0.2775 (0.3000)	2.3482*** (0.8792)	0.0550 (0.3758)
Democratization	0.2286 (0.3036)	-1.3470 (0.8780)	0.2785 (0.3463)
AIC	860.8256	57.5276	704.9905
Num. obs.	5166	921	4245
PH test	0.1708	0.9873	0.5906

*** p < 0.01, ** p < 0.05, * p < 0.1

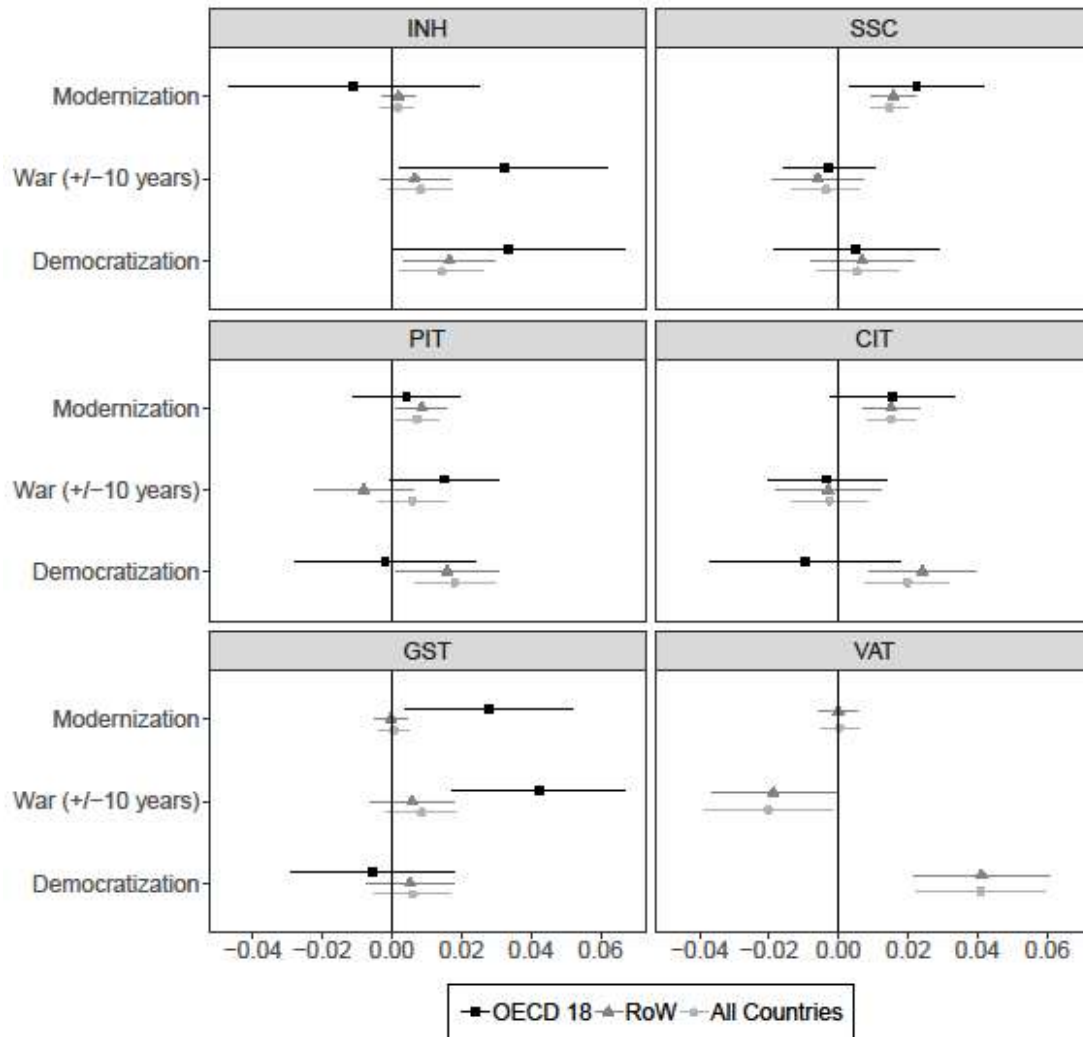
Table 21: Regression Results VAT – Cox Model

	All Countries	OECD 18	RoW
Modernization	0.0589 (0.1041)	-0.3687 (0.8535)	0.0494 (0.1105)
War	-0.5829 (0.4710)	0.4632 (19346.5133)	-0.5660 (0.4726)
Democratization	1.5444*** (0.3435)	-19.5763 (15113.6921)	1.7415*** (0.3929)
AIC	1266.9885	73.9593	1102.8417
Num. obs.	5380	415	4965
PH test	0.0091	0.3484	0.0066

*** p < 0.01, ** p < 0.05, * p < 0.1

Robustness III: War +/- 10 Years

Figure 7: Regression Results, War +/- 10 Years



AME. Time trends and region FE not reported.

