A THEORY OF TAXATION

Dissertation

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

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2021

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Abstract

Much political science has studied how governments choose to spend money, largely through a literature on the rise of the welfare state. In turn, many study (I) how much revenue must be raised in taxes and (II) from whom, across the income spectrum, these funds must come from. In contrast, this paper studies the political determinants of tax-mix. Decisions to use some tax-instruments over others – be it the income tax or property tax, Value-Added Taxes (VATs) or corporate taxes – not only implicate vertical redistribution within society (redistribution across income-levels), but also horizontal redistribution (redistribution within income-levels) *and taxation's efficiency.* In turn, tax-mix decisions implicate such vitals as: whether a society raises public revenues in a manner consistent with distributive justice; how much revenue a government is able to raise; and the extent to which raising government revenues will harm the private economy.

This dissertation project offers a theory and, consequently, tests by which to understand how tax-mixes are determined across societies. Central to my claim, much political science literature on taxation can be reoriented around the concept of *elasticity.* Implicitly, many studies argue that citizens prefer taxes that they can most easily avoid paying – either by opting for taxes they believe they can most easily cheat-on without getting caught; selecting taxes on behaviours that they do not engage-in; or pursuing taxes that implicate behaviours from which they can easily "shift away." In all of the above cases, I make explicit the under-girding concept at play, *elasticity.* Elasticity informs an individual's preferences over tax policy. These preferences interact with a society's institutions, which determines who has the necessary political power in society so as to attain their (elasticity-driven) tax policy preferences in the form of tax policy outcomes.

Understanding why governments pick certain tax-mixes will, then, also entail other

important consequences, including that we might better understand (i) why some governments collect revenues more efficiently than others (i.e., why some governments face greater hindrances upon their economic growth); (ii) why some society's might not be as redistributive as they seem; and (iii) why some society's are better able to support higher levels of government spending.

Acknowledgments

My gratitude to all of you, who have shared compassion — family, friends, and faculty — I cannot pay you back, but I search to pay it forward.

Dedication

With gratitude to the Animal Party, may your wild rumpus live on, in perpetuity. With love, we create a world not reducible to our selves. You have all played your part, and I have always had too few words, and too much shame, to thank you for it.

Vita

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Introduction

The Puzzle at its Most Basic

For citizens of some countries, there is no such thing as paying a Value-Added Tax (VAT) when they go out to make purchases; however, taxes will weigh heavily upon their wages. In other countries, income taxes on wages are a relatively minor consideration, when compared to the daily expense of VATs paid at the cash register. Anyone living within the European Union (EU) will be familiar with the latter situation (the EU sets a minimum VAT of 15%, with many countries opting to set rates much higher); anyone living within the American or Canadian context will be familiar with the former situation (the United States has no federal VAT, whereas Canada's federal rate is set at a paltry 5% – in the form of a Goods and Services Tax).

This manuscript studies why such discrepancies arise. I ask what are the political determinants of tax-mix decisions: why do governments make such vastly different decisions over which tax instruments to (disproportionately) rely upon.

Theory

Elasticity

I argue for the importance of understanding taxation decisions through the interaction of two concepts: "elasticity profiles" and "selectorates." The former concept, "elasticity profiles," references how easily a citizen is able to reduce their tax payments by altering their economic behaviours (i.e., at what personal cost). Citizens have an incentive to favour tax-mixes that minimize their own tax-burden while shifting taxation's

incidence onto others. A tax is "elastic" relative a citizen's behaviour given any of the following possibilities: the citizen can easily cheat their way out of paying; the citizen does not engage in the behaviour that is to be taxed; the citizen can easily "shift-away" from engaging in the behaviour to be taxed. A tax is inelastic given the combination of the *negative* (i.e., absence) of the above three points: one cannot cheat their way out of paying for a tax on a behaviour that they do, in fact, engage-in; moreover, they cannot easily stop engaging-in this behaviour (i.e., without great personal cost).

Unsurprisingly, a citizen prefers having more disposable income than less, and a citizen will have more disposable income if their society's tax-mix is (on average) elastic upon their own behaviours, but inelastic upon the behaviours of others. Hence, elasticities will tell us something about citizen's tax preferences.

Selectorate Theory

Of course, we cannot simply aggregate everyone's preferences in order to understand societal outcomes: not everyone's preferences will matter equally in determining collective decisions. Some individuals in society will be more powerful than others. Rightly or wrongly, for better or for worse, tax-mix outcomes in society will be weighted towards those of greater than lesser power.

To represent my theorizing about power, I will endorse "selectorate theory." The "selectorate," references those citizens from whom politicians must seek support if they are to remain in office. Crucially, my study will rely upon the *size* of a society's selectorate. Hence, I am interested in the proportion of a society's population, whose support a politician needs in order to retain political office.

In general, political institutions explain much about the size of a society's selectorate. Naturally, the size of a selectorate is quite small in autocracies, but quite large in democracies. Often, a dictator simply needs the support of a narrow circle of societal elites. A democracy, however, that lives up to the ideal of "majority rules," will find its selectorate to be of a size "50% (adult population) +1" (Of course, democracies often have internal rules which prevent this ideal from ever being realized; thus, in practice, just

as democracies vary from autocracies in the size of their selectorate; within the category of democracies, there is variation too.)

Seeing as the size of a selectorate is largely determined by a society's political institutions, we can look to institutions to understand whose preferences will be most supported in the creation of tax policy. In short, political institutions are a key driver of the distribution of power amongst citizens within a society, which, in turn, determines whose preferences about tax-policy will matter most in the realization of a final tax-mix outcome. Because preferences are informed by elasticities, we expect tax policy outcomes to be a reflection of elasticities driving preferences; the preferences, then, interact with the political institutions that explain power relations across society. Through this process, the relatively powerful will win "elastic" tax-mix outcomes that are, in turn, inelastic for the relatively weak.

In summary, from the interaction of the above two premises, a host of outcomes may be logically deduced (a subset of which this dissertation will test). Notably, citizens prefer a tax-mix that will result in their tax incidence being minimized; this preference is a function of their "elasticity profile." We can expect individuals to pressure politicians for tax-mixes that fall upon their most elastic behaviours. Powerful citizens are predicted to win such concessions.

The chapters, herein, explore the most basic possibilities of this theoretical construct, and several of its further consequences.

Overview

This manuscript's first chapter will theorize in greater depth about the roles played by elasticities and selectorates in determining tax-mix outcomes. I will seek to place the contribution within a broader literature on the politics of tax policy. As such, I begin the chapter by building-out a taxonomy for the politics of taxation. I offer categories by which to organize the literature's many, varied, studies on taxation. After building this taxonomy, I am able to reference the theoretical basis of my own contribution, while

addressing the gap it seeks to fill within the literature. Even more importantly, however, by organizing the literature, I am able to identify a theme amongst many studies, which I will be able to later call-upon as support for my own theory; namely, many studies *implicitly* rely upon the concept of elasticity without ever calling it by name. Of consequence, their findings can be called upon to support the concept of elasticity as an explanation for tax-mix preferences and outcomes (even though such studies pre-existed the use of this term).

The second chapter tests my prediction that policy outcomes will be designed to favour the selectorate's preference for elastic tax-mixes. When politicians need large bases of support, as occurs in democracies, we see tax policies made that are favourable (elastic) for large numbers of citizens in society. In contrast, when politicians need small bases of support, as occurs in autocracies, we see tax policies that are favourable to small numbers, whilst very effectively extracting from society's "masses." To test my theory, I consider the example of the informal sector. In many developing countries, this sector represents large swaths workers, who are not paying income taxes. As such, workers in the informal sector are predicted to favour taxes on income, since they avoid the tax's incidence. In contrast, they will be adverse to taxes that are harder to avoid paying, including taxes on consumption and property. In democracies, large voter bases in the informal sector are predicted to achieve high levels of income taxation as politicians create favourable policy to attract their votes. In contrast, in autocracies with large informal sectors, the elites are predicted to opt to tax the masses by ensuring increased taxes on behaviours the informal sector cannot easily hide, including upon consumption and property. Hence, the informal sector's large numbers are weakened (politically) in autocratic societies and, therefore, we expect more tax burden to fall upon them.

The third chapter explores an exception to the rule that voters in democracies will prefer a tax-mix that shifts tax burden away from themselves and onto others. I explore a narrow case whereby, in democracies, we can expect to see the selectorate consent to being taxed on their inelastic behaviours. I will develop and test a theory,

whereby: selectorates will consent to being taxed on their inelastic behaviours in the context of "homogeneous elasticity profiles." When a society's population has largely the same economic behaviours, then, the population shares a common "elasticity profile." In such a case, we can expect individuals to accept being taxed on their inelastic behaviours because: (i) there is no possibility of shifting taxes onto others (since any possible tax-mix will affect everyone's tax incidence in the same way as it affects one's own tax incidence) – additionally, individuals will feel less inclined to free ride on other's taxes knowing that others are not free riding on their taxes; and (ii) the use of inelastic taxes will actually create efficiency gains in the economy, from which all citizens can benefit. I will test the theory by drawing on data from the Luxembourg Income Study (LIS) to build "elasticity profiles." To do this, I focus upon the similarity of citizen income sources. Where citizens earn income in similar manners, I expect citizens to give political leaders the mandate to tax their most inelastic behaviours. However, given a lack of homogeneity, I expect such consent to fall apart: tax-mixes will reflect politicians seeking to attract the majority through favourable (highly elastic) tax policy for large swaths of voters, at the expense of relatively minority behaviours.

Chapter 1: A Taxonomy for the Politics of Taxation

Abstract

This chapter seeks to establish the core theoretical tenets of a theory of taxation driven by the interaction of (i) elasticity-based preferences for taxation and (ii) selectorate theory. In order to situate my theory within the broader literature, I offer a taxonomy by which to organize an extensive literature on the politics of taxation. This will, additionally, allow me to call upon the support of studies which are theoretically consistent with my own work, even though no system of classification previously existed (with which to bind our studies together).

I breakdown the literature into three categories. Many studies primarily concern overall tax-levels relative the size of the economy (e.g., government revenues as a percent of GDP); others assess tax-progressivity (e.g., marginal tax rates at differing levels of income); whereas the rest, myself included, focus upon tax-mix (e.g., the relative amounts of tax dollars raised from different tax-instruments). In all three of the above cases, scholars study how variables of politics (broadly conceived) shape decisions within each respective category. Thereby, they seek to understand tax-outcomes (the dependent variable), as the consequence of political-inputs (the independent variable).

Given that my dissertation fits into the tax-mix literature, I then offer a sub-taxonomy for this branch of tax studies in order to demonstrate where within the tax-

mix literature my own theory fits. One sub-branch draws heavily upon the economics of development literature. It reviews the role of government administrative competence in determining tax-mix decisions. Economic underdevelopment, to an extent, limits a government's range of choice over feasible tax instruments. A second sub-branch, to which I contribute, concerns itself with how formidable stakeholders exert pressures over politicians so as to alter tax-mix decisions. Such a position requires: (1) assessing how institutions influence who falls into the selectorate and who does not (and how large this selectorate will be); and (2) what tax policies the selectorate will demand of politicians in terms of tax policy. The latter, I will argue, is a consequence of their "elasticity profiles," whereby the selectorate will seek a tax-mix that reduces their own personal incidence of taxation. Having built-out a taxonomy earlier, I am then enabled to place my main theoretical contributions within their context – thus expounding upon the corner of the literature to which this disseration belongs.

1.1 Introduction

Do governments tax efficiently just because they know how to and have the capacity to do so? Much evidence suggest not. While the economics literature on optimal tax policy does have unresolved debates, it has also established many basic rules of thumb – especially concerning what *not to do* – which leaders could follow, were they to choose to do so. Despite such ideas being disseminated by influential actors (including international organizations and leading economists), many governments do not abide the advice. Of course, knowledge of what to do must be met with capacity to carry-out a certain plan of action. As such, much inefficient tax policy occurs due to the government's inability or incompetence to administer particular tax instruments (which happen to be efficient), particularly in the developing world. However, even competent governments have volatile tax policy and often break the economist's rules of thumb relative their less competent

counterparts[1]. All of this points to the importance of a politics of taxation: political leaders *choosing* not to pursue efficient tax policy – even when sufficiently knowledgeable and capable of doing so – which must, after this process of elimination, relate to the incentives of leaders. In other words, their *choice* not to pursue efficient tax policy.

Ultimately, this dissertation argues that a political leader's tax-mix decisions are influenced by powerful interests pursuing taxes that target behaviours for which they, personally, can react elastically. The pursuit of elastic taxes will induce inefficiencies, which this paper will speak to shortly. This chapter begins by building a taxonomy, which aims to accomplish two matters: (I) the taxonomy will allow my theory to be situated within the literature in order to establish the gap I seek to redress; and (II) the taxonomy will be useful in illustrating how my elasticity-based theory of taxation actually provides the most generalizable umbrella under which many relatively narrow concepts and theories belong; though such studies do not explicitly use the terminology of elasticity, I can leverage their findings towards testing my own theory insofar as their theories are consistent (albeit narrower conceptualizations) with my own.

The Politics of Taxation is a multifaceted area of study, made-up of many varied dimensions. Even restricting one's self to reviewing the effect of political variables upon the shape of a country's taxation, we still find that any one particular study may not be in conversation with other studies within this sub-field. However, the field is not one of total incoherence – it is not simply a jumble of intuitions.

I suggest a taxonomy that might be grafted upon the field – so as to provide order and coherence across its many distinct trains of thought. I would like to build a taxonomy that proceeds in two steps.

First, when political economists study taxation, their studies can often be categorized by the dependent variable of their study. While the independent variables are wide-ranging[2], in general, the dependent variable of study is more easily confined to one

[1](One 'tell' that inefficient tax policy is often pursued: similar economies in different states often have very different systems of taxation – including within countries across relatively short periods of time.)

[2]The political elements determining taxation outcomes vary greatly, including ethnic heterogeneity (for a classic example, consider Lieberman (2003)); cultural values (e.g., for an adaptation of Max Weber's

of three categories. The topic broached will be either (1) tax-levels (i.e., why some governments are small, while others big); (2) tax-progressivity (i.e., why some governments soak the rich, while others do not); or (3) tax-mix (i.e., why do some governments disproportionately rely on a particular tax instrument – be it corporate taxes, income taxes, sales taxes or otherwise – while others do not, potentially even avoiding the instrument altogether).

Second, while I do not build-out the sub-taxonomies for each of the above categories, I wish to build-out the sub-taxonomy for that of tax-mix. This is, after all, where I place my dissertation within the preexisting literature. Doing so will require me to also build-out the concepts that I rely upon (and that I have noticed many others to rely upon – even if not explicitly).

Within the tax-mix literature, one central tenant has been built-out explicitly: administrative competence. This affects the supply-side of taxation. A relatively unified literature speaks to how the usage of certain "advanced" instruments, like income taxation, only occurs within developed countries with sophisticated bureaucracies. (This necessarily impacts the entirety of a country's tax-mix, since altering one instrument's usage will alter every other instrument's *relative* usage[3].)

Less explicitly, but often implicitly relied upon, I propose a second unifying concept for the tax-mix literature. The concept, which aims to maximize generalizability, will review how powerful actor's "elasticities" (defined momentarily) towards certain tax-instruments will shape a government's final tax-mix. As of now, this literature is loosely arranged around a hodgepodge of observations concerning how a particular actor will try to dissuade the government from implementing a tax instrument (or raising its rate) that would have a disproportionately large (i.e., unavoidably costly) impact upon themselves. Naturally, it is actors with power in the local context of the study who attain their tax preferences as actual policy outcomes. Such studies often target a particular context in

(2013) theory of the protestant work ethic, one might consider Furnham (1983)); the basic constraints on taxation of administrative competence (Besley and Persson, 2014); choice over governing institutions (Steinmo, 1996); the incentives of politicians via public choice theory (Hettich and Winer, 2005); etc.

[3]Usage is generally measured as a percent of total government revenues

which an individual tax instrument (rather than the overall slate of tax instruments) impacts a particular group in society (rather than looking at how society's "average" group is effected and will, thus, react). As such, my mission here is to show how there is common ground between, on the one hand, a sophisticated corporation bribing an autocratic leader to create a tax loophole and, on the other hand, a impoverished street vendor joining a protest against their local, democratically elected, representative for supporting to establish a VAT. To most observers, one will certainly be a more sympathetic situation, but both share in common the leveraging of what political power one has to shift tax burden away from one's self and onto others.

As such, I want to share my theory for how vastly different studies, which are not currently "speaking-to" each other, actually share a lot in common. I argue that there are ties that bind. In the politics of tax-mix, much of the jumble of ideas about particular actors trying to avoid particular taxes can, in fact, effectively be organized under the tenant of elasticity.

Overview

In order to understand the politics of taxation, it is important to understand the economics of taxation. In order to understand the economics of taxation, it is important to understand certain definitional matters (i.e., jargon) of *elasticity* and *efficiency*. As such, I begin by defining these two terms. I then make sure to establish a baseline understanding of the economics of taxation, such that we may proceed to speak effectively about the politics of taxation. By establishing baseline principles of what *would* make for an efficient tax code, we can compare this ideal to reality, in order to study how political variables might aid or hurt us in arriving at an optimal outcome in actual societies. After providing this neccessary prequel, I shall then talk about the politics of taxation. First, I will lay-out the key theories of the politics of taxation literature, which may be placed into categories of tax-level, tax-progressivity and tax-mix. After doing so, I shall build a "sub-taxonomy" for the tax-mix category. This will be organized around a

well-established independent variable of "government administrative competence" and a less-explicated "tax elasticity for key political actors." This review affords the opportunity to share updated key descriptive statistics upon which the field's core theories are built. In many cases, new data releases – even relatively new data sets – are used to update earlier data work that sheds light on core theories of the field.

1.2 Some Brief Prequels for Discussing the Politics of Taxation

To understand the politics of taxation requires understanding the economics of taxation. On the one hand, if taxation is efficient, then we cannot discern whether this outcome occurs due to it's economic sensibility or due to political variables of the powerful getting their way. On the other hand, we can strip out any notion of "good economic sense" ruling the day[4], as a source explanation, when inefficient tax policies are pursued. In that case, we are not pointing to an inherently desirable outcome, but one that powerful actors seek-out.

To pursue a political theory of taxation, then, we wish to provide the basis for understanding an economic theory of taxation. The following section will highlight two important definitions of the economics literature: elasticity and efficiency; then, I will highlight key theories concerning how economic concepts (including elasticity and efficiency) come together to form an economics-based literature on optimal tax policy. With this basis of understanding in hand, only then do I proceed to discuss the politics of the matter at hand: our taxes.

[4]Often framed in terms of a benevolent dictator who operates to maximize societal welfare

1.2.1 A Definitional Prequel to Discussing the Politics of Taxation: Elasticity Profiles towards Taxation

Consider some examples of an "elastic" response to a particular tax instrument. For instance, some citizens are able to save large proportions of their income: an increased consumption tax would likely be to their benefit. Compared to others who spend most of their income, they would have a lesser tax burden. Other citizens might not save but could choose to do so. (Perhaps they enjoy purchasing luxury products, but could do without them were a consumption tax were established.) Upon a consumption tax being introduced, these citizens might opt to save a greater share of their income. The consumption tax is less elastic for them, relative the first group, but it certainly is not *inelastic*. A third group of citizens might not be able to save any of their income. (Particularly, citizens living at subsistence – perhaps working class families with young children.) For them, a consumption tax is inelastic: there is no avoiding it, once it is introduced.

Another example could concern income taxes. In some societies, select citizens are very able to "hide" their income by working in the informal sector: an increased income tax would likely be to their benefit. Other citizens, such as civil servants, will find they cannot readily hide their income. For them, the tax is inelastic, since the cost of giving up their formal sector job is too great to merit the possible tax-savings. For them, an increased consumption tax might would at least split their tax-burden with the workers in the informal sector (who, presumably, cannot hide all of their purchases). A final group of citizens is not currently hiding their income, but would be able to enter the informal sector upon income taxes increasing. For them, the tax is not entirely elastic (as per the current informal sector workers), nor entirely inelastic (as per the civil servants), but falls in between: they give-up a wage differential (between formal and informal work) but gain-back their income taxes. In these above examples, we see a variety of levels of elasticity, based on how ably a citizen can to respond to the implementation of a tax instrument (or

the taxation's increased rate). The examples above drew upon consumption and labour, but other economic behaviours could be included as well.

Whether talking about the economics or politics of efficient taxation, it is crucial to establish a core concept: individuals have their own, unique, "elasticity profile" towards taxation. A citizen has a relatively inelastic profile towards taxation, when the slate of government tax instruments targets behaviours for which: (1) the individual is highly engaged (on average) with the particular behaviours targeted by tax instruments; and (2) the individual's ability to shift away from current activities is costly – either in that (i) their utility is highly reliant upon current behaviours relative any second best course of action (e.g., much utility would be lost purchasing a less preferred "substitute" good) and (ii) the literal costs of changing behaviours are indeed costly (e.g., needing to hire a consultant to do some creative accounting; wage differentials are large between taxed and untaxed work).

In terms of economics, efficient taxes will also be highly inelastic taxes relative the average citizen's elasticity profile. This is because, concerning item (1) above, efficient taxes target behaviours broadly held by the population; and concerning item (2) above, efficient taxes minimize distortions of economic behaviour that exist in Pareto Optimum. (More on both ideas shortly.)