Table 22: Regression Results INH, War +/- 10 Years

	All Countries	OECD 18	RoW
Modernization	0.0488 (0.0745)	-0.3312 (0.5537)	0.0617 (0.0787)
War (+/-10 years)	0.2546* (0.1436)	0.9800** (0.4171)	0.2166 (0.1689)
Democratization	0.4458** (0.1783)	1.0208** (0.4619)	0.5432*** (0.2043)
t	-0.0294* (0.0160)	-0.1189*** (0.0447)	-0.0142 (0.0206)
t2	0.0007** (0.0003)	0.0025** (0.0010)	0.0004 (0.0005)
t3	-0.0000** (0.0000)	-0.0000** (0.0000)	-0.0000 (0.0000)
AIC	433.8743	102.6536	331.5417
Log Likelihood	-203.9372	-42.3268	-152.7708
Deviance	407.8743	84.6536	305.5417
Num. obs.	3117	654	2463

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 23: Regression Results SSC, War +/- 10 Years

	All Countries	OECD 18	RoW
Modernization	0.3361*** (0.0551)	0.8925*** (0.3133)	0.3106*** (0.0571)
War (+/-10 years)	-0.0837 (0.1122)	-0.1075 (0.2690)	-0.1194 (0.1302)
Democratization	0.1204 (0.1370)	0.2008 (0.4774)	0.1343 (0.1463)
t	0.0012 (0.0115)	-0.0362 (0.0369)	0.0089 (0.0126)
t2	-0.0002 (0.0002)	0.0005 (0.0007)	-0.0003 (0.0003)
t3	0.0000* (0.0000)	-0.0000 (0.0000)	0.0000** (0.0000)
AIC	850.9576	158.7486	695.9560
Log Likelihood	-412.4788	-70.3743	-334.9780
Deviance	824.9576	140.7486	669.9560
Num. obs.	4748	1411	3337

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 24: Regression Results PIT, War +/- 10 Years

	All Countries	OECD 18	RoW
Modernization	0.1869** (0.0759)	0.1555 (0.2880)	0.2028** (0.0861)
War (+/-10 years)	0.1518 (0.1260)	0.5512** (0.2638)	-0.1924 (0.1743)
Democratization	0.4670*** (0.1432)	-0.0715 (0.4910)	0.3804** (0.1739)
t	-0.0343*** (0.0126)	0.0402 (0.0532)	-0.0328** (0.0152)
t2	0.0006*** (0.0002)	-0.0007 (0.0008)	0.0007** (0.0003)
t3	-0.0000* (0.0000)	0.0000 (0.0000)	-0.0000** (0.0000)
AIC	614.0098	149.7242	448.5255
Log Likelihood	-294.0049	-65.8621	-212.2627
Deviance	588.0098	131.7242	424.5255
Num. obs.	3789	1223	2566

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 25: Regression Results CIT, War +/- 10 Years

	All Countries	OECD 18	RoW
Modernization	0.3412*** (0.0755)	0.4543* (0.2566)	0.3216*** (0.0828)
War (+/-10 years)	-0.0584 (0.1276)	-0.0991 (0.2512)	-0.0628 (0.1637)
Democratization	0.4449*** (0.1299)	-0.2820 (0.3987)	0.5135*** (0.1534)
t	-0.0327*** (0.0117)	0.0495 (0.0485)	-0.0336** (0.0137)
t2	0.0007*** (0.0002)	-0.0005 (0.0008)	0.0007** (0.0003)
t3	-0.0000** (0.0000)	0.0000 (0.0000)	-0.0000** (0.0000)
AIC	764.7719	171.5210	592.7181
Log Likelihood	-369.3859	-76.7605	-284.3591
Deviance	738.7719	153.5210	568.7181
Num. obs.	4166	1116	3050

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 26: Regression Results GST, War +/- 10 Years

	All Countries	OECD 18	RoW
Modernization	0.0118 (0.0498)	0.9724** (0.4032)	-0.0078 (0.0518)
War (+/-10 years)	0.1837* (0.1087)	1.4650*** (0.4018)	0.1197 (0.1289)
Democratization	0.1262 (0.1201)	-0.1925 (0.4132)	0.1098 (0.1348)
t	-0.0002 (0.0121)	0.8531*** (0.3036)	0.0004 (0.0131)
t2	0.0002 (0.0003)	-0.0207*** (0.0075)	0.0001 (0.0003)
t3	-0.0000 (0.0000)	0.0002*** (0.0001)	-0.0000 (0.0000)
AIC	998.2915	118.1861	836.1286
Log Likelihood	-486.1458	-50.0931	-405.0643
Deviance	972.2915	100.1861	810.1286
Num. obs.	5166	921	4245