In terms of politics, efficient taxes will be highly unpopular exactly because of their inelasticity towards an actor's profile of economic behaviours. Naturally, such an actor will wish to pressure for an alternate tax code (through either exit or voice; regarding the former, imagine a corporation leaving a political jurisdiction in response to increased corporate taxation; regarding the latter, imagine an interest group for retail businesses pressuring a political leader to change their vote in the legislature in response to increased Goods & Services Taxation). When powerful, an actor may accomplish their objective, but this will, then, introduce an inefficiency to the tax code.

1.2.2 A Definitional Prequel to Discussing the Politics of Taxation: Defining Efficiency

Matters of efficiency are often collapsed-down into a study on saving time or money. Efficiency, however, is about minimizing a valued input (whatsoever that might be) in order to attain a given output (once again, whatsoever that might be). Building a bridge to connect point "A" with point "B" for the fewest dollars is a classic set-up for studying the efficiency of potential options. Likewise, many would argue that the best route to get from Edmonton, Alberta to Calgary, Alberta requires taking Highway 2. The trip takes three hours. However, I have voluntarily chosen to drive from Edmonton to Calgary via an alternate route that takes me through Jasper and Banff, roughly tripling the time. And, yet, the trip was efficient: the output I sought maximize was scenery; only upon maximizing this value, did an efficiency of time-savings kick-in.

A philosophy of efficiency is important to set-out from the beginning of this manuscript. In a very important manner, efficiency is a vacuous concept. While championed by politicians, efficiency is not intrinsically about achieving any one thing in particular, but how you achieve the outcome of providing that one thing (whatever that might be). Efficiency concerns attaining a (exogenously defined) fixed output at a minimum usage of inputs. The ends are not up for judgement. Only the minimization of inputs needed to attain the ends. Efficiency, therefore, has nothing to do with the size of government, beyond that it should be the smallest size necessary to attain the goals set-out for it by political leadership. Efficiency can reference reducing the size of a box needed to ship a product; spending the least government dollars to reduce poverty rates in half (however poverty has been defined); or getting from point A to point B with the fewest of your time resources. In all of these cases, efficiency concerns minimizing a certain input to attain a predefined output: space; money; time. However, efficiency need not to be any of these: the least space could have been swapped for the most secure packaging (e.g., the most efficient packaging is the packaging that most reduces the

probability of my vase arrive unbroken); the efficiency of attaining a policy outcome via the fewest dollars spent could be swapped for favourtism (e.g., an efficient policy is one that best helps my friends first); the most efficient route might not be the fastest but the most scenic. In all of the above cases, the point of efficiency is to attain a normatively desired outcome – whatsoever that might be – at a minimized burn of resources. Crucially, efficiency passes no judgement on the selected the outcome. To be certain, efficiency is normatively valued, but only on condition of its stated ends being met.

Given the above discussion, *what are the ends of efficiency that this research project pursues?*

In this manuscript, efficiency will revolve around the concept of "public profits" (Jones, 1991). Herein, the objective is to minimize the public costs necessary to attain a given level of public benefits. Hence, the standard of efficiency follows after Jones' conception whereby we seek to measure the "public profit" of opting for one tax policy relative another. The public profit will be the difference between the taxation's total social benefits generated minus its social costs: that is to say, "the difference in the value to society between what the [policy] takes out of the economy (costs) and what it puts back in (benefits) in any one period" (Jones, 1991, pg. 189). Couched in terms of tax policy, this means that for a given level of public revenues to be raised, inefficiencies endowed upon the private economy must be minimized (known as "deadweight-loss").

1.2.3 A Brief Prequel to Discussing the Politics of Taxation: Some Basic Rules for Optimal Tax Policy

Public economics has formed a sub-field called Optimal Taxation Policy. Often in this dissertation, it will be helpful for us to juxtapose tax policy that would be efficient, against our reality. In other words, we often want to compare what an optimal tax policy with the tax policies that countries actually attain: the difference can often be explained by the political pressures acting upon political leaders responsible for tax policy decisions.

(I will argue, these political pressures are endogenous to the design of a country's political institutions, including regime type.) I wish to briefly outline three main rules that guide the construction of an efficient tax policy:

Efficient Tax-Levels

Invariably, studies concerned the the efficient level of taxation make reference to the Laffer curve. The Laffer curve, in its simplest iteration, assesses the disincentive effects of taxation (as a percent of economic activity). Laffer notes that fewer marginal tax dollars are received for every additional percent that a tax rate is increased (Wanniski, 1978; Laffer, 2004). At a certain point, a marginal increase in tax rates will actually decrease overall tax-take for the government.

Laffer argues that taxation reduces an individuals effective compensation for labour. This meant that an increase in the size of government would cause an increase in the size of distortions weighing upon the private economy, as individuals became disincentivized to work. At a certain point, distortions, accoridng to Laffer, would become so large that any further increases to the rate of taxation would actually reduce overall tax revenues, since so many individuals would simply opt-out of working (or, more broadly, they would opt to work less and to allocate their labour towards less productive roles; the combined effect causing a reduction of taxable income in the economy). To Laffer, an efficient tax code generates low revenues using low rates; however, it is important to note many offsetting variables that work against the realization of his theory in reality. This includes: (1) the point at which diminishing marginal returns (of tax-rate upon tax-take) reduces revenues is ill-defined and many believe it to be at very high marginal rates not seen in any modern post-industrial democracies (Trabandt and Uhlig, 2011); (2) the ultimate efficiency of any particular level of government revenue is dependent upon the efficiency of its spending, including upon any available "returns on (public) investment" (e.g., Drautzburg & Uhlig's recent work (2015)); and (3) the inefficiency of any particular tax-level can be partially offset through efficient design of tax-mix (more on this

momentarily).

For scholars of political science, one difficulty of studying tax-levels is the complexity of unwinding what an efficient tax-level would be. Ultimately, many scholars have noted the inconsistency of Laffer's theory with reality as a fundamental puzzle of political economy: a literature know as the free lunch puzzle, explored momentarily (Lindert, 2003). It is unclear what is an appropriate tax-level given efficiency considerations. To a large extent, this varies, being largely dependent upon government effectiveness in spending. Governments that are not wasteful – and especially those very able in identifying high-return investments in public goods – can justify higher tax rates on an efficiency basis. As such, clever research design is required to parse-out the extent to which tax-levels are being driven by economic fundamentals (i.e., efficiency considerations) versus whether political factors crop-up (which, presumably, would account for deviations from optimal outcomes)[5].

Efficient Tax-Progressivity

The Laffer curve, at its simplest, points to general rates of taxation. Arthur Okun expands upon the concept to speak specifically of redistribution, which he labels a "leaky bucket." Okun argues that steepening the progressitivity of a tax code creates both distortions upon incentives and market prices, thereby creating inefficiencies. As such, redistribution and efficiency exist as a trade-off for governments to strike a balance between (Okun, 2015). His model suggests rising redistribution comes at a cost of efficiency (much like rising government budgets for Laffer). It should be noted, however, that (1) the extent to which the bucket leaks is a matter of empirical debate (Beckman, Formby and Smith, 2004; Pirttilä and Uusitalo, 2010) – if the leaks are insignificant, then higher levels of redistribution may not be particularly costly[6]; (2) it is plausible that taxation is

[5]Higher levels of taxation could reflect, for instance, relatively greater power of those with low-middle income – who might disproportionately benefit from government programs; yet, if spending can support economic growth, then the wealthy too may support taxes with a sufficiently high return on (public) investment from which they, too, will benefit.

[6]The efficient shape (or marginal tax rates against income) of an efficient income tax are the subject of Mirrlees taxation (Mirrlees, 1971; Coady and Drèze, 2002).

a luxury good, whereby wealthier citizens pay higher rates of taxation as compensation for receiving disproportionate benefit from public goods (and, therefore, may – at least as a class – be incentivized to retain higher rates of taxation); and (3) economists must always iterate between incentives and capabilities: if redistribution can be leveraged towards raising capabilities across the population (especially at low income levels where high marginal returns may be had on human capital), then dynamic efficiencies may bring the economy to operate at a higher equilibrium. This could potentially offset, or surpass, the static considerations of inefficiencies due to weaker incentives towards labour and distortions upon the price mechanism (Korpi, 1985).

Much like understanding tax-levels, an efficient level of tax-progressivity is difficult to pin down. For political scientists, this presents a difficulty – is the tax progressivity of a country being driven by economic considerations, like efficiency, or political considerations, like power relations between classes.

Efficient Tax-Mix

While many rules of efficient tax-mix might be expounded upon (see, for instance: Reid (2017) and Salanie (2011)), I focus on two general rules which will pop-up throughout this dissertation.

First, increased tax revenues are more efficiently attained through increasing the breadth of taxation (across the population) rather than increasing the rate of taxation upon a relatively narrow subset of the population (Salanie, 2011; Hausman, 1998; Feldstein, 1999; Boadway and Sato, 2009; Cremer, Pestieau and Rochet, 2001). In other words, given two groups of citizens in a society, it is more economically efficient to find a tax-instrument (or a combination of tax instruments) that will extract equal amounts of tax from both groups at at a relatively low rate, rather than to select tax instruments that would target only one group, thereby requiring a higher rate of taxation to maintain a fixed-level of revenues. This is because a linear increase in the tax rate results in an exponential growth of the tax's deadweight loss (for a classical treatment, see Chapter 10

of Mas-Colell et al. (1995)). In our hypothetical, imagine one group in society only buys (let's call them the heirs) and the other only works (let's call them the barbers). In this society, it would be better to implement a consumption tax and income tax – such that the barbers and the heirs all face a relatively small distortionary effect – relative placing *only* one group under a higher burden by selecting only an income or a sales tax, which would have to operate at a relatively higher rate (so as to maintain overall revenues).

This very rule also explains the dangers of tax loopholes (Surrey, 1970, 2013; Burman and Phaup, 2012; Reid, 2017), also know as "tax expenditures"[7]. When loopholes are made in a tax code, rates need to be increased to cover the missing revenue. Not only do the loopholes distort incentives in terms of the particular economic behaviour (for which an exception is being made), but the increased rates place an (exponentially) increasing deadweight loss upon the rest of the economy.

Second, political elites may reduce deadweight loss by taxing behaviours that (i) are widely engaged in and (ii) are difficult (or impossible) for individuals to alter (i.e., whereby changing one's behaviour would be costly; one's utility would be greatly harmed by engaging marginally less in a particular activity) (Salanie, 2011; Hausman, 1998; Mankiw, Weinzierl and Yagan, 2009; Cremer, Pestieau and Rochet, 2001). The more costly it is for an individual to alter their behaviours, the less their behaviours are distorted in the context of higher taxation (this finding was originally formalized by Ramsey (1927)). Unable to alter their behaviours, economic behaviours remain similar in the "post-tax world" relative the "pre-tax world." As an example, taxes on addictive behaviours (i.e., smoking) or based on an individual's traits (i.e., eye-colour) are relatively efficient (even if regressive or immoral). Alternatively, taxes on goods with many substitute products will simply result in people avoiding tax burden by altering their economic behaviour (i.e., purchasing their second favourite product). Here, not only does the tax code fail to raise much revenue, but economic behaviour is distorted from an optimal scenario of individuals maximizing utility (by consuming their preferred product). The

[7] "Tax expenditures" references the idea that loopholes are money the government (in effect) spends by choosing not to collect revenues.

ratio of distortionary effects to revenues, in the latter case, is high relative the former case.

Political scientists working on understanding government choices over tax-mix will face many of the challenges, noted above, that are also faced by studies on the politics of tax-levels and tax-progressivity: it is difficult to know, on the margins, the precise concoction of tax instruments that will maximize the economy's efficiency. However, broad generalities are produced, that political scientists may make use of. In particular, a tax-mix that fails to tax large segments of the population, certainly, is inefficient. As my manuscript develops, this basic issue – of failing to effectively tax large segments of the population – will be shown to be a likelihood in certain institutional contexts. Therefore, while we cannot base a political science upon a precise, *prescriptive*, foundation in optimal tax policy (that accurately measures what share of revenues ought to come from what sources), we can nonetheless have a political science based upon *proscriptive* findings of economics: i.e., obviously wrongheaded policies in efficiency terms (for example, by identifying cases where a tax-mix can be largely avoided by a large segment of a population; thereby, resulting in another segment of the population paying higher rates of taxation in order to maintain current levels of tax revenue against the consequent shortfall).

1.3 A History of Thought & a Taxonomy for the "Politics of Taxation" Literature

A taxonomy on the politics of taxation can be built upon the three prongs discussed above: tax-level, tax-progressivity and tax-mix. Conveniently, the order listed – of level, then progressivity and, finally, mix – neatly grafts onto the timeline of notable growth patterns in each sub-field since the inception of the Welfare State.

The politics of taxation began, to a large extent, with studies in growth of government spending. While governments historically had a minimalist role in their economies prior to the 20th Century, WWI drove-up government expenditures, which got "stuck" af-

ter the war as governments adopted new responsibilities to protect the welfare of citizens. Likewise, this would occur with WWII, leading to notions of a "ratchet effect," whereby events may lead to higher government spending that could not be turned back down (Titmuss, 1958; Peacock, Wiseman and Veverka, 1967; Higgs, 1987; Aidt and Jensen, 2013; Wagner, 1890; Musgrave, 1996).

After seeing the size of government grow, it became natural to think about who pays for its growth, and to whom this growth benefits. Much of this literature may be seen as an outgrowth concerning democratization's effect on demand for redistribution (Romer and Rosenthal, 1979; Meltzer and Richard, 1981). As such, a second prong in the taxation literature arose, as scholars began to consider how the welfare state uses taxes in a redistributive manner.

Considerations of tax-mix, then, are a relatively recent phenomena. Since the 1990s much literature arose in response to a select few pieces that were concerned with the incompleteness of the tax-progressivity literature; namely, the focus on redistribution between income groups through progressive taxation did capture "vertical redistribution," but completely missed – and cannot explain – instances of "horizontal redistribution." Horizontal redistribution sees income transfer between people at the same level of income. Hence, the politics of a society may offer more tax advantages to some at a given income level relative others within this same income grouping (Peters, 1991; Steinmo, 1996; Lambert and Ramos, 1997). A tax-mix literature started to look at how the use of some tax-instruments, relative others, would benefit individuals differently despite them belonging to a common income-grouping. This literature not only offered a substantive contribution about understanding the use of particular tax-instruments, but it also offered a new approach to understanding tax policy: taxation was politicized and problematized as interesting, in-and-of itself, rather than being studied as a byproduct of political actors' desire for government spending (Peters, 1991).

At this point, I will explore each of the above topics individually.

1.3.1 Tax-Levels

A literature on tax-levels arose reflecting upon what happened to government budgets after WWI: they rose for obvious reason – war is expensive – but then never returned to pre-war levels of expenditure afterwards. Taxation (as a percent of GDP) grew exponentially after centuries of marginal increases, which had, generally, been flat for extended periods of time.

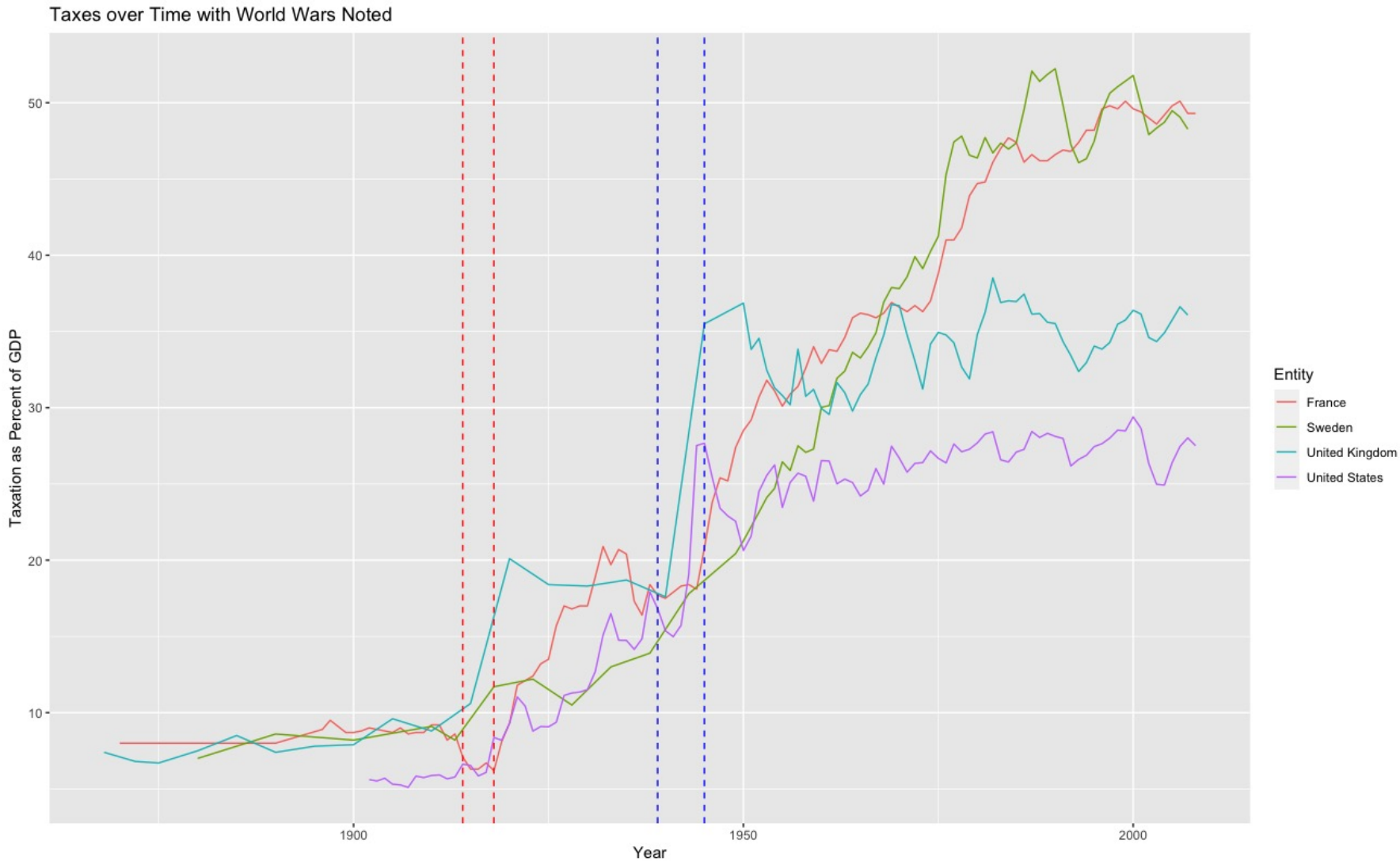
To some, this could be simply categorized under the moniker "Do not let a good crisis go to waste." In short, those who stood to benefit by increased public expenditures (whether elected politicians, civil servants, government contractors, welfare recipients or otherwise) had strong incentives to block a return to prior levels. Whatever the self-contained effects of war on government spending and the consequent "ratchet effect," which allows taxes go up, but not down (Titmuss, 1958; Higgs, 1987; Peacock, Wiseman and Veverka, 1967), other mechanisms were clearly impacting increased levels of government spending, given one simple fact apparent in Figure 1: spending continued to climb, even beyond the context of the World Wars (more precisely, taxes as a percent of the economic production continued to grow). War may be an important catalyst to explain increased government spending, but clearly it is not unique in this regard. As such, Figure 1 gives us pause: factors other than war must account for the large variations in government spending, given the mass volatility occurring beyond times of war.

Herein, many point to the returning generation of wounded men from war who would need ongoing support from the state. Alone, the argument would be functionalist, of course, because history is replete with governments not adequately caring for their citizens[8]. However, a mechanism can be pointed to with democratization's first and second wave (Huntington, 1993; Kurzman, 1998) coinciding with the eras of increased taxation. Many noted that the franchise was expanded to include increasing numbers of low-income citizens (relative the incomes of those who exclusively held the franchise

[8]The problem of functionalism being that a system's need for something to address a problem is no guarantee that this "something" will automatically come about – as if inputs are automatically spawned so as to fill the vacuum of their need.

previously). They argued that the inclusion of lower-income voters in democratic decision making would increase overall tax-levels by enabling them to act on the incentive to "soak the rich." Those of low income could use their majority vote to increase levels of taxation, from which redistribution could be afforded (Romer and Rosenthal, 1979; Meltzer and Richard, 1981). Naturally, this area of study demonstrates the endogeniety between categories of my taxonomy: demands for redistribution will, of course, implicate tax-levels through a tax-mix focused on progressive tax-instruments.

Figure 1.1: Taxation (% Economic Activity). Original analysis from (Piketty, 2018), data from (Ortiz-Ospina and Roser, 2016). WWI noted (red) and WWII noted (blue).



While democracy's predicted increase in demand for redistribution will certainly impact a country's tax-levels, *ultimately we need to find a democratization's "net effect" by accounting for its impact on other areas of government spending.* Many theories suggest that democracies will need higher tax-levels to afford higher demand for redistribution; but less for political rents, whereby political elites reward themselves and followers with kick-backs from general revenues (Hettich and Winer, 2005; De Mesquita et al., 2005; De Mesquita and Smith, 2011). In such a case, we may expect inefficiencies in the administration of programs; the ratio of funds used to deliver a program will be high relative the benefits distributed by the program (Adam, Delis and Kammas, 2011)[9]. Hence, democracy favours redistribution and autocracy favours rents. Lastly, a third dimension is assessed: public goods. Democracies are predicted to spend more on public goods, which benefit the broad masses. Thereby, spending on public goods is consistent with a politicians' pursuit of broad swathes of voters (Olson, 1993; Besley, 2006; Brown and Mobarak, 2009; Burgess et al., 2015; Kudamatsu, 2012)[10].

To determine the effect of democratization upon government revenues, scholars are left to find the total, net, demand for revenues between these three unique categories: redistribution, rent and public goods. Some empirical studies review the totals of across these categories, so as to form estimates of regime-type on spending (Mulligan, Gil and Sala-i Martin, 2004; Kotera and Okada, 2017; Martinez-Bravo, Padró i Miquel and Qian, 2012; Profeta and Scabrosetti, 2010; Garcia and Von Haldenwang, 2016)[11]. The picture is complicated, however, because differences in how the regimes spend may have different consequences upon economic growth, to which tax-levels may be endogenous (Acemoglu and Robinson, 2006); additionally, others note how public goods provisions may offer broad-based benefits, but generally have offer marginally greater benefits to some relative others, thereby having a redistributional effects (Min, 2015).

[9]There is, of course, also a literature on the effects of lobbying in democracies (Downs, 1957; Acemoglu and Robinson, 2001; Dixit and Londregan, 1996; Richter, Samphantharak and Timmons, 2009).

[10]Some argue that the consequent economic growth of democracy's investment in public goods will enable a virtuous cycle of growing taxation (Lindert, 2004).

[11]For a contrasting take, consider (Tsai, 2007).

While the domestic politics of redistribution's effect on total taxation is a main narrative of the literature, many alternate mechanisms and refinements exist. Some argue the growth in government spending is an economic phenomena, rather than a political one. Notably, Wagner's Law views public expenditures as a luxury good (Wagner, 1890). As incomes increase, people want to consume a government programs as a larger proportion of their (now larger) incomes.

Other's point to the interaction of domestic politics with exogenous, international, trends. Globalization, primarily, has been cited as having major effects upon government revenues. Rather bleak, one perspective predicts a "race to the bottom of the barrel" as governments try to maintain tax-competitiveness and, as such, slash public spending (DeMartino, 2002). This statement has been deemed too broad given the empirical evidence and theories have cropped up to guard against the determinism of such a neoliberal fate (Hall and Soskice, 2001; Rudra et al., 2008)[12]. A more refined argument, concerning globalization, points out that exposure to world markets increases market volatility, which creates worker demand for increased government spending through social security. This public sector innovation in insurance requires expansion of public expenditures and, thus, revenues. Workers may opt for higher taxation insofar as it is spent to protect their incomes from downward movements in the economy due to the market's volatility. Rising demand for government expenditures, then, is a consequence of democracy enabling workers to insure themselves against the secular rise in exposure to economic liberalization (which carries with it risks in the form of market volatility) (Rodrik, 1998; Rehm, 2016; Adsera and Boix, 2002). (Herein, once again, I ought to note the overlap of categories in my taxonomy: obviously, these citations implicate not only tax-levels, but tax-mix since a particular source of revenue is most affected – namely, social security.) Particularly in a context of growing market volatility, we might expect citizens to pressure politicians for larger programs, so as to be covered when their particular job or health (or the market at large) falls into poor circumstance[13]

[12]This literature often borrows from theories of federalism. For a review, consider (Wilson, 1999).

[13]To a certain extent, this explains the rise of "user-pay" systems of social security for workers in

It is crucial to note how taxation is conceptualized in this "prong" of the taxonomy. There is not, so much, a unique "politics of taxation" as there is a "politics of spending," for which taxation is simply the "flip-side-of-the-coin." Raising revenues does not have its own unique politics from spending, but is rather a Newtonian "equal and opposite" effect. In other words, studies focus on the demand-side (i.e., why is there growing demand for government spending?) rather than the supply-side (i.e., what innovations and political contests are shaping the tax code?... And, do these effects upon the tax code ultimately implicate tax-levels?). In this manner, much of the "politics of tax-level" literature focuses on taxation as being symptomatic of demand for greater government spending. I suggest greater consideration of the opposite situation: that the politics of tax-mix might be a key driver of tax-levels.

1.3.2 Tax-Progressivity

With tax-levels growing, many questioned from whom these funds were coming. In particular, many reviewed the usage of progressive income taxation to fund the state's activities[14]. The interwar era saw the rise of progressive income taxation to meet demand for higher government spending. In part, progressive taxation is a necessity for any non-negligible level government spending: a flat tax rate could never be high enough to pay for vital government functions due to the sheer number of people in any society living with little more than subsistence resources (Buehler, 1933). Even if a society could condone such policy, the policy would be ineffective as the relevant population would simply not survive to pay any further taxes. Beyond this most basic economic law, however, we can expect the politics of popular demand to arise.

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an economy – which redistributes money not (directly) between rich and poor, but between "good luck" workers who are currently employed and "bad luck" workers who are temporarily unemployed. This argument is contested by those scholars who argue social security programs are implemented, and growing, due to their popularity amongst political elites as a form of "invisible" taxation that automatically grows, in lockstep with the economy, without requiring new legislation (Steinmo, 1994).

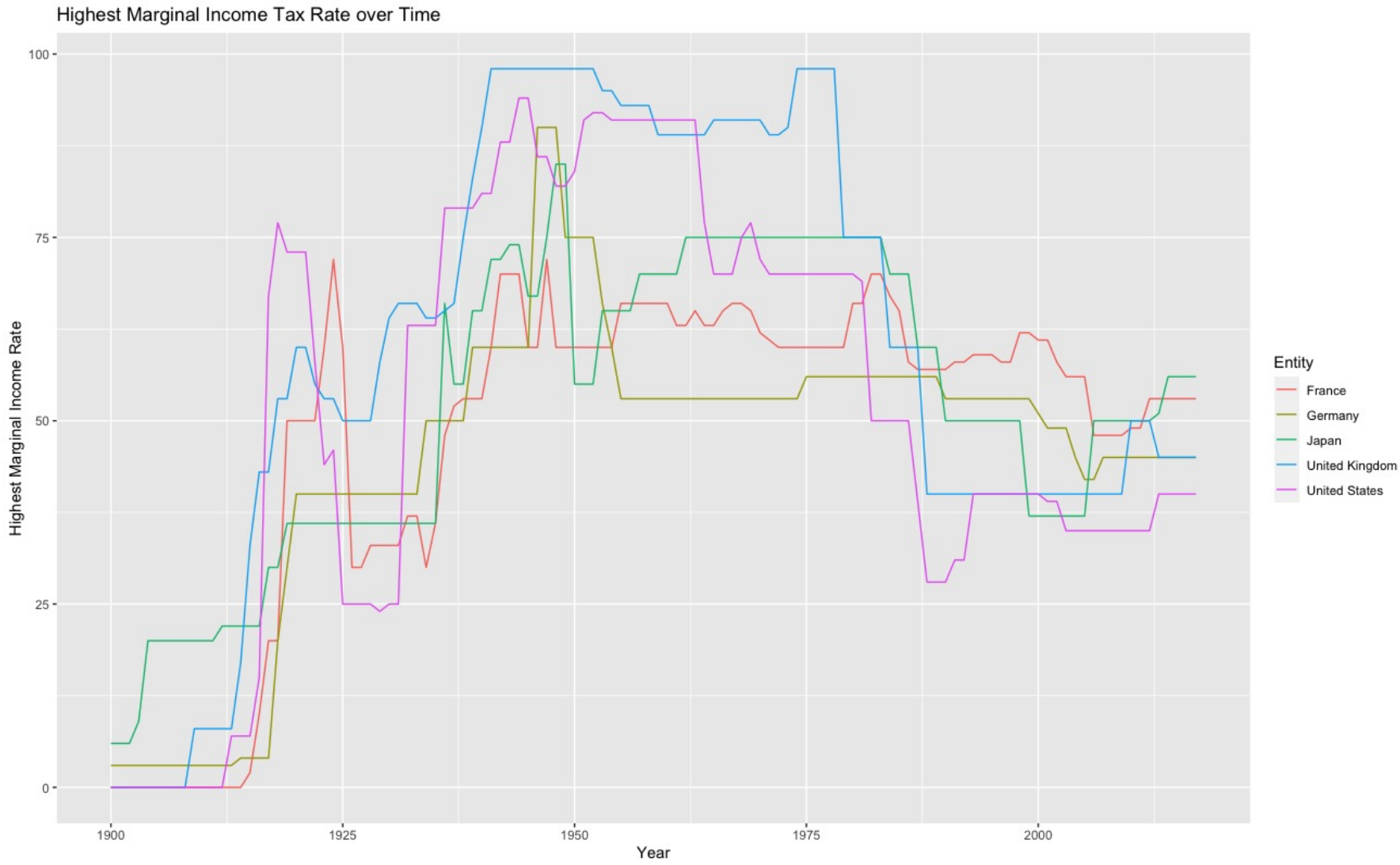
[14]Herein, redistribution could be attained. However, in addition to a progressive income tax, another condition must be met: revenues must be spent more on lower-income groups than higher-income groups, relative their tax contribution).

Much literature arose around formal models demonstrating that the expansion of the franchise to lower-income groups in democracies would enable the relative poor to "soak the rich" with high taxes. From the revenues generated, those of low-income could redirect spending on programs and direct transfers to themselves (Meltzer and Richard, 1981; Romer and Rosenthal, 1979)[15]. Ultimately, many empirical studies would test the formal model; many tests found mixed, if not negative, results regarding whether democracy's "median-voter" leads to increased tax progressivity (Ross, 2006; Lind et al., 2005; Milanovic, 2000; Acemoglu et al., 2015). Additionally, others since have pointed to alternate mechanisms working within autocracies, which incentivize elites to redistribute (Albertus, 2015; Tsai, 2007). Yet others have noted that within the category of democracy, tremendous institutional variations exist, which create different incentives for leaders to redistribute income (Iversen and Soskice, 2006; Hays, 2021; Austen-Smith, 2000). Theorists of collective action focus upon how the majority often does not get its way relative well-represented, narrow, interest groups (Downs, 1957; Richter, Samphantharak and Timmons, 2009)[16].

In short, a watershed of literature arose in response to both the virtues and the failings of the aforementioned formal models. Ultimately, the ambivalence of the findings might be pointed out with a simple graphic. Figure 2 illustrates that alongside democratization, occurring in the Inter-War and post-WWII periods, western countries saw increases in marginal tax rates for the top income brackets; however, these same democracies also saw their top rates fall since the mid-1970s. In other words, peak taxation on the wealthy was less a fixture of democracy than a fixture of the 1940s through 1970s. At best democracy offers a necessary, but not sufficient, condition for redistribution from society's wealthiest, which certainly does not provide a ringing endorsement of median-voter theorems. If democracy does not assure increases to the marginal tax rates of the most wealthy, then what else may have driven the historic increases and subsequent declines? Again, both trends occurred within the context of democracy.

[15]Some modifications uphold the premise of median voter theorems (Lupu and Pontusson, 2011)
[16]Further citations are listed in "footnote 6."

Figure 1.2: Marginal Tax Rate on Top Income Bracket. Original analysis from (Alvaredo, 2018), data from (Ortiz-Ospina and Roser, 2016).



The challenges to the median-voter theorem's prediction that the poor will "soak the rich" can be further demonstrated by considering who, historically, democracies tax the most heavily. The table and figure below provide yet another demonstration of the limits of using democracy as a tool of redistribution. Using data from the Andrew Young School World Tax Indicators (2017), I demonstrate how average marginal rates of income taxation differ across the income spectrum. I review marginal income tax rates for an individual at 1x, 2x, 3x 4x each country-year's mean income. In other words, I use a variable which measures how much additional income tax an individual at their country's mean income (and 2x, 3x and 4x mean income) will pay were they to earn an additional dollar of income.

Beginning with Table 1, I present the results from a linear regression model with fixed effects. While controlling for levels of economic development (logged GDP per Capita) and using fixed-effects for country and year, I use a dummy variable for democracy to find-out it's average effect on marginal income tax rates at differing levels of income. Curiously, the effect of democracy on marginal tax rates is not the greatest on the wealthiest income brackets – in contrast to theories of "soaking the rich." Rather, democracy has the greatest "lift" effect on marginal tax rates upon the upper-middle class: most notably at 3x mean income; notably, the effect of democracy on tax rates is marginally higher at just 2x mean income than at 4x mean income.

As such, the regression model using fixed effects (for country and year) demonstrate how each "income bracket" is affected by being under democracy rather than autocracy. The findings show that democracies do not redistribute from the wealthiest to the poorest, but rather from those in the income brackets of 2x and 3x society's mean income. The redistributive effects of democracy appear to come from its taxation of the upper-middle class, rather than its very wealthiest. The findings are indicative that there are limits to the progressive nature of taxation in democracies and, certainly, the data illustrate a reality that is difficult to graft onto an expectation of the median voter seeking to "soak the rich."

Next, I consider Table 2, which seeks to account for the role of competent government administration upon tax rates. In general, income taxation is a feature of capable states, since it is a difficult tax to administer (I will speak at length to this issue in Section 1.3.3). The model is identical to that of Table 1, but adds a control for Corruption levels as a proxy for quality of adminstration. I use the Bayesian Corruption Index (Standaert, 2015). This indicator provides the strongest coverage for the country-years in the Andrew Young Dataset (on Marginal Tax Rates), thus being preferable to any other comparable measure I might use to *proxy for the effectiveness of government administration.*

Table 2 provides an interesting update to the previous findings. Democracy, in itself, seems to have little effect upon tax rates once we account for corruption. Democracies, on average, operate more competent governments. Competency amongst democracies seems to drive higher marginal tax rates upon income (especially upon high incomes); rather than anything to do with democracy's intrinsic effects due to voter demand to "soak the rich." Additionally, it is interesting to note the importance of the level of development. While Table 1 produces null results (which is tremendously surprising given the literature's "prior" on the matter), Table 2 demonstrates that economic development matters once we parse-out the effects of corruption. Accounting for corruption, economic development once again matters: it leads to higher marginal tax rates, especially at income levels that are 4x mean incomes.

Figure 3 also reveal interesting trends across time, in addition to differences between democracies and dictatorships. First, democracies have higher overall rates of income taxation than dictatorships, although the difference has been narrowing. Second, while marginal tax rates have been stable in dictatorships, the have been falling in democracies. The fall in rates has been roughly parallel across income levels. In our next section, on tax-mix, we shall see that democracies have embraced alternate tax-instruments to partially displace reliance on income taxation.

Figure 1.3: Marginal Tax Rates at Different Income Brackets.

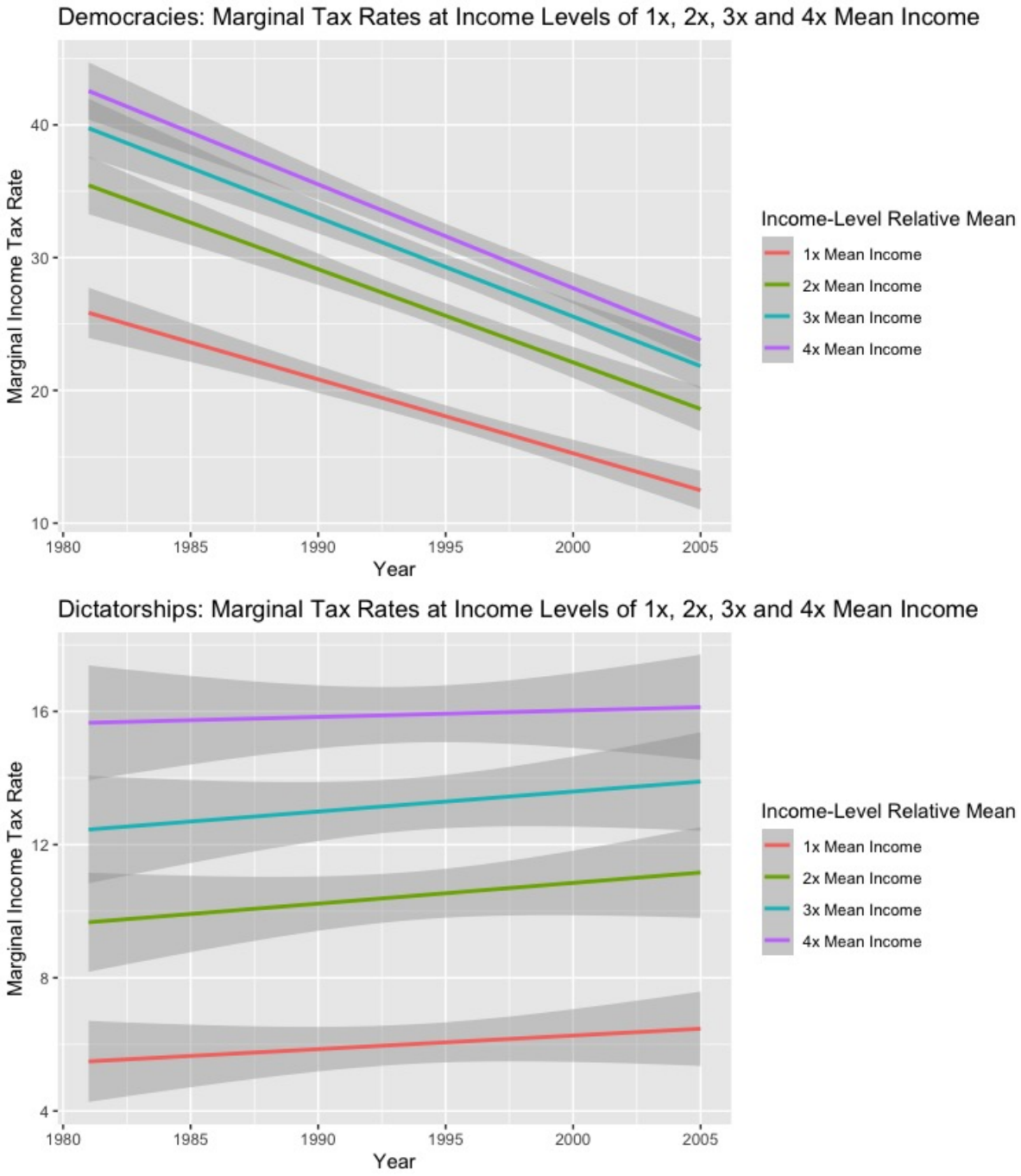


Table 1.1: Effect of Democracy on Marginal Tax Rates (MTR) at Several Levels of Income

	Dependent variable: Marginal Tax Rates at Following Levels of Income			
	Mean Income	2x Mean Income	3x Mean Income	4x Mean Income
	(1)	(2)	(3)	(4)
Democracy (Dummy)	1.142**	1.641***	2.242***	1.607**
	(0.523)	(0.567)	(0.604)	(0.644)
Log(GDP/Capita)	0.509	−0.674	−0.063	1.155
	(0.580)	(0.629)	(0.670)	(0.714)
Constant	498.855***	510.078***	573.092***	692.172***
	(47.510)	(51.527)	(54.927)	(58.539)
Observations	2,466	2,466	2,466	2,466
R^2	0.865	0.886	0.882	0.865
Adjusted R^2	0.856	0.879	0.874	0.856
Residual Std. Error (df = 2320)	5.710	6.193	6.601	7.035
F Statistic (df = 145; 2320)	102.123***	124.702***	119.075***	102.444***
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 1.2: Effect of Democracy *when accounting for Corruption* on Marginal Tax Rates (MTR) at Several Levels of Income

	Dependent variable: Marginal Tax Rates at Following Levels of Income			
	Mean Income	2x Mean Income	3x Mean Income	4x Mean Income
	(1)	(2)	(3)	(4)
Democracy (Dummy)	0.006	0.406	0.927	0.313
	(0.559)	(0.601)	(0.637)	(0.680)
Log(GDP/Capita)	1.740***	0.499	1.262*	2.986***
	(0.624)	(0.671)	(0.711)	(0.759)
Corruption Index	1.288***	1.387***	1.321***	1.487***
	(0.140)	(0.150)	(0.159)	(0.170)
Constant	425.064***	418.056***	498.563***	605.511***
	(56.095)	(60.277)	(63.869)	(68.176)
Observations	2,199	2,199	2,199	2,199
R^2	0.874	0.897	0.893	0.878
Adjusted R^2	0.865	0.889	0.886	0.870
Residual Std. Error (df = 2052)	5.376	5.777	6.121	6.534
F Statistic (df = 146; 2052)	97.682***	121.766***	117.721***	101.534***
Note:				*p<0.1; **p<0.05; ***p<0.01

1.3.3 Tax-Mix

Until this point, the history of thought in the politics of taxation focuses on the incentives of political actors to demand spending ("goodies") from the government. The demand may be couched in terms of general government spending (as per the tax-levels literature) or for redistribution specifically (as per the tax-progressivity literature). In either case, the taxation literature is largely "demand-based." The particulars of tax policy would often exist in a blackbox. Taxes are raised or lowered, as needed, to match demand for spending given political variables (be they institutional, cultural or otherwise). However, this blackbox broke down as researchers concerned themselves with how government make choices over which tax-instruments to use and to what extent. In general, scholars have looked to the major taxes, that constitute the largest pieces of the government's revenues. Generally, this includes the study of income taxes, VAT taxes (including goods sales taxes) and corporate taxes. In a rare exception, some scholars have looked closely at property taxes exactly because they are a small piece of the pie: arguably, they should be much larger, as they are widely regarded as an efficient form of taxation (McCluskey, Plimmer and Connellan, 2002). Thus, their negligible use is of interest (Brunner, Ross and Simonsen, 2015; Cabral and Hoxby, 2012)[17].