*** p < 0.01, ** p < 0.05, * p < 0.1

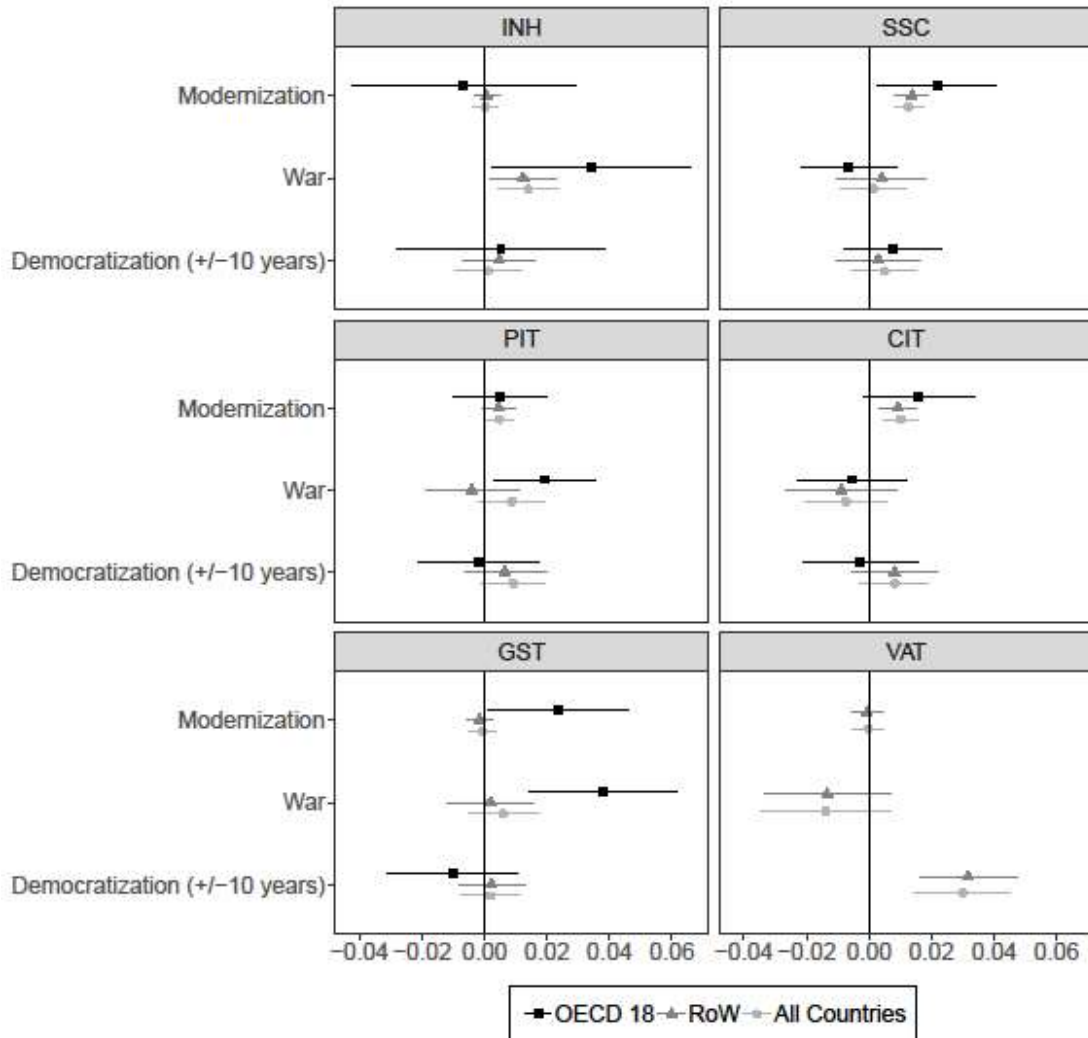
Table 27: Regression Results VAT, War +/- 10 Years

	All Countries	OECD 18	RoW
Modernization	0.0047 (0.0488)	-0.0656 (0.4141)	-0.0023 (0.0511)
War (+/-10 years)	-0.3526** (0.1624)	-3.0268 (575.4371)	-0.3401** (0.1642)
Democratization	0.7154*** (0.1602)	-4.9132 (1901.8585)	0.7468*** (0.1748)
t	-0.0243 (0.0264)	0.8948*** (0.3310)	-0.0411 (0.0288)
t2	0.0032*** (0.0011)	-0.0431*** (0.0157)	0.0039*** (0.0012)
t3	-0.0000*** (0.0000)	0.0006*** (0.0002)	-0.0001*** (0.0000)
AIC	1224.5873	128.1290	1091.0585
Log Likelihood	-599.2937	-55.0645	-532.5292
Deviance	1198.5873	110.1290	1065.0585
Num. obs.	5380	415	4965

*** p < 0.01, ** p < 0.05, * p < 0.1

Robustness IV: Democratization +/- 10 Years

Figure 8: Regression Results, Democratization +/- 10 Years



AME. Time trends and region FE not reported.