The tax-mix literature views choices between tax instruments as inherently political. The creation of tax revenues through particular instruments is focused upon directly, rather than trying to understand societal demand for taxation vis-a-vis spending[18]. Herein, the supply-side of revenues is studied.

Relatively recent pieces have brought together this sub-field as a coherent entity, with two pieces from the 1990s: Guy Peters "The Politics of Taxation" (1991) and Sven Steinmo's "Democracy and Taxation" (1996). In 2002, a review piece was written on the main determinants over tax policy in democracies (Gould and Baker, 2002). One excellent review focuses on the United Kingdom, though the take-aways might be extrapolated

[17]For an alternate take on property taxes (Goodfellow, 2017).

[18]For an excellent example of a study that does start with tax-policy to explain the welfare state (rather than starting with the welfare state to explain tax policy, I suggest Beramendi and Rueda (2007).

more broadly (Alt, Preston and Sibieta, 2010). Two further review pieces have sought to extend this consolidation beyond literature focused on democracy. This inlcudes a 2013 piece by Stanley Winer (2013) and, later on, a dedicated piece in the *Annual Review of Political Science*, Kiser & Karceski's "Political Economy of Taxation" (2017).

To complete the "taxonomy" section of this chapter, I wish to provide a sub-taxonomy of the tax-mix literature. This will, then, segue into a section dedicated to building my own theoretical contribution to the tax-mix literature. I wish to divide works by their focus on (i) government administrative competence; and (ii) how powerful actors design tax policy so as to shift burden away from themselves and onto others – this is a theoretical contribution that I conceptualize through the idea of elasticities (which interacts with the selectorate). While studies of the former generally form a well-organized sub-field, studies of the latter lack cohesiveness due to the lack of a centralized organizing tenant, which I argue ought to be that of elasticity.

Government Administrative Competence

Many differences of tax-mix across countries are argued to derive from the competence of government tax administrations, which, in turn, is closely related to a country's level of development. The differences between developed and developing countries, in terms of their tax-mix, is illustrated in Figures 4 through Figure 7 below.

Beginning with Figures 4 and 5, several points stand-out when evaluating the usage of tax instruments as a *percent of GDP*. Crucially, the figures demonstrates that developed countries are far more effective at raising large proportions of their tax-bases from "broad-based" instruments such as Income Taxes and and Consumption Taxes (Goods & Services Taxes). Developed countries, additionally, draw heavily upon social security contributions (yet another form of broad-based taxation). In contrast, developing countries draw relatively more upon property, tariffs and duties as sources of revenue. Nontheless, each instrument is relatively minor over the last 40 years.

Focusing on Figures 6 and 7, several points stand-out when evaluating the usage

of tax instruments as a *percent of Government Revenues*. First, while development still correlates with the usage of the broad-based instruments of income taxation and social security, the picture for consumption taxes becomes muddier. Additionally, differences in the usage of income taxation, across levels of development, has been narrowing. Partially, low income countries are using the instrument more; however, developing countries have also been offsetting income tax usage through increased tax-hauls from corporate taxes, consumption taxes and resource revenues.

Interestingly, corporate taxation as a percent of government revenues has largely homogenized through the 1980s-2010s, which may speak to the aforementioned literature on the competitive pressures exerted upon governments by economic liberalization and globalization more broadly.

Surprisingly, taken as a percent of government revenues, taxes on trade made up a larger proportion of government budgets in countries of relatively greater levels of development. This contravenes the expectation of much literature on the political economy of development. Potentially, developing countries are classifying their tariffs and duties as separate from taxes on trade. Indeed, under World Trade Organization rules, developing countries may have an incentive to bill imports with value-added taxes rather than excise taxes[19]. This may account for the other surprising finding that taxes on Goods and Services are quite high in the developing world (as a percent of revenues) against expectation.

[19]After all, developing countries, by definition, are not engaging in high-value added work, which would, on the other hand, be embedded in their imports.

Figure 1.4: Tax-Instrument Revenues as % GDP for Countries at Differing Levels of Economic Development (1/2).

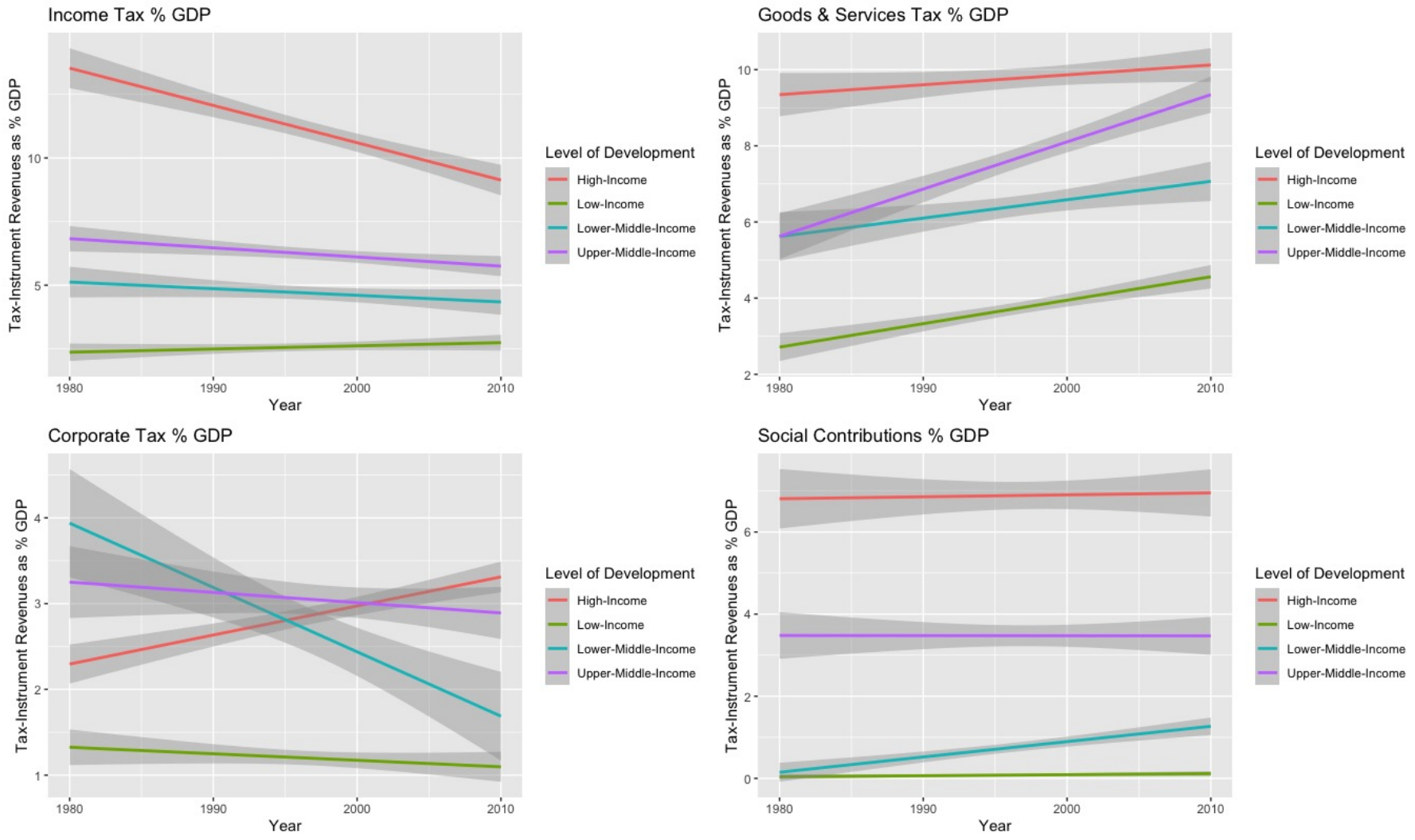


Figure 1.5: Tax-Instrument Revenues as % GDP for Countries at Differing Levels of Economic Development (2/2).

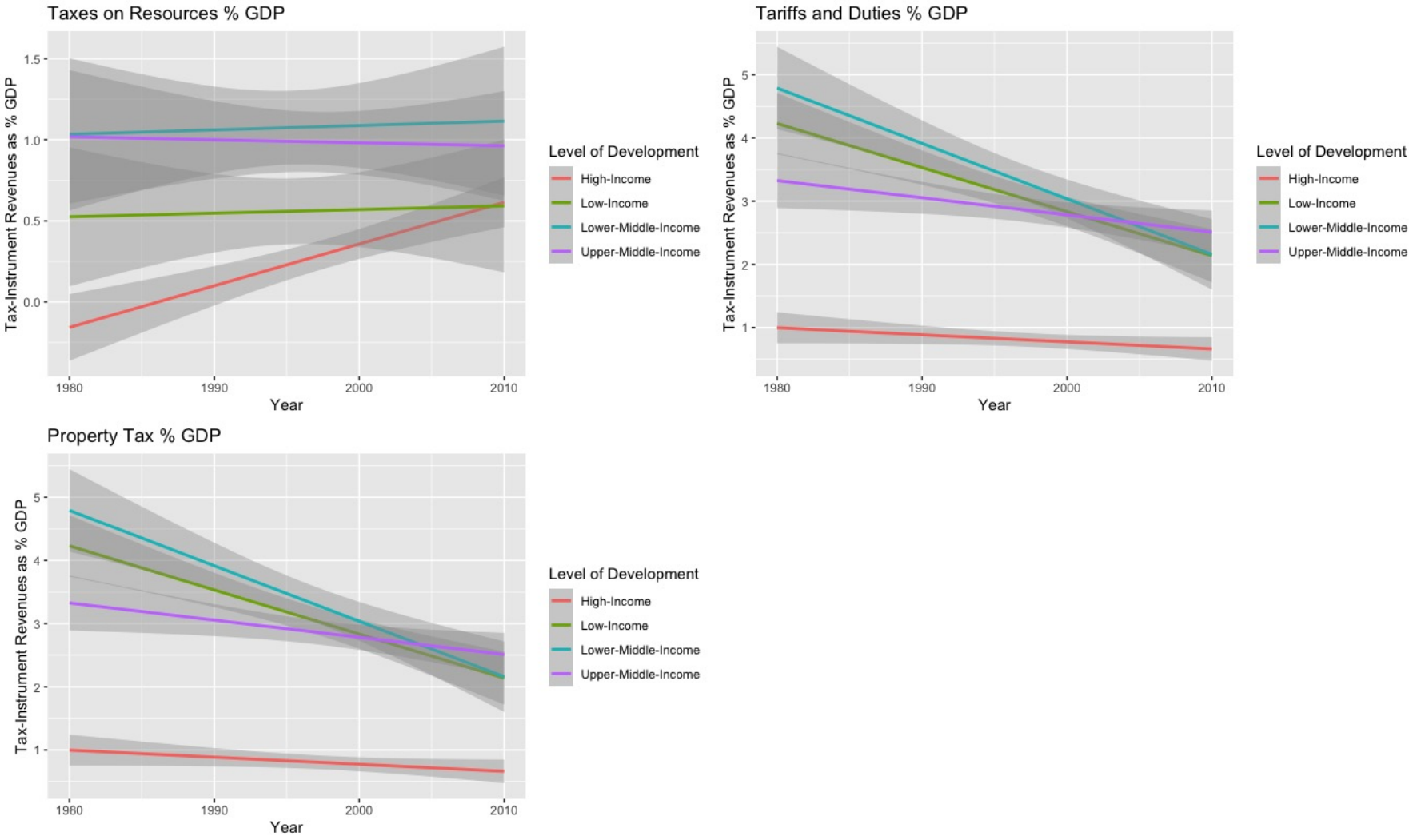


Figure 1.6: Revenue from Tax-Instrument (% of Total Taxation) for Countries at Differing Levels of Economic Development (1/2).

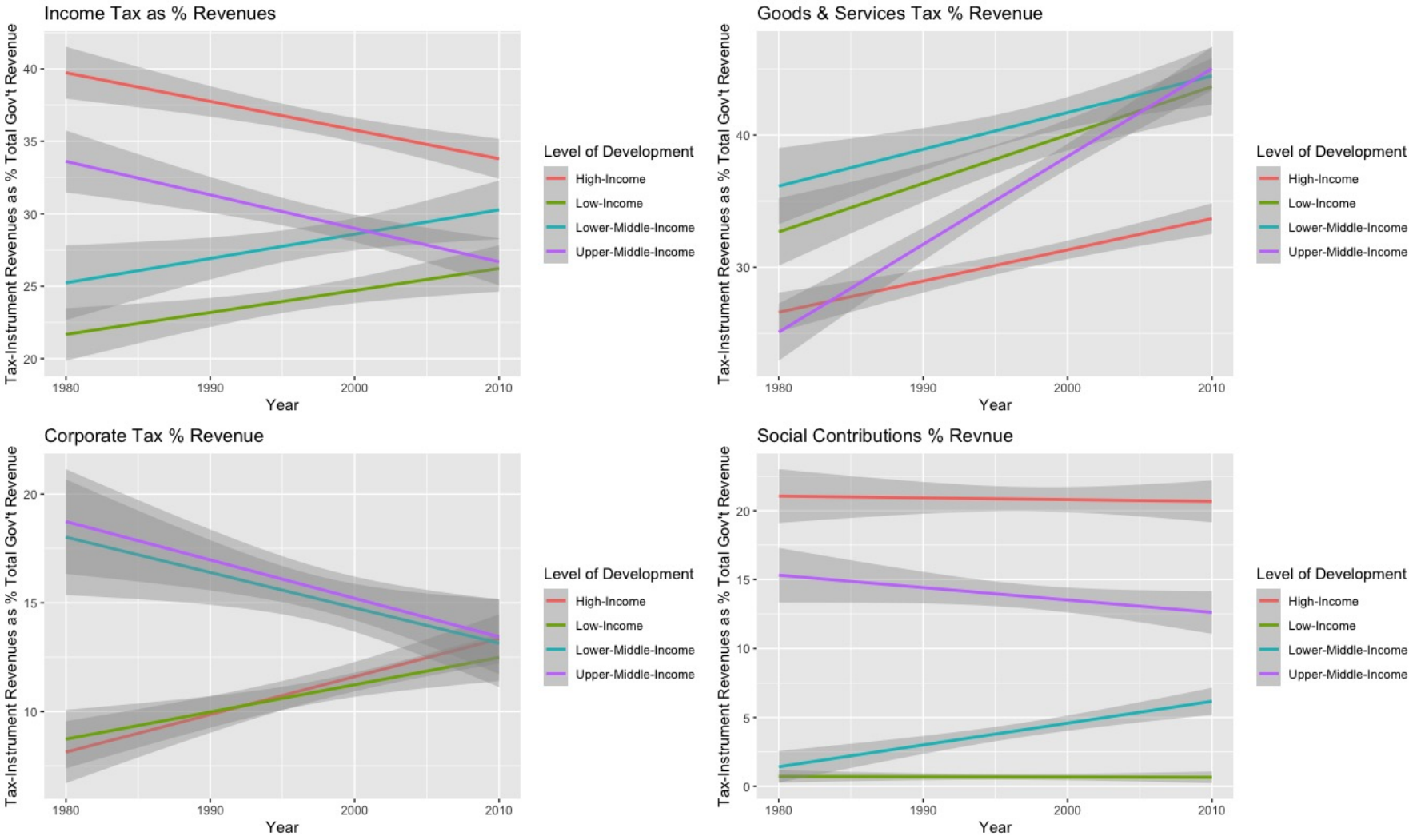
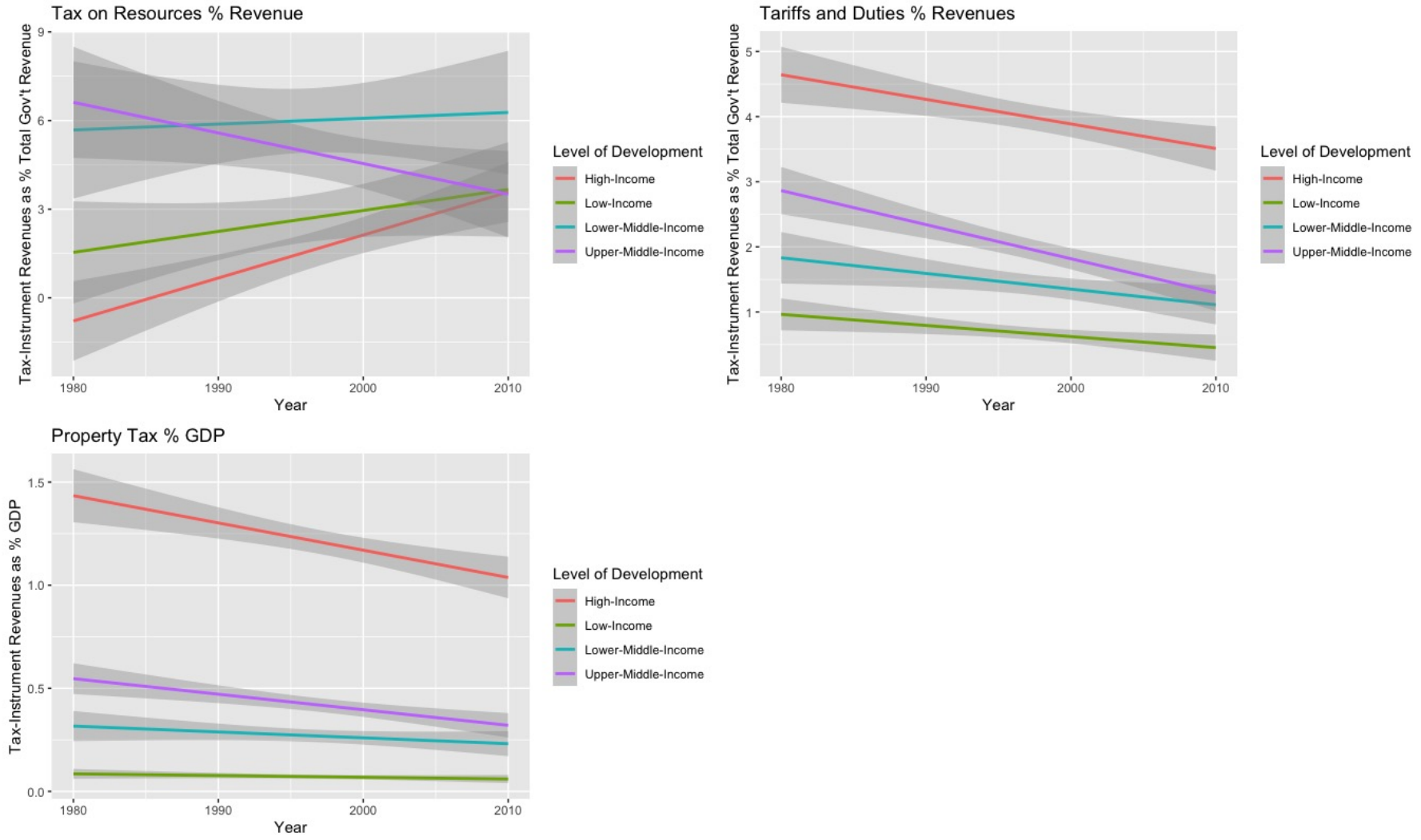


Figure 1.7: Revenue from Tax-Instrument (% of Total Taxation) for Countries at Differing Levels of Economic Development (2/2).



Cross-national variance of tax-mix is often ascribed to the differences between countries in the competence of their bureaucracies to administer tax policy. Certain tax systems, particularly those of income taxation and social security, are particularly difficult to administer and have large upfront costs. Despite the difficulties of establishing such tax-instruments as a broad-based forms of taxation, they generally offer the greatest potential efficiencies. As such, the competency of a tax administration not only serves to raise the efficiency of existing forms of taxation, but also allows for more efficient forms of taxation to be implemented.

Consider, for instance, the potential efficiencies of income taxation and value-added taxes (VAT), both being broad-based instruments that apply to almost all individuals across the entire population (since nearly everyone spends and/or earns money). However, such taxes are difficult to implement and enforce (Bird, Gendron et al., 2007; Bird, 1992). This is largely due to the relative ease with which individuals can hide information concerning their labour and consumption behaviours. Individuals can lie about how much income they earn and it is unlikely a government could closely watch all of its citizens; moreover, without adequate technological and organizational investments, it is expensive for those it chooses to monitor. Governments, then, require sophisticated systems to bring down average monitoring costs and also require voluntary compliance to reduce transaction costs (Levi, 1989). Fortunately, as economies grow there is a larger base to tax, thereby diluting the fixed-costs of a taxation administration (Kenny and Winer, 2006); since the upfront costs of administering and enforcing an income tax are high, a large economic base is required to make the instrument a feasible form of taxation (Bird, 1992; Brautigam, Fjeldstad and Moore, 2008; Profeta and Scabrosetti, 2010; Besley and Persson, 2014). Concerning VATs, while relatively easier to enforce since there are fewer businesses in an economy to monitor than there are individuals, firms may understate their performance so as to minimize taxes on their value-added activities (Piggott and Whalley, 2001).

In contrast, many taxes are easier to administer (Bird, 1992). Particularly, taxes

on imports and exports can be monitored with relatively few inputs: duties and customs officials only need to be stationed at a country's points of entry/exit (hence, relatively few officials are needed to monitor border-crossing events; namely, at ports, airports, rail stations and highway check-points). While some goods may be smuggled with relative ease (e.g., diamonds), many economic resources cannot be (e.g., crops) (Bates, 2014). Governments may also seek a cut of rents from select industries that it grants monopolistic status (through legal mechanisms). Once again, this limits the number of actors a government must hold to account and monitor.

In sum, this literature points to slow evolution within the bureaucracy as driving the shift to tax instruments that not only raise revenues, but lessen taxation's burden upon the economy (Aidt and Jensen, 2009; Besley and Persson, 2014). As the administrative capacities of a government grows, tax-mix shifts from a high percent of revenues coming from tariffs and duties; towards slowly being made up of broad-based taxes upon individuals and sales. Importantly, tax-levels are partially endogenous to tax-mix. As reliance on efficient and broad-based instruments is fostered (such as income taxation) a larger tax-take is enabled from the economy at large (for one such example, of this particular conclusion, see (Becker and Mulligan, 2003)).

Elasticity Profiles

Many studies look towards powerful actors avoiding taxes – either through evasion or by influencing the legislative process that determines what gets taxed. Herein, I will generalize a category of literature around the concept of elasticity profiles: actors have an incentive to pressure political elites for tax-mixes that minimize their personal incidence (while the incidence is shifted onto others). To illustrate the range of a literature that could be – but has not yet been – coalesced into a single category, I wish to point to similarities between two very different sets of studies: one on corporate tax loopholes (known as tax-expenditures); the other on the implementation of broad-based tax instruments that target the informal sector.

Corporate Tax Loopholes

A deep literature exists, studying "tax tax loopholes," which fit into the category of "tax expenditures." These are argued to be the product of corporate lobbying (Richter, Samphantharak and Timmons, 2009; Bouwen, 2002; Reid, 2017; Swank and Steinmo, 2002; Crocker and Slemrod, 2005)[20]. Some literature specifically studies local contexts (e.g., the United States), but there exists a broad comparative literature on the subject, focused on studying the political conditions that give rise to governments abiding the demands of corporations. This is a very well-formed topic of study. It does not, in truth, need to complicate itself with concepts of "elasticity" since the literature's theoretical premise only requires readers to understand the much simpler and digestible concept that corporations do not want to pay taxes. From this premise, the game played is simple: once a corporate tax rate has been set, the corporations that are sufficiently powerful across countries and time (determined by a host of political variables)[21] will successfully lobby to attain as many loopholes as possible so as to reduce final taxes paid (i.e., the effective corporate tax rate, post-deductions). The literature concerns itself with a simple tax avoidance game and can be successful without a concept of elasticity.

Taxing the Informal Sector

An interesting literature tackles the troubles countries face when trying to tax their informal sectors (many studies have focused on the case of India trying to introduce a VAT). Democracies are shown to face many difficulties to formalize their economies.

[20]For a more generalized piece, studying the distribution of tax expenditures for interest groups (not just corporations), see (Becker, 1985).

[21]Crucially, the politics of tax-mix literature does not equally-weight the preferences of all corporate actors in determining tax-mix outcomes. Rather, a battery of variables determine relative power. Corporations have greater power in particular instances, such as where legislation allows for greater money in politics (Bolling, 1986; Tham, 2010; Burris, 2010) or where corporations have the threat of exit given capital mobility – either due to globalization creating alternate host markets (Genschel and Schwarz, 2011; Swank and Steinmo, 2002; Felix, 2007; Seelkopf, Lierse and Schmitt, 2016) or because the corporate elite's capital-investments are largely "mobile" rather than "stuck" in fixed resources (e.g., ownership of stocks portfolios rather than ownership of hard infrastructure such as factories) (Boix et al., 2003). Likewise, situations in which corporations are less powerful, relative the political elite, also feeds into the general narrative, whereby conditions giving rise to lesser corporate power will serve to limit tax concessions (Genschel, Lierse and Seelkopf, 2016). .

First, politicians may create a pact to allow informal activities to continue, so as to not lose support of potential voters (Holland, 2016; Tendler, 2002). Second, politicians may be reluctant to implement tax-instruments (let alone raise their rates) that will place tax burden upon their informal sector voters (Piggott and Whalley, 2001; Boadway and Sato, 2009). Often, this is seen in the reluctance to implement VATs (Sharma, 2005; Roychowdhury, 2012). Even when possible to make one's labour invisible, certain purchases are difficult to hide (particularly those from large companies, including wholesalers, utilities, financial services, etc.). Much literature exists within the African context (Terkper, 1996; D'Arcy, 2012; Fjeldstad and Rakner, 2003), with recent studies of India arising to explain street vendor protests as a response to VATs (Roever, 2020).

One main takeaway from these studies: a state is most likely to succeed in establishing VATs (or formalizing their informal sector) when in a position of relative authoritarianism, else politicians will be weak to popular demands and will fail to establish an effective tax system that either (i) pulls citizens out of the informal sector (by "going after" their incomes); or (ii) implement instruments that at least pulls some tax out of individuals who cannot be brought into the formal sector (by taxing their consumption)[22].

A Host of Other Tax-Mix Literatures

A broad and varied slate of tax-mix problems are studied, focused upon particular actors and particular instruments, seemingly alien to one another. In this section I shall share a long, albeit non-exhaustive, list of such studies.

First, a recent study reviews the rise of income taxes in Prussia, as a means by the German aristocracy (the Junker) to displace tax burden onto the rising industrialist bourgeoisie (Mares and Queralt, 2020). Curiously, the Junker built a relatively efficient tax-code by innovating Germany's modern system income-taxation. This broad-based form of taxation was done to shift tax burden, but had the beneficial side-effect of enabling the government to issue taxes on the economy's largest factor of production: labour.

[22]For a sample of such studies, consider: D'Arcy (2012) and Fjeldstad and Rakner (2003); additionally, contrary takes are also available: Cheibub (1998).

Second, economists studied the optimum rate of gasoline taxation in America and the United Kingdom. They arrived at a curious finding: taxes on gasoline are only half the optimal rate in America; whereas, they are double the optimal rate in the United Kingdom. The authors speculate that this may be the result of commuters, as voters in a democracy, are powerful in the former case but weak in the latter (due to the relatively high number of drivers in America compared to the United Kingdom). Hence, the power of voting blocks may distort tax rates from their optimum (Knittel, 2014; Wachs, 2003; Parry and Small, 2005).

Third, scholars have noted (i) the potential efficiency of property taxation; and (ii) the very different ways in which countries utilize property taxation (even when its efficiency would be a relative constant). While the autocracy regime of China, for example, raises many revenues through land-leases (which, in effect, is a form of property taxation), most democracies with large home-owning populations fail to tax property despite its potential efficiency as a form of taxation (Cabral and Hoxby, 2012; Brunner, Ross and Simonsen, 2015; Liu, 2019).

Fourth, many have noted the difficulty democracies have faced to abide the advice of economists that carbon taxes are an efficient source of revenues. Many argue this is due to politicians failing to garner voter buy-in on the issue (Harrison, 2010; Reed, O'Reilly and Hall, 2019; Cherry, Kallbekken and Kroll, 2012). Other's point to theories of collective action, arguing that corporations have disproportionate powers through lobbying, even in democracies (Svendsen et al., 2001; Buchanan and Tullock, 1975).

Fifth, an evolving literature that governments intentionally do not build-out a tax apparatus able to reach those operating informally, due to their substantial voting bloc – recently conceptualized as forebearance (Holland, 2016), which has many related concepts (Tendler, 2002; Bird, Martinez-Vazquez and Torgler, 2008; Brautigam, Fjeldstad and Moore, 2008).

Sixth, recapitulating my findings from above: there is an extensive literature on the challenges of democracies with large informal sectors that seek to implement VATs. While

such taxes would increase tax efficiency by broadening the tax-base (thereby enabling lower rates of taxation), politicians are reluctant to implement policies so unpopular with large groups of voters.

Seventh, recapitulating the other set of findings from above: an extensive literature finds that a greater role of money in politics concentrates power within corporations, which can leverage power to induce favourable tax expenditures. For a more generalizable take on the role of special interest groups in creating inefficient tax codes, consider Becker (1985).

A host of other studies on a variety of tax-mix matters could certainly be reviewed. My general point, however, is to note that across these many studies, few connections are drawn. The lack of connections occurs despite similar themes existing between their individual findings: the elasticity of a tax, for a key constituency of powerful actors, drives the realization of tax-policy outcomes (whatsoever might have been efficient).

What Commonalities Can We Take Away from these Very Different Inquiries about Taxation?

Despite their disparate topics, these studies do share a focal point on affluent actors pressuring the government to select a tax-mix that disproportionately costs others in society relative themselves. Those researching Prussian income taxes appear to occupy a very alien environment to those researching gasoline taxes in modern America; likewise, there seems so little in common between Indian street vendors protesting a proposed VAT and corporate tech CEOs boarding private jets to swoon political elites in Washington. But, again, I wish to stress their common thread.

In all of these cases, we see actors, who are made powerful by their institutional context, pressure political elites to place taxes on behaviors that they either (i) do not engage in; (ii) can shift away from at relatively low personal cost; or (iii) hide from at relatively low personal cost. Crucially, these actors minimize tax-burden, requiring higher rates to be placed on others (who are not able to avoid the incidence) in order to make

up from the revenue shortfall (to maintain current levels of taxation).

The importance of power will bring me to consider selectorate theory in the next chapter. Selectorate theory will provide a framework for understanding who has power (and who doesn't) in different institutional contexts of regime type.

By way of illustration, street vendors benefit greatly from formal sector workers paying income taxes (with which the government pays for universal programs and public goods that benefit everyone). The informal sector workers avoid income taxes, whereas they must share in the costs of a VAT. As consumers they must pay VATs when purchasing from major public and private institutions (such as utilities and financial services); as sellers, they often need to pay VATs upon their wholesale purchases.

In contrast to the street vendor, a civil servant has an incentive to pressure governments to implement higher rates upon VATs and lower rates upon income. They cannot hide their income from the government (if they could, then the government is in quite a state of disarray). As such, they cannot avoid paying income taxation. Of course, the civil servant must also pay VATs; however, their payments will be shared with all other consumers in the economy (including the informal sector). A civil servant, therefore, will have incentive to pressure politicians to implement VATs at relatively higher rates, so as to make sure they can "split the bill."

Ultimately, preferences alone do not attain policy outcomes. Rather, institutions determine whose support is most important to a politician; those individuals or groups will have an advantage in attaining tax-mix outcomes that reflect their preferences. In the context of democracies with large informal sectors, politicians require the informal sector's support and, thus, face tremendous pressure use a high ratio of income to consumption taxes. In autocracies, the elites are likely to use their power to pressure political leaders towards a favourable tax-mix outcome; in the case of a large informal sector, they would establish a high ratio of consumption to income taxation. In all of the aforementioned studies, the same dynamics play-out. The topics are disparate, but their under-girding concept is the same. Individuals form into coalitions based on tax-mix preferences, which,

in turn, are based on the "elasticity towards taxation" of their economic behaviors. In turn, politicians offer favourable tax-mix in exchange for support from those who are most needed to retain office. Whose support is most needed, of course, is shaped by the political institutions of a society (e.g., regime type).

1.4 A Summary of Key Theoretical Contributions

Having placed myself within the literature, I wish to explain my theoretical intentions. I wish to use the dissertation to make two primary "broad-based" contributions to the literature (in addition to a handful of more particularlistic contributions), spoken of in the manuscript's.

The first contribution offers a political twist to a pre-existing concept borrowed from economics: elasticity. Herein, my innovation is primarily of organizing many disparate studies around a general, parsimonious, concept that might offer to explain a lot about tax-mix with a relatively small amount of moving pieces.

The second contribution is to offer a particular argument about how elasticity interacts with a selectorate to determine tax-mix outcomes. Herein, I explain how differences of tax-mix arise between political regimes, due to their particular institutions causing differences in the size of their selectorates. Many have argued that tax-mixes are the consequence of tax preferences; such studies often rely (at least implicitly) upon concepts related to elasticity. Other studies have tested selectorate theory. The combination of these two concepts, however, is narrower. Generally, this literature focuses on the study of individual tax instruments and are, moreover, circumscribed to a local context. I hope to expand the interaction of ideas about elasticity and selectorates to explain broad swaths of tax policy, which is generalizable across a broad array of contexts.

1.4.1 Individual Incentives to Shift Tax Burden based-upon the Elasticities of Taxable Behaviours

Amongst economists, elasticity references the extent to which the supply and demand of a good or service will contract in the context of price increases (or the extent to which supply and demand expands in the context of price decreases).

In the context of this paper, I explore how individuals engage in many different economic behaviors that are potentially taxable. Upon being taxed, individuals have different abilities to react. Some can shift-away from the taxed behaviour with relative ease and little loss of utility. Others face high costs to shift-away from their *status quo* behaviours (in some cases, the forgone utility or cost of altering one's behaviour is higher than the price of accepting the increase in taxation). As such, each behaviour of each individual has a particular "elasticity towards increased taxation." Essentially, this is to say, individuals have different "costs" associated with trying to reduce their tax incidence (in order to engage in less of a behavior when faced with higher taxes upon said behavior).

It is potentially helpful to think a citizen's elasticity to taxation as being related to the net benefit of "economic resources saved through reduced tax-incidence" minus "dollars lost to trying to reduce tax-incidence." Of course, "dollars" here should be broadly conceived of as any sort of lost utility: be it forgone time, money, effort or pursuing a "second-best" consumption or labour decision so as to avoid taxes on the "first-best" behaviour.

Of interest, an individual who reduces tax-incidence will still benefit from government spending on public goods and universal programs (they are only fully excluded from the benefits of strict "user-pay" programs). As such, individuals will have an incentive to offer their support for those (politicians who support) tax-mixes for which they can easily avoid tax-incidence. Additionally, individuals have an incentive to support tax-mixes that shift tax-incidence onto others who cannot easily avoid it. In such a case, tax revenues are still created from which the individual benefits, all-the-while minimizing

their personal costs.

An Illustration at the Extreme

At an extreme, we might think of a government that decides to raise revenues by placing a tax upon penicillin and insulin. (This is not a particularly moral example.) For most, who do not need these prescriptions, tax-incidences will be zero; notably, these individuals did not need to incur any personal costs (to their wallet or well-being) in order to reduce their taxes down to zero (upon implementation of this tax instrument).

In sum, if you do not need penicillin or insulin, then there is no cost associated with reducing your tax incidence down to zero dollars. However, for someone who needs these pharmaceuticals, not only are they going to be forced to accept some level of tax incidence, due to their need for these prescriptions, but there will also be very real costs insofar as they try to reduce their tax-incidence. To buy less penicillin or insulin would negatively impact their utility. This could be a direct dollar impact (i.e., missing work due to illness) but would largely be in the form of forgone utility (i.e., impact upon their well-being, such as living with risk of possible death, general pain and discomfort; etc).

An Illustration at the Margins

In any country, citizens vary tremendously in their use of the automobile. Some might do away with it altogether, while others are "Sunday drivers" and, yet others, daily commuters. Likewise, some economic sectors are heavily reliant on vehicles (e.g., the transportation industry) while others not (e.g., the technological services industry). Faced with increased gasoline taxes, people and businesses face very different costs both in terms of taxes and impacts to well-being in trying reduce the tax's incidence.

For some individuals living a walkable lifestyle, or businesses providing technological services, such taxes are ideal: they produce government revenue from which they might benefit, but need not pay. Few costs are incurred in avoiding the taxes, because their *status quo* behaviors need not change greatly to reduce tax-incidence. Yet, for oth-

ers, such as individuals commuting to work by car or businesses offering trucking services, the costs will be great. Tax incidence will be incurred and, additionally, efforts to reduce incidence will incur yet other costs (i.e., either in dollar-terms or, more generally, in terms of utility due to shifts in behaviour towards "second-best" options that avoid the tax). Individuals that previously found public transit an inconvenience might now justify the cost to offset the new taxation. Trucking services may need to overhaul their fleet to electric vehicles. As such, even if the most direct cost (i.e., the tax) are largely avoided or offset, nonetheless there will be costs of altering behaviors away from a previous optimum.

My First Contribution in General Terms

Crucially, many studies circle around this concept (of a taxation's elasticity) without taking the extra step of pointing it out. Arguably, I am just playing at semantics: the literature has been talking about many ideas that fall under the umbrella of elasticities, it just has not adopted my particular terminology. The contribution might, then, seem trite since it would not change anything of substance about that which came before. . . not unlike our protagonist in *Le Bourgeois Gentilhomme*:

> – For more than forty years I have been speaking prose while knowing nothing of it, and I am the most obliged person in the world to you for telling me so!

I would suggest, however, two possible effects that are tangible. First, to learn the literature – to internalize what it has to say – it is tremendously helpful to consolidate a jumble of intuitions into a select few central tenants. Ideally, one has a limited list of competing arguments in debates over the causal determinants of tax-mix (rather than an expansive list). Secondly, there is power in parsimony. By defining key tenants shared across a multitude of ideas, we might better explain a (relative) lot with a (relative) little. A host of one-off arguments, each explaining relatively narrow situations, makes it difficult to draw parallels between findings across different topics of taxation research; yet,

findings in one area may be explained by theoretical concepts that can be extrapolated to other contexts. On these two merits, I believe the contribution to have pragmatic purpose.

1.4.2 The Selectorate's Incentive to Shift Tax-Burden

The selectorate is group of people from whom a political leader must recruit support in order to gain (or retain) public office. Without forming a winning coalition from their support, the political leader will be out of office. The size of the selectorate (as a percent of the total population) is my key variable of theoretical interest. The size of a selectorate is influenced by political institutions (De Mesquita et al., 2002; De Mesquita and Smith, 2011; De Mesquita et al., 2005).

Regime type is a major institutional factor determining the size of a country's selectorate. In autocracies, selectorates form a small percent of the population. In democracies, selectorates form a large percent of the population[23]. Of course, variation exists within each category as well. The institutional design of electoral systems in democracies, for instance, can broaden a selectorate (i.e., Proportional Representation) or narrow it (i.e., Single Member Plurality) (Iversen and Soskice, 2006). Additional laws may further narrow a selectorate: certain groups may be restricted or banned from voting (e.g., Jim Crow laws) or certain blocks of votes may be given lesser weight in determining electoral outcomes (e.g., gerrymandering).

Selectorate theory offers flexibility to formalize many arguments made about the politics of taxation. Many studies point to affluent stakeholders (voters, businesses, interest groups, etc.) pressuring politicians to implement tax codes that they might largely avoid paying (either by shifting the tax onto behaviors they are not engaged-

[23]Note that I will always assume the state to have some minimum amount of autonomy, akin to Peter Evan's notion of embedded autonomy (2012); however, whereas the political elite – potentially including the civil service – has quite a large amount of power in cases of autocracy, this independence to act of its own will is reduced in the context of functioning democracies. Hence, the amount of "embedded autonomy" will be quite little in the context of democratization leading to disproportionate power in the hands of a selectorate much larger than those occupying key positions of government.

in or by shifting the tax onto behaviors they can easily substitute away from or hide). These literatures are not necessarily united under a common banner, but include common themes of studying who is (or is not) an essential supporter for politicians seeking to retain power[24] and whether the tax codes are favorable to those whom the politician most needs to court.

Many look to the influence of money in politics to understand when corporations will receive loopholes (also known as tax expenditures) (Burris, 2010; Tham, 2010; Bouwen, 2002). As a refinement, some study the credibility of a corporation's threat of exit; politician are forced to heighten their effective weight within the selectorate: if highly mobile, their exit could lead to a watershed of economic damages that obstruct their maintenance of office (Felix, 2007; Boix et al., 2003).

Other studies point to the "above optimal" tax rates upon gasoline in the United Kingdom, where car-drivers are a weak constituency, in contrast to "below efficient" tax rates upon gasoline in the United States, where car-drivers are a powerful constituency (Parry and Small, 2005).

A recent study demonstrates the role of the Prussian nobility to create income taxation, so as to place tax-burden upon the rising industralist bourgeoise, while conveniently offloading potential taxation upon themselves (i.e., traditional land/property taxes) — thus shifting tax burden (Mares and Queralt, 2020).

A large literature on the informal sector, which I will speak about at length in Chapter 2, notes how democratic politicians in developing countries fail to tax the informal sector workers since they form large voting blocs. In some cases, they outright fail to implement VATs in the tax-code, which would otherwise have helped to split tax-incidence between informal and formal sector workers (Piggott and Whalley, 2001; Fjeldstad and Rakner, 2003; Roychowdhury, 2012; Sharma, 2005; Hoseini and Briand, 2020; Chaudhuri and Dasgupta, 2006). Developing democracies also, more plainly, sometimes fail to even try collecting taxes; herein, politicians enable the informal sector to

[24]Additionally, many studies concern when a particular actor will become a necessary component of a politician's selectorate.

exist (popularized as forbearance by Alisha Holland 2016; and previously spoken of by Judith Tendler 2002). Interestingly, in a comparative study of Lesotho and Rwanda, Michelle D'Archy (2012) finds that autocratic Rwanda was able to establish an effective income taxation administration, while democratic Lesotho could not, exactly because of the latter's political pandering for votes in contrast to the former's apathy to the societal mass of informal sector workers.

While these studies use different terminologies and generally confine themselves to the study of individual tax instruments that exist particular localized contexts, they tend to share common themes and findings. Political leaders seek to appease those individuals or firms whose support they need (such arguments map onto an idea of a selectorate). As a result, politicians offer favorable tax-mixes to these actors (i.e., disproportionate use of tax instruments whose incidence might be shifted onto others). Hence, even while not citing tax-elasticity specifically, an argument is nonetheless presented whereby (i) individual preferences for tax-mix are shaped by the elasticity of their behaviors to taxation and (ii) individuals seek to shift taxes onto others beyond their winning coalition.