Table 28: Regression Results INH, Democratization +/- 10 Years

	All Countries	OECD 18	RoW
Modernization	0.0093 (0.0688)	-0.1972 (0.5370)	0.0233 (0.0730)
War	0.4561*** (0.1511)	1.0067** (0.4394)	0.4299** (0.1765)
Democratization (+/-10 years)	0.0367 (0.1767)	0.1543 (0.4958)	0.1647 (0.2020)
t	-0.0375** (0.0152)	-0.1174*** (0.0438)	-0.0214 (0.0198)
t2	0.0008*** (0.0003)	0.0025** (0.0010)	0.0005 (0.0005)
t3	-0.0000** (0.0000)	-0.0000** (0.0000)	-0.0000 (0.0000)
AIC	440.7670	106.4901	338.9650
Log Likelihood	-207.3835	-44.2450	-156.4825
Deviance	414.7670	88.4901	312.9650
Num. obs.	3332	654	2678

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 29: Regression Results SSC, Democratization +/- 10 Years

	All Countries	OECD 18	RoW
Modernization	0.2822*** (0.0462)	0.8648*** (0.3154)	0.2609*** (0.0472)
War	0.0308 (0.1217)	-0.2609 (0.3076)	0.0767 (0.1384)
Democratization (+/-10 years)	0.1086 (0.1136)	0.3076 (0.3101)	0.0559 (0.1273)
t	0.0016 (0.0109)	-0.0368 (0.0371)	0.0082 (0.0117)
t2	-0.0002 (0.0002)	0.0005 (0.0007)	-0.0003 (0.0003)
t3	0.0000* (0.0000)	-0.0000 (0.0000)	0.0000** (0.0000)
AIC	904.7884	157.3434	749.3201
Log Likelihood	-439.3942	-69.6717	-361.6600
Deviance	878.7884	139.3434	723.3201
Num. obs.	4879	1411	3468

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 30: Regression Results PIT, Democratization +/- 10 Years

	All Countries	OECD 18	RoW
Modernization	0.1202 ^{**} (0.0582)	0.1860 (0.2922)	0.1093 [*] (0.0627)
War	0.2241 [*] (0.1336)	0.7283 ^{***} (0.2646)	-0.0948 (0.1802)
Democratization (+/-10 years)	0.2341 [*] (0.1306)	-0.0706 (0.3674)	0.1556 (0.1575)
t	-0.0382 ^{***} (0.0119)	0.0459 (0.0563)	-0.0392 ^{***} (0.0138)
t2	0.0007 ^{***} (0.0002)	-0.0007 (0.0009)	0.0008 ^{***} (0.0003)
t3	-0.0000 ^{**} (0.0000)	0.0000 (0.0000)	-0.0000 ^{**} (0.0000)
AIC	646.3561	146.4265	480.9420
Log Likelihood	-310.1781	-64.2133	-228.4710
Deviance	620.3561	128.4265	456.9420
Num. obs.	3957	1223	2734

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 31: Regression Results CIT, Democratization +/- 10 Years

	All Countries	OECD 18	RoW
Modernization	0.2200 ^{***} (0.0563)	0.4596 [*] (0.2526)	0.1906 ^{***} (0.0603)
War	-0.1612 (0.1456)	-0.1595 (0.2606)	-0.1809 (0.1872)
Democratization (+/-10 years)	0.1775 (0.1206)	-0.0801 (0.2725)	0.1668 (0.1419)
t	-0.0403 ^{***} (0.0111)	0.0482 (0.0482)	-0.0453 ^{***} (0.0126)
t2	0.0008 ^{***} (0.0002)	-0.0005 (0.0008)	0.0009 ^{***} (0.0003)
t3	-0.0000 ^{***} (0.0000)	0.0000 (0.0000)	-0.0000 ^{***} (0.0000)
AIC	808.6056	171.7731	636.0425
Log Likelihood	-391.3028	-76.8866	-306.0213
Deviance	782.6056	153.7731	612.0425
Num. obs.	4265	1116	3149

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 32: Regression Results GST, Democratization +/- 10 Years

	All Countries	OECD 18	RoW
Modernization	-0.0165 (0.0468)	0.7929** (0.3627)	-0.0353 (0.0485)
War	0.1337 (0.1249)	1.2623*** (0.3619)	0.0415 (0.1544)
Democratization (+/-10 years)	0.0392 (0.1076)	-0.3410 (0.3521)	0.0517 (0.1199)
t	-0.0002 (0.0116)	1.1468*** (0.3461)	0.0000 (0.0124)
t2	0.0002 (0.0003)	-0.0272*** (0.0082)	0.0001 (0.0003)
t3	-0.0000 (0.0000)	0.0002*** (0.0001)	-0.0000 (0.0000)
AIC	1013.4090	122.5355	849.7595
Log Likelihood	-493.7045	-52.2677	-411.8797
Deviance	987.4090	104.5355	823.7595
Num. obs.	5431	921	4510