This leaves me to summarize the key theoretical contributions that will be the focus of the following two chapters. Crucial theoretical points include that (i) politicians want the support of their selectorate; (ii) members of the selectorate want tax-mixes for which they will have (a) generally, a low incidence and (b) low costs to attain a low incidence, all the while (c) shifting the incidence onto others.

From this general theory, specific predictions follow. First, narrow selectorates, as seen in autocracies, will develop tax-mixes that shift tax incidence onto the masses and away from the elites of society. Second, broad selectorates, as seen in democracies, will develop tax-mixes that shift tax incidence onto relatively narrow groups, as a consequence of politicians needing to court the support of broad coalitions in society. Third, in countries with broad selectorates (democracies) where the population has largely similar "elasticity profiles" (i.e., citizens are generally similar in their taxable economic behaviors), their homogeneity results in burden-shifting becoming infeasible. In this context,

the selectorate can be taxed on their inelastic behaviours. This "exception to the rule" sees democracies overcome the challenge political leaders appeasing voters with lower incidence at the cost of greater inefficiency (in heterogeneous democracies, this will be framed as a "incidence-effect" vs "efficiency-effect" trade-off).

1.5 Conclusion

In the following chapters, I wish to build out the concept of elasticity and demonstrate its political effects. I will demonstrate how we can understand tax-mix outcomes as a consequence of individuals having a preference for certain tax instruments over others; in turn, this preference is endogenous to the individual's ability to reduce tax-incidence given their "elasticity" of behaviour. Of course, not all individuals in a society can be successful in getting their way. Therefore, I will invoke selectorate theory to explain how politicians ultimately support policies that shore-up the support of key constituents: their selectorate. Keeping their most essential supporters happy is key to holding political office – dissatisfaction leads to the possibility of lost support and, thus, loss of political office. In this manner, the preferences of some are afforded power over the preferences of others; consequently, countries that are otherwise similar, but have different political institutions altering the size of their selectorates, will arrive at vastly different tax-outcomes. Tax-mix will depend upon the interaction of (i) the distribution of elasticity profiles across citizens and (ii) which actors, amongst the citizenry, have been selected into the selectorate by society's political.

Chapter 2: A Theory of Taxation: Elasticity Battles & Democracy's Informality Trap

Abstract

Oftentimes, the political economy of taxation focuses on conflicts between income groups, in order to account for variations in tax-levels and tax-progressivity. The focus, however, not only overlooks other salient cleavages, but is unable to explain aspects of taxation (such as tax-mix) for which income-based groups provide neither the most salient, nor generalizable, impetuous for conflict.

This paper argues that citizens have an incentive to battle over tax-mix based upon the avoidability (more generally, "elasticities") of their taxable behaviours. Leveraging selectorate theory, I consider the greater challenges democracies face (relative autocracies) to implement efficient tax policy: because political leaders in democracies need broad coalitions of supporters to gain (and maintain) office (relative autocrats), the consequent tax-mix will be more elastic (e.g., more avoidable) for a larger subset of the population. Of consequence, this will implicate inefficiencies harming economic production.

To test my theory, I consider how the informal sector implicates income taxation differently in autocracies than democracies. Given an increase of informality, restoring the efficiency of tax-mix requires decreasing taxes on formal sector work; however, evi-

dence drawn from an international panel demonstrates that democracies fail to do such a "rebalancing," whereas autocracies succeed. To redress certain limitations of fixed-effects models for identification, mechanistic checks and an "effect of regime-change" analysis is performed.

2.1 Introduction

This paper is premised upon a curious scenario whereby democracies, relative autocracies, have a chronic incentive to "leave free money on the table" through inefficient tax policy. While an established literature speaks to the effects of democratization on taxation's overall "level" and "progressivity," my contribution speaks to the, relatively thin, "tax-mix" literature. In other words, I offer an account of how governments choose between possible revenue sources (e.g., the proportion of income vs. consumption taxation, as a percent of government revenues).

I argue that government leaders prefer (i) to stay in power and (ii) ceteris paribus, taxes that are inelastic (e.g., difficult to avoid) for their citizens. Citizens, in contrast, prefer taxes that are elastic relative their own personal behaviour (e.g., easy to avoid), so as to shift burden onto others. A tension arises that refracts through institutions. While autocratic leaders maintain power by retaining relatively few supporters, democratic leaders require broad coalitions of support and, thus, favour taxes that are elastic to (relatively) large segments of society. Democracies' consequent "narrowness" of tax-base causes inefficiencies in their tax-mix.

To test this theory, I consider how the informal sector implicates income taxation differently in autocracies than democracies. I draw upon an international panel to demonstrate that increased informality in democracies corresponds with increased taxation of income (upon the formal sector), despite its (corresponding) "narrowness" as a tax-base. To avoid many pitfalls of a naive regression (with respect to my research design), I assess: (i) mechanistic checks implied by the theory; and (ii) an "effect of

regime-change" analysis through a method I have deemed "tax flips." By this method, I test for my theory's prediction of ruptures in tax policy upon sudden democratization (or backslide). In concluding, I reflect upon remaining vulnerabilities weighing upon prospects for identification. I suggest potential avenues by which confidence might be improved.

Ultimately, I find support for a hypothesis that democracies increase taxation upon income (while lessening taxes on consumption and property) given rising informality; whereas autocracies pursue opposite reforms within the same context. The trend is reflected in changes to (i) amounts of revenue derived from particular taxes; and (ii) legislated rates of taxation. I observe this relationship through fixed-effects models tracking variations of informality occuring *within* countries, while controlling for effects predicted by alternate theories. Likewise, in the context of "democratization," increased usage of income taxation is witnessed given large levels of informality (whereas less is used given small levels of informality), whereas autocracies behave in an opposite manner.

2.2 Motivating Puzzles

This dissertation chapter is built on a theoretical infrastructure made up of four "matters of consequence." Primarily, I ask what systemic features drive democracies to inefficient tax policy, in terms of tax-mix. Upon building a theory and establishing scope conditions, I pursue an empirical application for which my theory would be relevant. Thus, I consider a second issue: conflicts between the formal and informal sectors may drive democracies (but not autocracies) to inefficient tax outcomes, which, in turn, may trigger "informality traps." Citizens reliant upon the informal sector have an incentive to shift tax onto the formal sector, resulting in a tax-mix that disincentivizes its future development (thus, adding even more individuals – who become voters – into the informal sector).

Beyond these two immediate concerns, two additional theoretical concerns moti-

vate this chapter (but play-out in elsewhere in my manuscript: they are slightly beyond the scope of my work here).

First, I am interested in building a theory to explain how government officials need to make strategic decisions about where to place tax burden in the economy. I call this "planned inefficiency." A functioning market economy has institutional prerequisites that are costly; moreover, the market is unable (without a centralized authority) to provide these foundations for itself. (Hence, the myth of the 'free' market.) Just to provide the basic public goods that are necessary for markets to function (let alone those public investments that are unnecessary but beneficial), governments must raise substantial revenues. Curiously, while central planning may not be good at maximizing the efficiency of economic transactions, it may nonetheless be good at minimizing the inefficiencies of raising the market's prerequisite costs. Rather than a minimalist, and neutral, state that institutes flat tax rates, planned inefficiency suggests that the state should discriminate between economic transactions; in doing so, the state may implement higher tax rates on relatively inelastic transactions occurring within the economy. (This may constitute a form of Ramsey taxation (1927).) Paradoxically, in this scenario, instituting flat-rules to maximize the efficiency of the market's "parts" (i.e., individual transactions) would not maximize the efficiency of the market system as a whole: to minimize the macroeconomic burden of taxation, select units must be intentionally endowed with disproportionate taxes (and, thus, inefficiencies upon their 'part' of the economy).

The theory of planned inefficiency, however, assumes a benevolent dictator. My thesis seeks to establish when planned inefficiency can actually be carried out, given political obstacles. One key consideration is the state's relative autonomy (or lack thereof). Will the state be sufficiently insulated from narrow interest groups and, even, the voters? Many studies review the importance of having autonomy from particularistic interests, but this chapter focuses on the state's autonomy from the electorate. Do voters get in the way of good, technocratic, policy? To me, a core question of planned inefficiency asks: can democracies succeed at assigning tax-incidence disproportionately upon the

most inelastic elements of their market economy?

Finally, I concern myself with linking the Robin Hood puzzle to the Free Lunch puzzle. Canonical models of political economy contend that, as democratization expands "the vote" to citizens of increasingly lower incomes, their newfound power will be used to increase their incomes by "soaking the rich" (i.e., demanding redistribution)[1]. Despite the intuitive appeal of theories consistent with the above schematic, abundant countervailing empirical evidence has brought about the Robin Hood puzzle, which asks, "Why so little redistribution?" (Lind et al., 2005). Redistribution is not greatest in those democracies with the greatest pre-tax inequality, but the least. Likewise, evidence that democracy increases redistribution relative autocracy remains ambiguous[2], with many contending that democracy's "treatment effect" runs in the opposite direction[3].

While many theories have arisen to explain-away the Robin Hood paradox, most do not uproot the underlying logic of the foundational model: the same parameters remain in play (that low-income voters seek to "soak the rich"); however, they add a variety of *ad hoc* qualifiers as obstacles that are blocking the predicted end-result from arising (i.e., the end result that would happen, given the mechanisms of the foundational models)[4]. Hence, redistribution remains *a priori* an income-based, societal, conflict that is mediated by the (institutional) distribution of power. The relative poor still seek redistribution, and the relative poor still exercise greater power over policy in democracy than autocracy. Hence, theories built upon the Robin Hood paradox tend to graft *ad hoc* arguments atop of the canonical models: variables that are exogenous to the foundational models serve to dilute democracy's tendency to empower the preferences of those with

[1]Examples include, but are by no means limited to: Mill et al. (1861); Meltzer and Richard (1981); Romer and Rosenthal (1979).

[2]E.g., for instance, while some papers support that democracy does aid the poorest (Blaydes and Kayser, 2011), others find results to be a toss-up or heavily conditional (Mulligan, Gil and Sala-i Martin, 2004; Albertus and Menaldo, 2014).

[3]Directed towards the Robin Hood puzzle, the following studies note that redistribution falls with inequality (Korpi and Palme, 1998; Moene and Wallerstein, 2001; Bradley et al., 2003) whereas other note a generally greater level of inequality (Reuveny and Li, 2003)

[4]The potential obstacles are many, including: union power (Mares, 2006); electoral institutions (Iversen and Soskice, 2006); exposure to economic liberalization (Swank and Steinmo, 2002); the existence of "distractions" in the form of other salient policy-dimensions, such as religion(De La O and Rodden, 2008; Savage, 2020; Iversen and Goplerud, 2018); etc.

lower incomes. In being framed as such, while allowing for variation across democracies, such theories nonetheless suggest that redistribution in democracies will be "bounded" above the amount of redistribution observed in autocracies (even if it underachieves expectations).

An alternate approach to explain the Robin Hood puzzle would borrow from the internal logic of the workhorse model in order to find counter-acting mechanisms, *a priori*, that reduce democracy's prospects for redistribution (rather than appending *ad hoc* mitigations). Indeed, the Robin Hood puzzle has been (partially) explained by deploying yet another empirical curiosity of the welfare state: the Free Lunch puzzle. This puzzle makes note of conventional thinking: a large welfare state should implicate macroeconomic inefficiency and, thus, create economic disadvantages for large welfare states; however, empirically, democracies with high-levels of redistribution do not appear to be paying such a price. Some suggest the solution to the puzzle rests in tax-mix: supply-side efficiencies may reduce the effective cost of providing greater redistribution, thus enabling greater redistribution (Lindert, 2003). In short, democracies that redistribute more will be the ones to use more efficient tax instruments (and to use each tax instrument to the appropriate extent).

In this paper, I will study the efficiency of tax-mix across regime type. I will observe how democracies tend towards inefficient tax-mix relative autocracies, except under very particular circumstances (such circumstances, in turn, may explain those cases in which democracy does redistribute highly)[5]. In doing so, I hope to connect the Robin Hood and Free Lunch puzzles. Importantly, democracy's tax-mix inefficiencies may result in a higher effective cost to pay for redistribution, thus disincentivizing such spending relative autocracy.

[5]Namely, given a homogeneity amongst citizens in the elasticities of their taxable behaviours and/or given civic mindedness in voting.

2.3 Literature Review: the Demand & Supply Sides of Taxation

The political economy of taxation can be divided into (i) demand-side explanations, which tend towards leveraging income-based cleavages in society to explain tax-levels and progressivity; and (ii) supply-side explanations, which largely explain tax-mix. Demand-side explanations are more prominent in the literature, for the obvious reason that they simply "invert" the findings of political economy's literature on the welfare state. The link is natural: for every dollar demanded by society's winning coalition, there is an "equal and opposite" requirement for the government to raise revenues. Hence, we are studying taxation from the perspective of a winning coalition's question of "what (and how much) do I want taxation to buy for me?" By studying how much spending the winning coalition of a society wants across a set of goods – generally categorized as rents, redistribution and public goods – the amount of taxation required is simply the sum. Hence, we arrive at the political economy of taxation's demand.

As such, the demand-side study of taxation requires an understanding of the major components of government spending. The literature seeks to understand the effect of democracy, relative autocracy, upon demand for redistribution, public goods and rents. Herein, theorists will model (i) individual preferences as driven by income-maximization; and (ii) the distribution of power across income-groups in democracies relative autocracies. Certain canonical formal models suggest that democracy will create a higher demand for redistribution and public goods, but less for rents[6].

Demand-Side Efficiency Considerations

The efficiency consequences of these different forms of spending vary, of course. Rents are, by economic definition, inefficient transfers. Income is shifted towards elites

[6]In particular, Selectorate theory (De Mesquita et al., 2005) and Hausken (2004) speak to these elements, whereas a host of other models speak each item separately.

without economic production in return[7]. Public goods provide the clearest society-wide efficiency benefits, as markets alone cannot provide them (let alone optimally). Redistribution spending presents a difficultly for efficiency evaluations; it carries distortionary implications, yet also has offsetting effects (for instance, upon aggregate demand)[8].

The efficiency consequences of the demand for taxation can be split into two sources: tax levels (required to arrive at a level of spending on public goods, rents and redistribution); and tax-progressivity. The literature on optimal tax policy seeks to isolate the marginal cost of raising an additional dollar of government revenue (Feldstein, 1999; Hausman, 1998; Mirrlees, 2006). Following Laffer (2004) and Wanniski (1978), the economic cost of raising a dollar of revenue increases for every additional dollar raised. Economic burden (i.e., deadweight loss) ensues due to disincentives vis-a-vis the profit motive and distortions upon the price mechanism. With every dollar raised, the cost of the next dollar increases. At a certain point, a marginal increase in the tax rate will draw less revenue.

Often Laffer's observation is used to make sense of the costs of progressivity: how many dollars are removed from the economy's total production in order to transfer one-hundred dollars from the wealthy to the poor. Okun (2015) provides the analogy of a "leaky bucket" to make sense of the economic cost of redistributing a dollar from the rich to the poor: to shift a certain amount towards those of low-income, how much money (above this amount) must be "drawn-out" of the economy knowing that a certain amount will "leak-out" in the process of being transferred[9]?

[7]Unless, of course, the rent is design to create a public good or redress an externality, such as an industrial base providing complementaries necessary for other industrial firms to enter the market.

[8]Moreover, from the perspective of enabling other capacity building programs and/or maintaining social peace, which is basic to the market's functioning, they may offer an element of public goods provision by preventing social upheaval. Plausibly, redistribution's efficiency follows an "inverted-U" as quantity of redistribution increases: distortions might eventually grow to a point that they offset public benefits.

[9]Additional empirical takes on the theory include: (Korpi, 1985; Beckman, Formby and Smith, 2004; Pirttilä and Uusitalo, 2010). Okun further notes that putting a dollar amount on the "leak" may help us understand our own moral positions in terms of how much our society should be redistributing. Is one content to lose a quarter on every dollar moved?... a half-dollar?... etc.

Supply-Side Efficiency Considerations

The literature on the supply-side of taxation takes a different tact. Whereas the demand-side largely speaks to taxation as derivative to the politics of the welfare state[10], the supply-side reveals that an independent "politics" operates in decisions over the structure of tax instruments and their usage. In other words, the politics of taxation is not simply a restatement of the politics of spending, but has its own separate set of actors, incentives and institutional constraints (Peters, 1991).

Understanding the supply of taxation requires transcending the focus of the welfare state literature, whereby conflict occurs across income-based divisions in society (hence, income distributions are leveraged to understand tax levels and progressivity). In contrast, many tax instruments have unclear incidence-effects across income-levels[11]. While still assuming income-maximizing individuals, the supply-side literature debates how tax-mix will play-out amongst actors seeking to avoid tax incidence (Hettich and Winer, 2005). Here coalitions form along the lines of "taxable behaviour profiles." Citizens with similar "elasticities" towards tax-instruments will have similar preferences regarding tax-mix; additionally, they will have a common interest in pressuring the government for those policies that reduce their own incidence while passing incidence onto others.

While the purpose of studying the demand for taxation is obvious (it is, after all, what affords us government programs that implicate human well-being), the supply-side of taxation matters too. Beyond (generally morbid) academic curiosity, the politics of the supply-side will implicate the efficiency of raising revenues, which, in turn, changes the effective costs of taxation. Ultimately, tax inefficiency limits what government programs a society can afford: the politics of taxation's *demand* is partially *endogenous* to the pol-

[10]I.e., tax-levels and progressivity directly arise from a winning coalition's demand to maximize income from net government transfers.

[11]Corporate taxation being a common example – which not only has a mixed incidence between consumers and investors (Felix, 2007), but also is impacted by other exogenous variables, such as a country's population and overall economic size (GDP); tariffs are also cited, given their differential effects on workers of export-oriented vs. domestically-oriented industries.

itics of taxation's *supply*, due to efficiency-considerations. (Considering the Robin Hood puzzle, it is entirely plausible that the unexpectedly low redistribution of democracies occurs do to inefficiencies in the "supply-line" of revenues, due to the winning coalition's demands for particular types of taxation that they might avoid).

Herein, it is crucial to understand the basic public economics (i.e., efficiency) of tax-mix, where a benevolent dictator determines policy. Given a range of possible tax instruments, the policy-maker maximizes efficiency by taxing behaviours that are (i) broadly held across the population and (ii) highly inelastic and/or unavoidable relative citizen behaviours. A tax that is "completely avoidable" means that the individual will not engage in the taxable behaviour, regardless of marginal decreases to the tax rate (whereas a "completely unavoidable" tax means the individual cannot reduce their engagement in the behaviour, despite marginal increases in the tax rate). A tax that is relatively "elastic," means the citizen can easily shift away (i.e., at a low cost) from the economic behaviour that incurs a marginal tax increase (whereas, relatively inelastic taxes are economically costly to substitute away from)[12].

When many people engage in a behaviour that is taxable, and the behaviour is difficult to reduce, then a relatively low tax rate may be used to raise necessary levels of revenue (thus minimizing distortions). When few engage in a behavior, or the behaviour is easily reduce, then a relatively high tax rate must be used to raise necessary levels of revenue (thus increasing distortions).

Proceeding I wish to briefly consider the literature on the relative efficiency-performance of democracy in terms of the demand and supply of taxation. I wish to demonstrate how an inefficient tax-mix can be seen as puzzling, insofar as we remain stuck-up on a model of income-based societal conflict. Rather, other salient cleavages (namely, of elasticity) need to be considered in order to build a comprehensive, generalizable, model of tax-mix.

[12]N.b., an avoidable tax is a special case of an elastic tax, whereas an unavoidable tax is a special case of an inelastic tax (both represent corner solutions).

2.3.1 The Demand-Side of Taxation: Democracy's Means-Efficiency, Ends-Inefficiency

Fears over democracy's effect upon economic efficiency[13] are long-standing, with its threat generally couched through a "tyranny of the majority" framework (Mill et al., 1861). Scholars note that democracy, unlike autocracy, empowers the relative poor in society, who have an incentive to "soak the rich" by demanding redistribution (Meltzer and Richard, 1981; Romer and Rosenthal, 1979). Disincentives and distortions arise due to the ensuing tax-levels and tax-progressivity, which limits society's prospects for economic prosperity. The inefficiencies of democracy, thus, grow-out of a societal conflict amongst actors. Their primary incentives are income-based, resulting in a battle for the spoils of redistribution.

However, demand for redistribution is but one dimension (i.e., mechanism) through which political institutions implicate the economy's efficiency. Scholars point to alternate dimensions by which democracy creates an incentive system that promotes efficiency. Namely, while self-interested voters may not choose the "best" (i.e., most efficient) *ends* for policy[14], elections do enable self-interested voters to hold leaders accountable for the wastefulness of the *means* of policy. Because voters have a credible threat to remove leaders from office, leaders have an incentive to *reduce wastefulness* when paying for and providing the ends of policy (i.e., political and economic goods)[15,16]. In contrast, autocrats, lacking such accountability, often profit by forgoing efficient means. Indeed, their

[13]For the purposes of this paper, the standard of efficiency evoked is the relatively commonplace measure that Jones' labels as 'public profits' (Ch. 8, 1991). Public profit is the difference between the social benefits and social costs of an economic activities or program; that is, "the difference in the value to society between what the [economic activity] takes out of the economy (costs) and what it puts back in (benefits) in any one period" (ibid., 189).