*** p < 0.01, ** p < 0.05, * p < 0.1

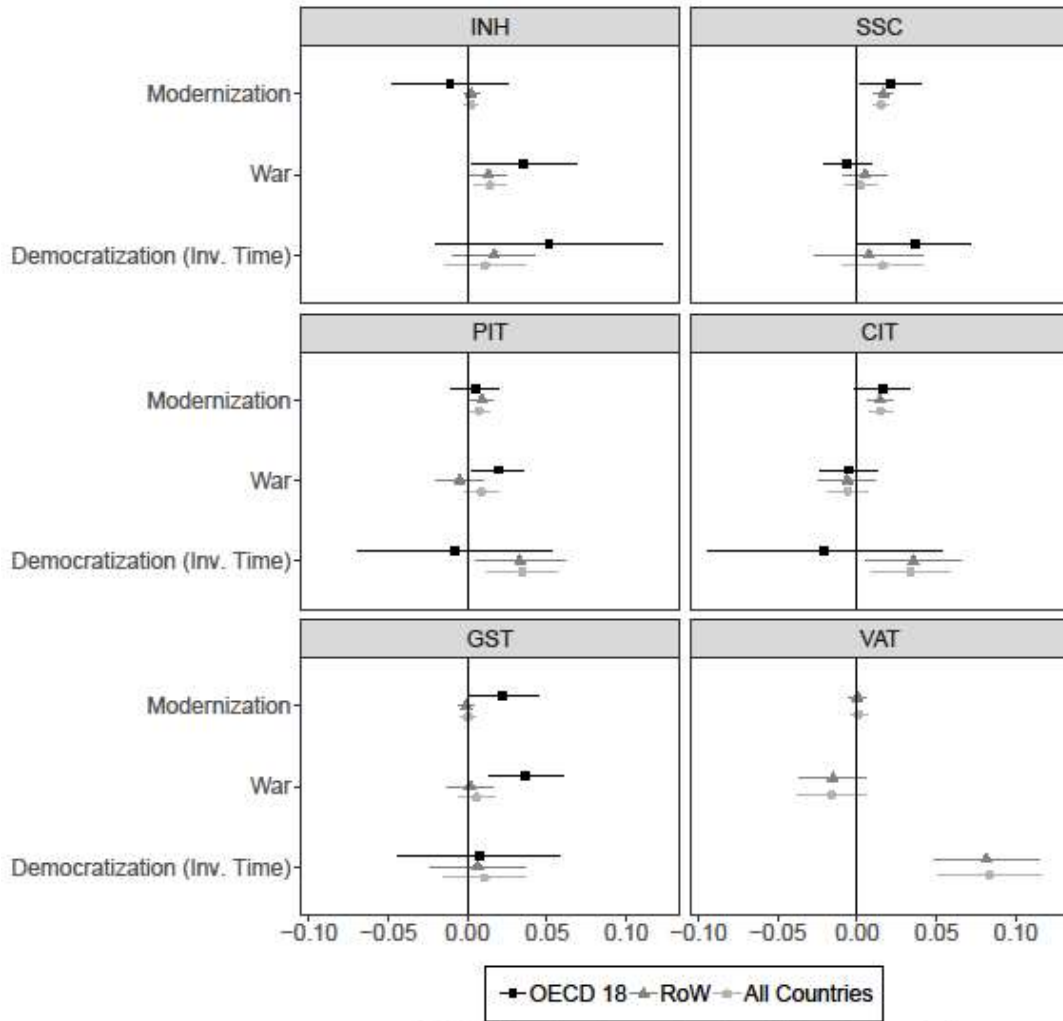
Table 33: Regression Results VAT, Democratization +/- 10 Years

	All Countries	OECD 18	RoW
Modernization	-0.0053 (0.0460)	-0.1489 (0.4270)	-0.0107 (0.0478)
War	-0.2488 (0.1903)	28.7268 (1337.1173)	-0.2499 (0.1919)
Democratization (+/-10 years)	0.5361*** (0.1365)	-4.9407 (1302.9204)	0.5926*** (0.1446)
t	-0.0482** (0.0245)	0.9366*** (0.3384)	-0.0679*** (0.0261)
t2	0.0040*** (0.0010)	-0.0446*** (0.0159)	0.0049*** (0.0011)
t3	-0.0001*** (0.0000)	0.0007*** (0.0002)	-0.0001*** (0.0000)
AIC	1259.1555	127.0049	1122.7000
Log Likelihood	-616.5778	-54.5025	-548.3500
Deviance	1233.1555	109.0049	1096.7000
Num. obs.	5660	415	5245

*** p < 0.01, ** p < 0.05, * p < 0.1

Robustness V: Inverse Distance to Democratization

Figure 9: Regression Results, Inverse Distance to Democratization



AME. Time trends and region FE not reported.