[14]E.g., excessively high redistribution; the regional misdistribution of public goods (Lizzeri and Persico, 2001; Olson, 2009); under-investment in capabilities of minorities ((Alesina, Baqir and Easterly, 1999; Alesina, Glaeser and Sacerdote, 2001); etc.

[15]Namely, the literature on the creation of rents in autocracy:

[16]Profitable rent seeking opportunities may be pursued at a personal or systemic level. On the former, rent-skimming occurs through the leveraging of the state's apparatus, revenues or professional positions for personal purposes (e.g., embezzlement, vanity projects, nepotism, etc); on the latter, rent-skimming occurs through more systematic means such as the implementation of policies that forgo maximum efficiency for greater generation of rents that are easily captured by elites (e.g., structuring the economy around key monopolist industries, etc).

rule may depend upon inefficient means: intentionally generating rents may serve to maintain the support of elite allies, on whom their power stands in the balance(De Mesquita et al., 2005; Hausken, Martin and Plümper, 2004). To be certain, autocrats may be deposed by mass citizen action; however, the costs for citizens to attain this outcome (e.g., revolution) are far higher than in democracy (e.g., voting), in addition to being riddled with disproportionate collective action problems[17].

A political leader could have the same preferences whether placed in a autocracy or democracy, but their agency would differ. The autocrat is afforded a "buffer" given the high costs for citizen's to pursue his removal. Thus, a political leader in an autocracy has greater power over decisions concerning both the ends and means of policy alike, relative democracy; however, the efficiency consequences of the leader's incentives will vary depending on whether the means or ends are at stake. Democracies incentivize leaders to select the best means through which to attain the electorate's chosen ends[18], however inefficient those ends might be[19]. After all, inefficiencies lost to the means cannot be ploughed back into affording further ends.

A useful example, demonstrating both mechanisms operating simultaneously, exists in the provision of public goods[20]. On the one hand, democratic leaders will enhance efficiency by (i) providing greater public goods due to their responsiveness to broad coalitions of citizens, who benefit by such spending; all the while, also (ii) reducing the revenues lost to rents due to their relative unresponsiveness to elites. On the other hand, democratic leaders will inefficiently over- (and under-) provide funds for programs so as to favour electorally significant coalitions, which will produce inefficient distributions of government spending insofar as they provide disproportionate benefits to crucial supporters (Stasavage, 2005). Similar analyses carry-over to understanding when negative

[17]Which serves to exaggerate the already present cost disparity relative democracy.

[18]Naturally, the citizen's ability to keep leaders accountable will be restricted by the salience of the means being deployed and their ability to monitor the leadership's decisions; however, insofar as these parameters are both greater than zero, democracy should offer a net-positive effect over autocracy.

[19]For example, given this paper's topic: decisions over tax-mix seemingly fall into this category (how best to pay for the electorate's already decided-upon level of redistribution and/or public goods).

[20]Or, also, subsidies to encourage positive externalities; and taxes upon negative externalities

externalities will be taxed and, further, when positive externalities will be incentivized (Monogan III, Konisky and Woods, 2017).

2.3.2 The Supply-Side of Taxation: Tax-Mix as Both Means & Ends

In contrast to decisions about how government should spend revenues (the *ends*), which will clearly matter greatly to voters, choices over how to raise revenues are, at first glance, seemingly more technocratic and apolitical. Ignoring funds raised through increasing the progressivity of income taxation (which, of course, implicates the "ends" of policy since it implicates redistribution), choices over tax-instruments will appear to be about the "means" of policy. Democracy's means-efficiency should afford it an advantage in selecting tax-mix[21]. After all, once the politicized debate over "how much to raise?" has passed, there is an independent question of "how best to raise it?" The answer "we should raise it efficiently," would seem widely agreeable and not contentious. Leaders must choose amongst different sets of tax-mixes, each designed to raise a fixed-level of revenue, but resulting in differing levels of economic distortion. To not choose the efficiency-maximizing mix is akin, somewhat, to leaving free money on the table: economic production is permanently destroyed, with no greater government revenues to show for it[22].

However, despite the "means-efficiency" of democracy, many scholars observe that democracies use inefficient tax-mixes. Whereas scholars have found many autocratic settings to foster efficient tax-mix and may even serve as "point of origin" for efficient, broad-based taxes ((Mares and Queralt, 2015; D'Arcy, 2012), democracies have been

[21] Granted, the ease with which income taxation may be used as a tool of progressive redistribution (via income brackets) will result in its increased use within democracies, despite any inefficiencies incurred; however, upon factoring-out income-based redistributive concerns, it is in the selection of tax-mix that democracy may well be advantaged by its means-efficiency.

[22] The inefficiencies of higher tax levels, at the least, provide the government greater revenues, and the inefficiencies of higher progressivity at least provide the relative poor with greater income, both "ends" that are subjectively good things, thereby justifying the economic cost. In contrast, tax-mix inefficiencies are equivalent to the destruction of economic production that can never be retrieved, but do not directly implicate any such "ends."

riddled with issues[23].

Herein lies, at first glance, a puzzle[24]. Unlike autocracy, democracy empowers citizens to demand unwasteful policy from their government leaders; moreover, while the penultimate "optimal tax policy" may be troublesome to locate, many pitfalls are obvious. And, yet, despite pitfalls, these tax-mixes are still taken[25].

One plausible solution, develop in this paper, requires transcending income-based societal cleavages to demonstrate that salient cleavages include tax-elasticity. Elasticities are why tax-mix is not only a matter of "means" but also "ends." Elasticities are why choices over tax-mix will impact "who gets what, when and how" (Harold, 1936).

Tax-mix, in other words, may have distributive consequences even without having any effect on tax-levels or tax-progressivity. Citizen preference over tax-mix is determined by the elasticities of their behaviours to taxation; elasticities determines whether they can shift tax-incidence off of themselves and onto others. The costs of changing behaviour to avoid any given tax will be higher for some relative others. For those whom it is inexpensive, tax-incidence may be sluffed.

In select cases, the distribution of elasticity (regarding a tax) may be correlated with income[26]. However, the choice between various slates of tax-mix need not correlate with income; often it does not. Imagine two citizens of similar income, but with different "declarable" incomes. For instance, contrast a civil servant against a small business owner operating "under-the-table." A tax-mix dependent wholly upon income taxation will fall completely on the civil servant, whereas the civil servant would at least get to split the

[23]Many find efficient tax-mix in democracies to be a historically contingent "exception" to the "rule" (Steinmo, 1996); others have found that, in the driver-centric U.S.A., gasoline taxes are half the optimal rate, whereas in the driver-light U.K., they are double the optimal rate (Parry and Small, 2005); others observe the under-utilization of property taxes, noting opposition from homeowners (Brueckner, 2000; Brunner, Ross and Simonsen, 2015); additionally, much has been said about the use of tariffs relative the power of domestically-oriented industry. Notably, in the above cases, the salient cleavage is not income, but other variables such as home-ownership, vehicle use, factors of production (land vs. capital), in addition to industry-orientation (e.g., export-oriented vs. domestic industries).

[24]In truth, in claiming a puzzle I rely entirely upon my own subjective experience of being "puzzled."

[25]One might consider the adage, that "economics cannot always tell us exactly what to do, but it can certainly tell us something about what not to do."

[26]A sales tax, for instance, will fall heavily upon the middle class, relative the rich (who can save large proportions of their income).

tax incidence if a consumption tax was used instead. Hence, their preferences are shaped by tax-incidence, which, in turn, is shaped by the elasticity of their taxable behaviour (rather than their relative income levels). In this example, the elasticity of the taxable behaviour is based on their ability to avoid selling their labour in the formal sector.

Tax-mix, as such, does become an "ends," rather than simply a means: the two are intertwined. Moreover, a citizen's preference for reduced tax-incidence will implicate the efficiency of taxation. A citizen's preference for a tax-mix that reduces incidence will, by definition, be inefficient since it is elastic. The inefficiency is small if the tax is only elastic for the single citizen. If the citizen's preference is shared by many, then the inefficiency will be large since the tax is broadly elastic across the population. Of consequence, an inefficient tax-mix will place a penalty upon the "effective cost" of government revenues (by, in effect, increasing the deadweight loss of raising revenue).

As I will further develop, tax-mix becomes more than a technocratic matter of choosing the most efficient path (i.e., minimized distortions) to arrive at a predetermined-end (i.e., level of revenue) once we recast political economy's salient social cleavage as elasticity-based instead of income-based.

2.4 Theory: the Politics of Taxation as Elasticity Driven

This paper develops a theory to account for scenarios in which democracies chronically implement inefficient tax policies relative autocracies. Whereas a deep political economy literature explains tax-levels (e.g., as a % GDP) and tax-progressivity (e.g., distribution of tax burden across income levels), in addition to "targeting" (e.g., the presence or absence of loopholes for members to select groups), I contribute to the relatively nascent tax-mix literature. I explain how governments choose between possible revenue sources (e.g., the relative proportions with which a government raises revenues through taxes on income vs. consumption, property, corporations, etc.).

The theory is built in two stages: (1) I consider the incentives of political leaders relative citizens over tax-mix (particularly, their preferences on whether to trade less-incidence for less-efficiency); and (2) the institutional brokering of power between both sets of agents, using selectorate theory. Combined, these factors are predicted to explain much about cross-national variation in tax-mix policy.

First, I will consider the conflicting tax preferences of government leaders relative citizens. Put briefly, political leaders are tax-receivers. If removal from office were impossible, government leaders would prefer implementing taxes that are broadly unavoidable and/or inelastic for citizens, since their efficiency characteristics maximize a leader's dual incentives for (i) revenues in the current period and (ii) a strong economic base upon which to secure maximized future revenue potentials (on which their other objectives, such as survival, are largely dependent)[27]. In contrast, citizens are taxpayers. Citizen tax preferences are shaped by the dual incentive to: (i) receive the benefits of an efficient economy (including the government services this affords); but also, (ii) to shift taxes away from themselves and unto others[28]. As such, the citizen benefits from a tax-mix that is elastic (perhaps, even, entirely avoidable) relative their behaviours; however, they must consider the extent to which their preferred tax-mix is shared with others, since a broadly avoidable tax will reduce incidence, but also efficiency.

Second, I consider institutional constraints acting on leaders by relaxing the assumption of an "absence of political pressures." A leader has their own preferences over policy; however, they must – first and foremost – retain political office. As such, leaders must consider whose support is required to retain political office and what policies must be implemented to maintain these supporters. Hypothetically, two leaders, of two identical economies, would face pressure to implement tremendously different tax-mixes

[27]In other words, efficient taxes avoid "leaving money on the table" – they maximize revenues for a given level of burden upon the economy (or, alternately, minimize the economic burden of raising a given level of revenues).

[28]The effect is blunted for revenues that are user-pay – i.e., for which provision of government services to a specific citizen are closely linked to what they pay-in for the provision. While some spending, such as social security, has this trait, the bulk of government spending generates a pool of revenues from which largely non-excludable provisions are afforded.

if they were to be leading two different types of political regime. Given a shift upon the spectrum towards democracy, leaders require an larger proportion of their population's support in order to maintain political office; in turn, they experience pressure to implement taxes that are elastic for an increasing share of their population. Consequently, the tax-base becomes inefficiently "narrow": to retain current revenues with tax-instruments on "narrow bases," they must tax at higher rates[29].

Whereas the costs upon citizens to displace leaders are high in autocracy, the costs are relatively low in democracy. Average citizens are much more likely to be members of the selectorate, which lends them greater power to extract their preferred tax-mix from politicians (in exchange for their support). This forces leaders into presenting a tax-mix acceptable to a relatively broader coalition than in autocracy where the selectorate is narrower. As such, an inefficiently narrow tax base may be expected in democracies.

2.4.1 Incentives

First, I will elaborate upon the incentives of the key actors within any state, considering what an individual in a position of (1) political leadership; and (2) the citizenry, would consider the costs and benefits of a particular tax-mix.

Government Leaders

Left to themselves, government leaders may not always have preferences to spend public money efficiently. Political scientists have developed, for instance, literature on the production of rents (this is a literature on the demand-side of taxation). However, whether government leadership has efficient spending-objectives or not, their is a clear (supply-side) incentive to raise revenues efficiently. Given a hypothetical leader unconstrained by any citizen (including the elites), an efficient tax-mix enables maximizing between two preferences, regardless of their prefered tradeoff between them: (1) to extract maximum

[29]For a government to raise a given amount of revenue upon a narrow tax base, higher tax rates are needed, which will cause disproportionately greater distortionary effects in the aggregate, relative using a lower tax rate upon a broader base.

revenues in the current time period; and (2) to increase the economic base so as to maximize future revenues potential. Generally, whatever a leader's spending desires, restraint is exercised in extraction so as to maintain an economy from which to draw upon in the future[30]. Failing to select an efficient tax-mix would mean giving up, unnecessarily, upon one of the two above goals. Either the leader does not maximize current revenues given their preferred level of burden (upon future economic growth); or, the leader does not minimize burdens (upon future economic growth) when extracting their preferred amount of revenue from the economy. However framed, the leader loses utility by not extracting from the economy in an efficient manner.

Until this point I have leveraged a hypothetical situation in which the leader is unconstrained by the preferences of citizens. Shortly, I will consider the institutional constraints upon leaders as they "bend" on policy to satisfy the preferences of those citizens whose support for them is crucial to remain in power. In short, we must consider that a political leader's first-order preference is to remain in power, without which preferences over revenue become obsolete.

Citizens

A citizen's incentive structure concerning tax-mix will be more complicated than a leader's, because they are not the recipients of revenue, but the payees. While the ruler unconditionally benefits from an efficient tax-mix, citizens must consider any trade-offs between (i) an efficient tax-mix versus (ii) a tax-mix for which they incur a low incidence. Thus, a tax that is personally avoidable, or only implicates highly elastic behaviours, will be preferred, *ceteris paribus*. However, the benefits of low incidence will come at an increasing cost of inefficiency as the proportion of other citizens sharing the same "elasticity profile" increases. Indeed, at an extreme, whereby citizens are homogeneous in terms of the elasticities of their behaviours to taxation, the incidence-effect of tax-mix will disappear since shifting tax-incidence onto others becomes impossible (i.e., everyone

[30]Only in the extreme case of a leader with a time horizon of zero would pillage take place, breaking-down the trade-off.

will react equivalently to a change in tax rates). Consequently, any preference over the efficiency-effects of tax-mix would dominate.

If a single citizen could, hypothetically, implement a tax-structure of their choice – not needing the consent of political leaders or any other citizen – then a tax-mix would be selected that reduces incidence for himself, but for no others (or, at least, as few others as possible): his personal tax incidence would be reduced while having negligible efficiency effects. Due to the non-excludable nature of many publicly provided goods, this citizen would successfully shift tax-burden onto others, thus attaining the benefits of government spending but at a lesser personal cost[31].

Naturally, no citizen is able to determine tax-mix independently. Rather, the weight given to a citizen's preferences when forming policy is brokered by political institutions. As such, I will consider the role of the selectorate, in mediating tax-mix outcomes, given the preferences of government leaders and citizens.

2.4.2 Regime Type: the Role of the Selectorate & the Winning Coalition

Political leaders are not able to select the tax-mix of their choice, unhindered. Rather, they must maintain the support of a "winning coalition" (i.e., a set of citizens whose support is sufficient so as to remain in power)[32]. This winning coalition is drawn from a "selectorate" (i.e., the body of citizens whose support can meaningfully contribute to the leader's continued rule). The winning coalition and the selectorate will constitute differing proportions of the population depending upon the regime-type in play. Whereas democracies are understood to have broad selectorates (of equi-weighted

[31]Indeed, while some study the exogenous effect of total societal demand for government spending (i.e., revenues) upon tax-mix, which predominantly notes the need for greater income taxation in the context of higher spending-demands (Besley and Persson, 2014), it is crucial to note here that tax-mix has an independent effect upon demand for total revenues: given a exogenous marginal benefits curve for government spending and equal spending by the state on each citizen (i.e., not a user-pay system of taxation), citizens that can attain low marginal costs (due to low tax incidence) will have incentive to promote higher total spending, since they reap the greater benefits of the added taxation without paying proportionately for their costs.

[32]This section draws entirely upon the selectorate theory as laid-out in (De Mesquita et al., 2005)

citizens) defined by universal suffrage, autocracies are understood to have relatively narrow selectorates; for autocrats, support is only required from the elites. (Institutional variations within each type can further alter the size of the selectorate and winning coalition; however democracies will generally have a winning coalition and selectorate of a proportion bounded above that of any autocracy.)

However, democracy and autocracy are, conceptually, "ideal forms" that are not realized in practice. Rather, reality takes place upon a spectrum existing in between. Political leaders in democracy are not perfectly responsive to citizens, just as political leaders in autocracy are not perfectly unresponsive. Two interrelated literatures study the conditions under which democracy digresses towards rule by elites[33] and, in contrast, there are conditions under which an autocrat is forced to concede to the broad interests of the citizenry.

In selectorate theory, a blanket statement of "autocracy" vs. "democracy" serves more as a shorthand than as substance. Never is the only member of a selectorate the leader, nor is every citizen ever equi-weighted in their power. There are many possible methods to define where a state exists on the spectrum. This paper utilizes selectorate theory to manage such distinctions. Political leaders, first and foremost, require continued power before any of their other preferences can be pursued. As such, the leader must ask whose support is necessary to maintain office. In turn, political institutions (particularly, regime type) structure whose support amongst the citizenry is necessary to maintain in order to remain in power. Broadly speaking, a government towards the "democracy" end of the spectrum feature a broad selectorate and winning coalition, whereby a leader requires support from a relatively large portion of the citizenry[34]; in contrast, the "au-

[33]Perhaps most notably, the cottage-industry concerning interest groups. Here, economic elites leverage their abundant economic resources to purchase the advantages of power from the political elite. Citizens are sidelined by collective action problems in ways that elites, being narrow, are not(Downs, 1957).

[34]This does lead to deeper theoretical questions such as whether electoral systems of proportional representation are more democratic than those of single member plurality. This will depend on what factors you consider necessary for a state to constitute a democracy. Those emphasizing that citizens all have equally weighted say over collective decisions would likely answer the question affirmatively. Those more worried about forms of horizontal accountability, due process, civil rights, etc. will likely downplay defining democracy along this dimension, in favour of its other dimensions. Selectorate theory need not comment on this particular question, however, to note that the the distribution of political and

tocratic" end of the spectrum features political leaders who only require support from relatively narrow segments of the citizenry – namely, a winning coalition amongst the elites.

Selectorate theory provides, in the context of this paper, three advantages. First, as I seek to refine my theory of taxation, I wish to be able to test this against a nuanced measure of the power held by government leaders relative their citizenry (and the power of narrow coalitions [i.e., elites] relative broad coalitions [i.e., the citizenry]). For the time being, autocracy and democracy offer helpful metrics as approximations. However, selectorate theory allows infinitely subdividing the categories of autocracy and democracy, since selectorate theory is consistent with a continuous measure: the size of the selectorate and winning coalition as a percent of population. Given leaders and citizens in contest with each other over tax-mix, selectorate theory allows defining subcategories within each category of autocracy and democracy; incrementally more (or less) power of leaders over citizens may be measured (in addition to the power of narrow relative broad coalitions of citizens)[35]. Second, many models of societal conflict are vulnerable to issues of cycling whereby equilibrium will become unstable in the presence of three of more coalitions with multi-dimensional preferences[36]. However, in the context of my theory, the efficiency of tax-mix is primarily determined by the proportion of the population whose support the leader requires in order to maintain office. It does not matter who forms the coalitions, but rather their minimum size. As such, selectorate theory spares me from vulnerability to cycles. Third, the model is tremendously flexible since it is able to incorporate a variety of aggregation mechanisms in a theoretically consistent manner (i.e., the rule structure by which individual preferences are mapped onto a collective decision). The selectorate-

economic goods will be affected between democracy and autocracy, as well as within each group insofar as institutional variations cause differences in the selectorate.

[35]Smaller selectorates increase the power of the leader relative the citizenry, whereas smaller winning coalitions would generally align with increased power of the elites relative the mass citizenry.

[36]For instance, the model of Iversen and Soskice (2006) suggests that systems of proportional representation will result in coalitions forming between the lower and middle class, whereas systems of single member plurality will result in coalitions forming between the middle and upper classes. Yet, as Hays (2016) points out, strong assumptions are made to exclude the lower class from colluding with the upper class in either case. Once this restriction is relaxed, the equilibrium breaks down.

based model does not contravene many popular models of political economy, but it also does not depend upon their results[37].

As such, selectorate theory frames my theoretical expectations: a government leader will seek the most efficient tax-mix possible *subject to* the condition of maintaining the minimum threshold of support necessary amongst the selectorate. As such, we are provided a heuristic to predict the efficiency of tax-mix outcomes. When leaders require a relatively small selectorate, as occurs in autocracy, we can expect the narrow coalition to implement an unavoidable and inelastic tax-mix upon the vast majority of the citizenry. This results in the efficiency of taxation. In contrast, as leaders require a relatively large selectorate, as occurs in democracy, we can expect the broad-based coalition to implement an unavoidable and inelastic tax-mix upon the relatively narrow segment of the citizenry outside of the selectorate (these individuals would have a different elasticity profile from the broadest coalition). The broad coalition seeks to exempt itself), resulting in the inefficiency of taxation[38].