Table 34: Regression Results INH, Inverse Distance to Democratization

	All Countries	OECD 18	RoW
Modernization	0.0648 (0.0740)	-0.3287 (0.5466)	0.0789 (0.0780)
War	0.4442*** (0.1500)	1.0557** (0.4545)	0.4286** (0.1749)
Democratization (Inv. Time)	0.3416 (0.3927)	1.5258 (1.0300)	0.5535 (0.4190)
t	-0.0365** (0.0159)	-0.1191*** (0.0446)	-0.0198 (0.0205)
t2	0.0008** (0.0003)	0.0025** (0.0010)	0.0005 (0.0005)
t3	-0.0000** (0.0000)	-0.0000** (0.0000)	-0.0000 (0.0000)
AIC	433.7332	105.1011	332.0066
Log Likelihood	-203.8666	-43.5505	-153.0033
Deviance	407.7332	87.1011	306.0066
Num. obs.	3117	654	2463

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 35: Regression Results SSC, Inverse Distance to Democratization

	All Countries	OECD 18	RoW
Modernization	0.3477*** (0.0551)	0.8578*** (0.3180)	0.3247*** (0.0569)
War	0.0519 (0.1221)	-0.2432 (0.3082)	0.0992 (0.1389)
Democratization (Inv. Time)	0.3674 (0.2927)	1.4759** (0.6827)	0.1440 (0.3422)
t	0.0019 (0.0116)	-0.0420 (0.0380)	0.0073 (0.0125)
t2	-0.0002 (0.0002)	0.0005 (0.0007)	-0.0003 (0.0003)
t3	0.0000* (0.0000)	-0.0000 (0.0000)	0.0000** (0.0000)
AIC	850.5127	154.4313	696.8290
Log Likelihood	-412.2563	-68.2157	-335.4145
Deviance	824.5127	136.4313	670.8290
Num. obs.	4748	1411	3337

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 36: Regression Results PIT, Inverse Distance to Democratization

	All Countries	OECD 18	RoW
Modernization	0.1881** (0.0749)	0.1859 (0.2914)	0.2196** (0.0853)
War	0.2301* (0.1345)	0.7285*** (0.2635)	-0.1156 (0.1844)
Democratization (Inv. Time)	0.8978*** (0.2747)	-0.3015 (1.1750)	0.7865** (0.3292)
t	-0.0355*** (0.0125)	0.0457 (0.0563)	-0.0348** (0.0148)
t2	0.0007*** (0.0002)	-0.0007 (0.0009)	0.0008*** (0.0003)
t3	-0.0000* (0.0000)	0.0000 (0.0000)	-0.0000** (0.0000)
AIC	612.5767	146.3970	448.9133
Log Likelihood	-293.2883	-64.1985	-212.4567
Deviance	586.5767	128.3970	424.9133
Num. obs.	3789	1223	2566

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 37: Regression Results CIT, Inverse Distance to Democratization

	All Countries	OECD 18	RoW
Modernization	0.3323*** (0.0737)	0.4596* (0.2515)	0.3050*** (0.0793)
War	-0.1313 (0.1485)	-0.1515 (0.2609)	-0.1327 (0.1927)
Democratization (Inv. Time)	0.7572*** (0.2657)	-0.5910 (1.0854)	0.7491** (0.3041)
t	-0.0372*** (0.0116)	0.0492 (0.0484)	-0.0414*** (0.0135)
t2	0.0008*** (0.0002)	-0.0005 (0.0008)	0.0008*** (0.0003)
t3	-0.0000*** (0.0000)	0.0000 (0.0000)	-0.0000** (0.0000)
AIC	768.1521	171.5154	597.5676
Log Likelihood	-371.0760	-76.7577	-286.7838
Deviance	742.1521	153.5154	573.5676
Num. obs.	4166	1116	3050

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 38: Regression Results GST, Inverse Distance to Democratization

	All Countries	OECD 18	RoW
Modernization	0.0012 (0.0493)	0.7447** (0.3645)	-0.0186 (0.0514)
War	0.1205 (0.1249)	1.2205*** (0.3603)	0.0336 (0.1542)
Democratization (Inv. Time)	0.2333 (0.2786)	0.2493 (0.8625)	0.1335 (0.3232)
t	0.0005 (0.0119)	1.0985*** (0.3414)	-0.0005 (0.0130)
t2	0.0002 (0.0003)	-0.0256*** (0.0080)	0.0001 (0.0003)
t3	-0.0000 (0.0000)	0.0002*** (0.0001)	-0.0000 (0.0000)
AIC	1000.6002	123.4057	837.4326
Log Likelihood	-487.3001	-52.7028	-405.7163
Deviance	974.6002	105.4057	811.4326
Num. obs.	5166	921	4245

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 39: Regression Results VAT, Inverse Distance to Democratization

	All Countries	OECD 18	RoW
Modernization	0.0163 (0.0484)	-0.1172 (0.4318)	0.0084 (0.0506)
War	-0.2807 (0.1926)	27.9036 (1339.5181)	-0.2745 (0.1940)
Democratization (Inv. Time)	1.4597*** (0.2806)	-4.1055 (5.1228)	1.4817*** (0.2965)
t	-0.0238 (0.0262)	0.8959*** (0.3297)	-0.0426 (0.0283)
t2	0.0032*** (0.0011)	-0.0429*** (0.0156)	0.0039*** (0.0012)
t3	-0.0000*** (0.0000)	0.0006*** (0.0002)	-0.0001*** (0.0000)
AIC	1224.3337	128.4651	1090.7786
Log Likelihood	-599.1669	-55.2325	-532.3893
Deviance	1198.3337	110.4651	1064.7786
Num. obs.	5380	415	4965

*** p < 0.01, ** p < 0.05, * p < 0.1

Robustness VI: No Region Fixed Effects

Figure 10: Regression Results, No Region Fixed Effects

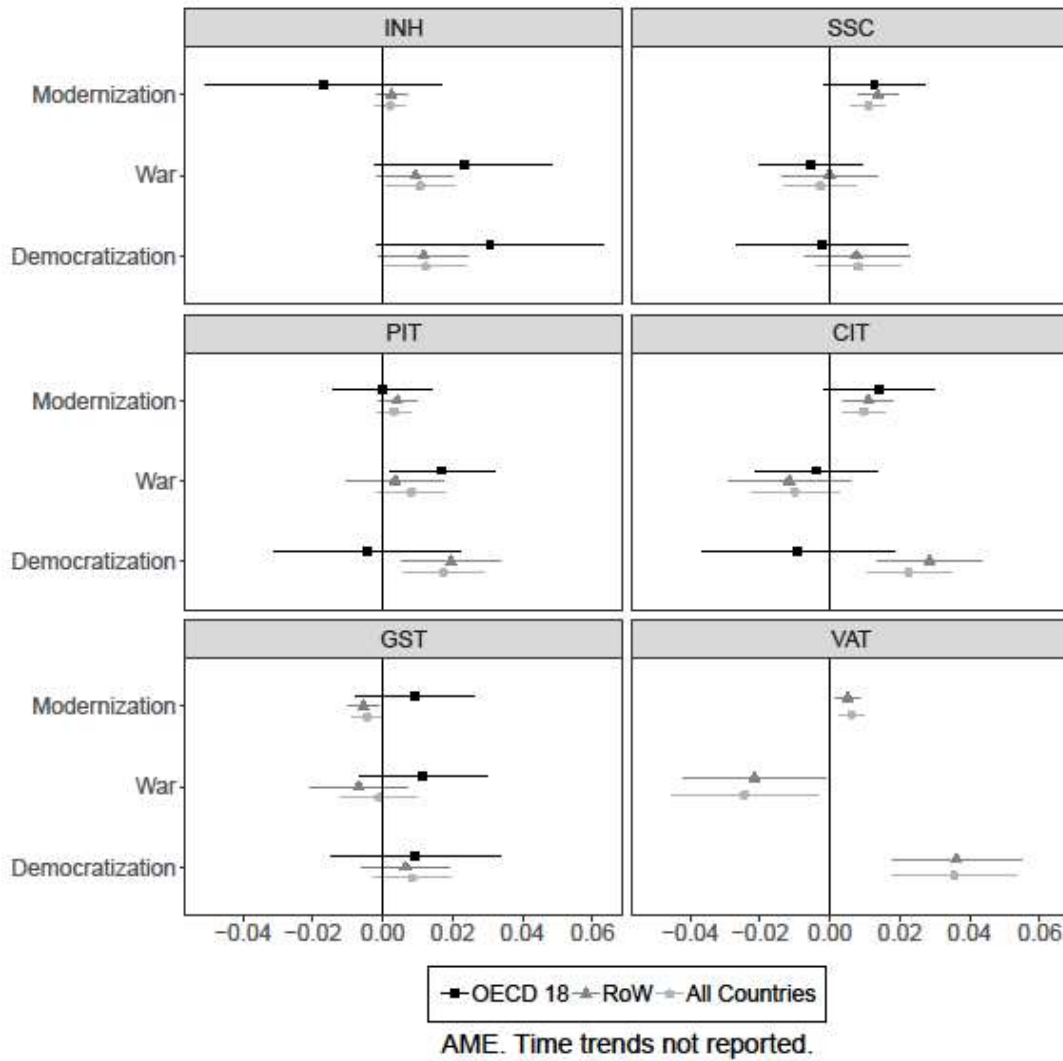


Table 40: Regression Results INH, No Region Fixed Effects

	All Countries	OECD 18	RoW
Modernization	0.0585 (0.0666)	-0.5052 (0.5019)	0.0770 (0.0688)
War	0.3203** (0.1457)	0.6865* (0.3589)	0.2862* (0.1675)
Democratization	0.3669** (0.1733)	0.9056** (0.4481)	0.3620* (0.1950)
t	-0.0381** (0.0152)	-0.1068** (0.0432)	-0.0244 (0.0191)
t2	0.0009*** (0.0003)	0.0024** (0.0011)	0.0005 (0.0004)
t3	-0.0000** (0.0000)	-0.0000** (0.0000)	-0.0000 (0.0000)
AIC	437.6559	102.0411	341.9909
Log Likelihood	-211.8280	-44.0206	-163.9955
Deviance	423.6559	88.0411	327.9909
Num. obs.	3117	654	2463

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 41: Regression Results SSC, No Region Fixed Effects

	All Countries	OECD 18	RoW
Modernization	0.2421*** (0.0512)	0.4798* (0.2536)	0.2609*** (0.0509)
War	-0.0604 (0.1177)	-0.2099 (0.2836)	-0.0016 (0.1324)
Democratization	0.1758 (0.1332)	-0.0845 (0.4679)	0.1444 (0.1455)
t	-0.0077 (0.0109)	-0.0439 (0.0348)	0.0023 (0.0121)
t2	-0.0001 (0.0002)	0.0008 (0.0007)	-0.0003 (0.0003)
t3	0.0000 (0.0000)	-0.0000 (0.0000)	0.0000** (0.0000)
AIC	884.6203	164.1682	710.0323
Log Likelihood	-435.3102	-75.0841	-348.0162
Deviance	870.6203	150.1682	696.0323
Num. obs.	4748	1411	3337

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 42: Regression Results PIT, No Region Fixed Effects

	All Countries	OECD 18	RoW
Modernization	0.0781 (0.0613)	-0.0017 (0.2627)	0.0946 (0.0614)
War	0.2052 (0.1269)	0.6252** (0.2449)	0.0815 (0.1596)
Democratization	0.4403*** (0.1388)	-0.1579 (0.5003)	0.4430*** (0.1569)
t	-0.0415*** (0.0117)	0.0257 (0.0421)	-0.0494*** (0.0134)
t2	0.0008*** (0.0002)	-0.0005 (0.0007)	0.0010*** (0.0003)
t3	-0.0000*** (0.0000)	0.0000 (0.0000)	-0.0000*** (0.0000)
AIC	616.6082	147.2536	465.3556
Log Likelihood	-301.3041	-66.6268	-225.6778
Deviance	602.6082	133.2536	451.3556
Num. obs.	3789	1223	2566

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 43: Regression Results CIT, No Region Fixed Effects

	All Countries	OECD 18	RoW
Modernization	0.2162*** (0.0635)	0.4014* (0.2253)	0.2277*** (0.0706)
War	-0.2228 (0.1413)	-0.1091 (0.2575)	-0.2429 (0.1842)
Democratization	0.5002*** (0.1266)	-0.2664 (0.4000)	0.5970*** (0.1478)
t	-0.0313*** (0.0114)	0.0518 (0.0481)	-0.0323** (0.0132)
t2	0.0006*** (0.0002)	-0.0006 (0.0008)	0.0006** (0.0003)
t3	-0.0000** (0.0000)	0.0000 (0.0000)	-0.0000* (0.0000)
AIC	765.2834	168.3999	592.1961
Log Likelihood	-375.6417	-77.2000	-289.0980
Deviance	751.2834	154.3999	578.1961
Num. obs.	4166	1116	3050

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 44: Regression Results GST, No Region Fixed Effects

	All Countries	OECD 18	RoW
Modernization	-0.0934** (0.0424)	0.2399 (0.2178)	-0.1116** (0.0454)
War	-0.0228 (0.1146)	0.2965 (0.2315)	-0.1408 (0.1452)
Democratization	0.1747 (0.1163)	0.2383 (0.3173)	0.1306 (0.1300)
t	-0.0012 (0.0115)	0.1094 (0.0703)	-0.0049 (0.0126)
t2	0.0002 (0.0003)	-0.0015 (0.0014)	0.0002 (0.0003)
t3	-0.0000 (0.0000)	0.0000 (0.0000)	-0.0000 (0.0000)
AIC	1020.5868	156.4269	859.8566
Log Likelihood	-503.2934	-71.2135	-422.9283
Deviance	1006.5868	142.4269	845.8566
Num. obs.	5166	921	4245

*** p < 0.01, ** p < 0.05, * p < 0.1

Table 45: Regression Results VAT, No Region Fixed Effects

	All Countries	OECD 18	RoW
Modernization	0.1035*** (0.0305)	0.0898 (0.3699)	0.0876*** (0.0331)
War	-0.4098** (0.1778)	-4.2597 (318.6247)	-0.3780** (0.1801)
Democratization	0.5947*** (0.1490)	-4.1135 (459.1538)	0.6328*** (0.1596)
t	-0.0371 (0.0254)	0.2151** (0.1090)	-0.0560** (0.0276)
t2	0.0033*** (0.0010)	-0.0067 (0.0044)	0.0042*** (0.0011)
t3	-0.0000*** (0.0000)	0.0001 (0.0001)	-0.0001*** (0.0000)
AIC	1276.2737	140.7871	1130.3986
Log Likelihood	-631.1369	-63.3936	-558.1993
Deviance	1262.2737	126.7871	1116.3986
Num. obs.	5380	415	4965

*** p < 0.01, ** p < 0.05, * p < 0.1