2.4.3 The Informal Sector's Interaction with Regime Type in Determining Tax Policy

To test my theory, I consider how a shift in the size of the informal sector implicates income taxation differently in autocracies than democracies. Given an increase of informal sector activity, the autocrat restores an efficient tax-mix by increasing the rates on tax instruments that the informal sector cannot avoid. This helps to offset the narrowing of the tax-base. In contrast, the democratic leader must consider that such a "rebalancing" will increase incidence upon a growing (electoral) coalition. There support may then wane, which figures substantially in the politician's plans to hold office. Hence,

[37]The Meltzer-Richards model (1981), for instance, functions in the case of a two-party systems, where the median voter is decisive, but breaks down in cases where multi-party systems arise or where cross-cutting issues cause voter-alignment based-upon income to breakdown.

[38]None of this is to ignore exceptional circumstances whereby an autocrat, fearing revolt, seeks to adapt policy to mass preferences. Likewise, democracies may see the dominance of elites when issue salience is low and voters are unable to monitor policy actions.

in a democracy, informality's growth does not just bring the typical problems of informality, it also constructs an electorate with the incentive to raise taxes on the increasingly narrow formal sector. This risks a downward spiral, since "entry" into the formal sector is disincentivized, which further reduces its size (creating yet more voters with a vested interest in maintaining high taxes on the informal sector). This cycle would then repeat itself. Ultimately, the tax-mix becomes increasingly inefficient as high tax-rates are applied to an increasingly narrow tax-base.

2.5 An Empirical Test: Democracy's Informality Trap

For the sake of tractability, I will focus my empirical study upon how the informal sector implicates the use of income and property taxes in democracies relative autocracies (I will also check its effect upon VATs). I demonstrate how democracies are relatively inefficient in the use of both taxes relative autocracies. By comparing the size of the formal sector against the size of the informal sector, my research design leverages a cleavage in society that effects most everyone (since the vast majority of individuals need to earn a market income to survive). The cleavage also sorts individuals into one of two coalitions that are (largely) mutually exclusive since individuals generally receive the vast majority, if not all, of their income from either the informal or formal sector[39]. Additionally, in this particular contest, citizen tax preferences are very similar within-coalition but very different across-coalition[40]. Often the incidence of taxation is difficult to locate; however, in this case the implications of each tax on incidence are clear. The income tax is overwhelmingly avoided, by definition, among those in the informal sector. Nonetheless, while individuals in the informal sector can hide their income, they cannot hide their land: property taxes still apply. (As an in between case, I also consider VATs: individuals can

[39]In contrast, it would be difficult to credit certain tax preferences to a coalition if its members were also members of the other coalition with opposite preferences

[40]In contrast, if taxable behaviours are largely the same across coalitions, then they may have their fights, but taxes will not be one of them. Alternately, the research design would be impossible if the tax policy preferences varied within coalition, if other issues were salient in forming the coalition

hide some of their consumption, but likely not all. This would split incidence between the sectors.) In contrast, those in the formal sector do pay taxes on their income. While individuals in the formal sector do pay property taxes too, these represent a small share of their total taxes. Most importantly, property taxes are shared with informal sector, thus allowing the formal sector to reduce their incidence of taxation. (A similar logic will apply to VATs, which would have a split incidence between both parties.)

Disconcertingly, my evidence demonstrates how the incentives that shape tax policy in democracies result in an "informality trap," whereas autocracies are able to force their way through. While I note the gravity of this particular situation, my theory extends to a greater variety of "elasticity battles," which I shall reflect upon in concluding. My model demonstrates how the elasticities of citizen behaviours constitutes the content over which conflicts occur between governments and citizens (and citizens amongst each other). Power, then, serves to set the probabilities over winning and losing said conflict.

In summary, while my theory of taxation is general, its implications and empirical testing is most clear when a split exists amongst citizens demarcated into two distinct groups (mutually exclusive), especially if the two groups subsume the vast majority of the population (mutually exhaustive); moreover, the groups must have clear differences in their incidence of taxation across a set of instruments. My theory, as such, makes particular predictions for tax outcomes given the preferences of citizens labouring in the informal versus formal sector. In the following, I shall speak to the puzzle this paper confronts, review the data and explain the research design before contemplating my findings.

In this paper, I note a disconcerting possibility that the tax policy of many democracies is partially responsible for growth in their formal sector, resulting in an "informality trap." While my empirical findings are particular to only one determinant of citizen tax preferences (i.e., work in the informal vs. formal sector) and only concerns two forms of taxation (property vs. income taxation), my theory can likely be generalized to explain other situations of tax-preferences interacting with political institutions to explain

tax-policy decisions.

2.5.1 Data

I draw my dependent variables from two sources. First, when measuring tax revenues (income and property; additionally VATs) as a percent of government revenues, I use the International Centre for Tax and Development database (ICTD/UNU-WIDER, 2017). This dataset also allows me to measure total government revenues as a percent of GDP. When testing my mechanism (changes in actual tax policy), I use a country's Marginal Income Tax Rates at the country's average income-level; this data derives from the World Tax Indicators by the Andrew Young School (AYS, 2017). The marginal income tax rate (at mean income) provides an indicator for both (i) how much more a typical "formal sector worker" is paying in taxes relative the typical "informal sector worker;" and (ii) illustrates how political leaders implement tax-policies through legislation to favour their most powerful constituents.

Independent variables come from multiple sources. The measure for informality comes from a working paper by Leandro Medina and Friedrich Schneider (2017). In their paper, imputations of the informal sector's size are updated (e.g., the time-series extended) from previous papers by Friedrich Schneider, easily the world's most cited estimator of informal sector size (Schneider and Enste, 2000; Schneider, 2005; Schneider, Buehn and Montenegro, 2010; Buehn and Schneider, 2012).

Regime type is drawn from PolityIV's primary indicator: polity2 scores (Marshall, Gurr and Jaggers, 2011); I classify countries as democracies when they have a score of 6 or greater. Countries are classified as dictatorships if they have a score of 5 or less. (Future research could review a more nuanced breakdown across polity scores.)

Additionally, controls will be accounted for based on common arguments about taxation in the literature. Robustness checks include tests of institutional quality by Standaert (using the BCI, a measure of corruption) (2015); and measures from the World Bank Governance Indicators on: economic development (GDP per capita, GDP growth), pop-

ulation, employment participation and trade (as a percent of GDP) (Kaufmann, Kraay and Mastruzzi, 2010).

2.5.2 Research Design: Fixed-Effects, Mechanistic Checks & "Tax Flips"

An empirical analysis of my theory applied to the informal sector offers two primary advantages. First, two natural coalitions fall out from the conflict, which provides a more readily testable case than studying an instance in which several major coalitions exist (in such a case, I would need to provide a *post hoc* dismissal of cycling); second, whereas the incidence of taxation is often difficult to locate, in this case it is relatively straightforward[41]. While many taxes are plausibly effected by the conflict between the formal and informal sectors, I am able to select two instruments with straightforward, contrasting, incidences. Notably, formal sector voters must pay income taxation in full, whereas informal sector workers are, by definition, avoiding this tax. However, property cannot be so readily hidden and, as such, the formal sector shares the incidence of this taxation with the informal sector. (I will also add VATs, which are characterized by split incidence as well.) In contrast, other taxes may be affected, such as social security contributions, but it is unclear, by *a priori* theorizing, how the incidence will fall out.

While the subject matter is advantageous, my empirical strategy must still leverage a research design that screens-out omitted variable bias and endogeniety. Proceeding, I present the tests conducted and explain each test's value-added (couched in terms of raising our confidence of identifying the effect of regime type's interaction with informality upon tax structure).

My first cut uses regression with fixed-effects to avoid time-invariant confounders, while also adding covariates to control for plausible time-variant confounders (controls are included based upon precedence in the tax-mix literature). Nonetheless, regression

[41] In contrast, other taxes are likely affected, but with unclear incidence effects. Consider, for instance, a test of excise taxes. Here we would need to consider market power and the elasticity of demand in order to determine the extent to which incidence falls on consumers relative business.

with fixed-effects will be limited in controlling for, unobserved, time-variant confounders. As such, I invoke the idea of a "tax flip," to take advantage of a prediction inherent to my theory. Namely, my theory predicts that democratization (or backslide) will result in a shock to tax policy, whereby instruments previously used to a large extent will become less-used (and vice-versa: little used instruments will become heavily-used).

Table 2.1: Patterns of Taxation Given Informality and Change of Regime Type

	Large Informal	Small Informal
Democratization	More Income, Less Property	Less Income, More Property
Autocratization	Less Income, More Property	More Income, Less Property

In recording a "tax-flip" event, I use two approaches. First, I use the same fixed-effects models as prior, but I restrict the sample to only include those countries that have experienced democratization or backslide. Here, the predictions of my theory offers a very natural "cross-bracing." First, I avoid the possibility that democracies simply use different taxes than autocracies, whatsoever occurs in the formal sector. This is because within the democratizing subset, opposite policy reactions occur depending on the size of the formal sector. Likewise, some might suggest that tax policy is purely endogenous to the size of the informal sector, whereas I show with tax flips that a tax's rate will be opposite across countries when grouped by autocracy vs. democracy despite having the same level of informality. By restricting my sample, I look only at potential "tax flip" candidates, which reduces the possible influence of other factors irrelevant to my study (e.g., effects upon the coefficients due to advanced-Western democracies, which may introduce unnecessary noise). Second, I will create a variable that identifies moments of regime change. I will then measure the difference between the use of taxation five years post-regime change relative five years pre-regime change. In doing so, I can measure the interactive effect of regime type and informality.

Lastly, I also brace my findings by providing a direct test of the proposed mech-

anism through which the relative usage of taxes are determined. Namely, my theory predicts that changes in the usage of income taxation should be policy-driven (i.e., political leaders reacting to the demands of their changing selectorate). As such, I demonstrate that my models also predict changes in marginal tax rates. This aides in demonstrating that the changes in the usage of income tax is policy-driven, not simply the consequence of some unknown economic effect[42]. This raises confidence that the political realm exerts pressure on final tax outcomes (via policy) rather than a story of (for instance) purely economic variables bringing-about the outcome.

2.5.3 Findings

To begin, I consider the usage of income, VATs and property taxation (as a % of GDP) as a linear function of regime type (0 = autocracy, 1 = democracy)[43] interacted with informality (as a % of GDP). While I seek to begin with a minimalist model, I include GDP per capita to account for economic development, which influences the use of income taxation (N.b., the results are substantively the same in the absence of this control variable).

Interpretation: Note that in the baseline case, autocracies use income taxes less (as a percent of revenues) when a country's informality increases. This is intuitive: when less economic activity occurs in the formal sector, there are fewer incomes accessible to tax. In contrast, it is hard to overstate how counter-intuitive the finding is for democracies: income taxes actually increase as the informal sector grows relative the economy. With less of a base to tax, the collection of income taxes actually increases! Economically, this is not sensible. For this result to occur, a political effect must be occurring to raise tax *rates* on formal sector incomes. Indeed, rates need to rise to an extent that offsets the losses in the tax-base, if income tax *levels* are to stay even (let alone rise).

The model's results for VATs are also consistent with my predictions. While the

[42]Of course, even without this mechanism check, it would be odd that the economic effect plays out differently in autocracies than democracies.

[43]Cut-off set at polityIV score greater than 5.

informal sector's growth does not have a significant effect within autocracies, the model demonstrates that democracies reduce their use of VATs. Disconcertingly for overall government revenues, the state is more likely to be able to collect VATs from members of the informal sector (Bird, Gendron et al., 2007). Therefore, as the taxable base on income shrinks, income is increasingly targeted; whereas, the stable taxable base on consumption becomes taxed less.

Contra income taxes, the effect is opposite upon property taxes. Democracies use less property taxation as the informal sector grows, which endangers tax revenues since it remains a stable tax-base (to which the growing informal sector must contribute to the government's revenues).

As a final note, economic growth is shown to be consistent with rising income taxation. This is consistent with findings from the literature (Besley and Persson, 2014; Bird, 1992)

Table 2.2: Effect of Regime and Informality on Tax-Mix: Regression with Fixed Effects for Country and Year

	Dependent variable:		
	Income Taxes	VATs	Property Taxes
	(1)	(2)	(3)
Democratic	-9.660^{***}	4.805^{***}	1.245^{***}
	(1.942)	(1.839)	(0.329)
Informality (% GDP)	-0.161^{**}	-0.053	0.044^{***}
	(0.067)	(0.061)	(0.012)
log(GDP per Capita)	12.497^{***}	-14.171^{***}	-0.460^{***}
	(0.743)	(0.676)	(0.129)
Democratic : Informality (% GDP)	0.289^{***}	-0.163^{***}	-0.029^{***}
	(0.049)	(0.046)	(0.008)
Observations	3,107	3,191	2,731
R^2	0.797	0.903	0.887
Adjusted R^2	0.785	0.897	0.880
Residual Std. Error	6.118 (df = 2938)	5.883 (df = 3021)	0.930 (df = 2570)
Note:			*p<0.1; **p<0.05; ***p<0.01

Considering Further Controls

I test for other factors considered to affect tax policy in the literature. First, I add a control for institutional quality: corruption. Second, I test a slate of economic variables known to effect both taxes and informality. I add the size of the economy, since it has economies of scale effects on policy. I include GDP growth and participation rates since this may create more income for taxation, and may create pressures for individuals to enter/exit the formal sector. Second, I include trade, since international competition may serve to exert pressures on tax codes.

Interpretation: Notably, I find that the interaction effect holds across a battery of controls, in both direction and significance, for income and property taxation. The interaction effect for VATs holds when controlling for economic development and corruption, but upon including other controls it comes to null results.

In terms of income taxation (Table 2.3), the models demonstrate that autocracies respond to increased informality with decreased collection of income taxes (as a percent of government revenues). In contrast, democracies react to increased informality with a (statistically significant) with a positive "offset" compared to autocracies. In other words, in the context of rising informality, democracies use relatively more income taxes than autocracies.

In terms of alternate theories, several variables indicate significant relationships. Increased inequality (measured via the GINI) leads to lesser usage of income taxation. Open economies tend to use more income taxation. Curiously, upon accounting for economic factors, democracies with low levels of informality tend to use less income taxes than autocracies. This challenges some arguments that democracy itself leads to higher usage of income taxation, due to increased governmental legitimacy leading to higher voluntary consent regarding taxation.

In terms of VATs (Table 2.4), my findings indicate null results. Only the most basic model, which only controls for economic development and corruption, demonstrates results consistent with my predictions: democracies reduce their use of VATs upon growth

in the informal sector. Otherwise, the coefficients are indistinguishable from zero.

Rises in inequality see increased usage of VATs. Additionally, VATs are less used in open economies and given high levels of corruption in government.

In terms of property taxation (Table 2.5), my predictions are largely upheld. With exception of the final model (which suffers from a relative lack of observations), autocracies are shown to use higher levels of property taxation, which democracy negatively offsets to a statistically significant extent. This is consistent with my prediction that growing informality leads to autocrats trying to "rebalance" the tax-mix towards optimum, whereas democratic politicians may need to make concessions to their growing vote base (in the informal sector).

Table 2.3: Additional Controls When Testing for Effect of Regime and Informality on Income Taxes: Regression with Fixed Effects for Country and Year

	Dependent variable:			
	Income Tax (% GDP)			
	(1)	(2)	(3)	(4)
Democratic	-8.846^{***}	-2.730	-3.520^{*}	-8.683^{***}
	(1.896)	(1.900)	(1.902)	(2.660)
Informality (% GDP)	-0.301^{***}	-0.114^{*}	-0.255^{***}	-0.296^{***}
	(0.066)	(0.066)	(0.066)	(0.100)
log(GDP per Cap)	8.605^{***}	11.465^{***}	8.087^{***}	7.394^{***}
	(0.856)	(0.859)	(0.925)	(1.741)
Corruption Index	0.266^{***}	0.236^{***}	0.217^{***}	0.051
	(0.054)	(0.052)	(0.051)	(0.067)
log(Population)		18.342^{***}	16.634^{***}	18.428^{***}
		(1.397)	(1.437)	(2.758)
Participation Rate			0.129^{**}	0.395^{***}
			(0.053)	(0.082)
Trade (% GDP)			0.021^{***}	0.037^{***}
			(0.006)	(0.011)
GDP growth rate			-0.062^{***}	-0.140^{***}
			(0.024)	(0.044)
GINI				-0.273^{***}
				(0.057)
Democratic:Informality	0.260^{***}	0.093^{*}	0.123^{**}	0.225^{***}
	(0.048)	(0.048)	(0.048)	(0.068)
Observations	3,027	3,027	2,910	1,049
R^2	0.813	0.824	0.830	0.885
Adjusted R^2	0.802	0.813	0.820	0.865
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 2.4: Additional Controls When Testing for Effect of Regime and Informality on VATs Taxes: Regression with Fixed Effects for Country and Year

	Dependent variable:			
	VAT (% Government Revenue)			
	(1)	(2)	(3)	(4)
Democratic	3.568**	−2.431	−1.519	3.563
	(1.768)	(1.790)	(1.791)	(2.600)
Informality (% GDP)	0.051	−0.118**	0.033	0.102
	(0.060)	(0.060)	(0.061)	(0.096)
log(GDP per Cap)	−10.654***	−12.884***	−8.919***	−9.836***
	(0.776)	(0.777)	(0.852)	(1.646)
Corruption Index	−0.316***	−0.277***	−0.235***	−0.138**
	(0.050)	(0.049)	(0.048)	(0.065)
log(Population)		−16.474***	−13.610***	−22.231***
		(1.323)	(1.381)	(2.640)
Participation Rate			−0.012	−0.267***
			(0.049)	(0.078)
Trade (% GDP)			−0.025***	−0.031***
			(0.006)	(0.011)
GDP growth rate			0.102***	0.172***
			(0.022)	(0.042)
GINI				0.168***
				(0.055)
Democratic:Informality	−0.119***	0.040	0.008	−0.092
	(0.045)	(0.045)	(0.045)	(0.066)
Observations	3,100	3,100	2,965	1,043
R^2	0.912	0.917	0.924	0.951
Adjusted R^2	0.907	0.912	0.920	0.942
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 2.5: Additional Controls When Testing for Effect of Regime and Informality on-Property Taxes: Regression with Fixed Effects for Country and Year

	Dependent variable:			
	Property Taxes (% GDP)			
	(1)	(2)	(3)	(4)
Democratic	1.266***	1.056***	1.094***	0.201
	(0.337)	(0.349)	(0.369)	(0.680)
Informality (% GDP)	0.043***	0.037***	0.027**	0.050*
	(0.012)	(0.013)	(0.014)	(0.027)
log(GDP per Cap)	−0.584***	−0.674***	−0.887***	−0.820*
	(0.156)	(0.160)	(0.192)	(0.471)
Corruption Index	−0.002	−0.0004	0.003	−0.001
	(0.009)	(0.009)	(0.009)	(0.017)
log(Population)		−0.608**	−0.472*	−1.142
		(0.260)	(0.285)	(0.718)
Participation Rate			0.027***	0.050**
			(0.010)	(0.020)
Trade (% GDP)			0.002*	−0.001
			(0.001)	(0.003)
GDP growth rate			−0.004	−0.027**
			(0.006)	(0.011)
GINI				0.038**
				(0.015)
Democratic:Informal	−0.029***	−0.024***	−0.024***	0.001
	(0.008)	(0.009)	(0.009)	(0.017)
Observations	2,654	2,654	2,558	967
R^2	0.888	0.889	0.888	0.868
Adjusted R^2	0.881	0.881	0.881	0.844
Note:				*p<0.1; **p<0.05; ***p<0.01

Check of Mechanism: Marginal Tax Rates

My above findings provide some support for my hypotheses, although some support is contingent upon which alternate variables are held constant. To the extent my theory finds support, however, an unobserved variable may be influencing tax-mix outcomes in a manner I have not predicted (e.g., economic contraction may increase informality, while decreasing tax revenues). While it is unclear why changes to informality would cause democracies to have a different tax-mix outcome relative autocracies, I want to corroborate my finding by testing for the mechanism proposed. Namely, changes in the tax-mix (i.e., the use of instruments as a percent of government revenues) should be driven, specifically, by changes in public policy to the tax code. To demonstrate that my mechanism is in play, I consider a new dependent variable: marginal tax rates at a country's average income. Indeed, this measure has a particular advantage: it is a direct reflection of policy changes (whereas income tax usage as a percent of revenues may fluctuate with other (unknown) macroeconomic trends – whereby such trends might correlate with informality).

In the following tests, I review marginal tax rates as the dependent variable. Marginal tax rates are set specifically by government policy. Moreover, tax rates on income are salient to the population and, thus, prone to being debated in the public sphere. Hence, we can imagine a contest over income taxes between cleavages in society that are differently affected.

Interpretation: Here I find results that align with my previous findings on income tax usage as a percent of government revenues. Table 2.6 demonstrates how autocracies reduce their marginal tax rates as informality grows. In contrasts, democracies have a relative upward pressure on their marginal tax rates as informality grows. Notably, autocracies may avoid incentives to enter into informality as the sector grows, whereas democracies appear ineffective at reducing the incentive to exit the formal sector of the economy. Notably, economic development coincides with increases in the marginal tax rates.

Immediately below, Table 2.7 reviews the strength of the the main model's relationship when holding a host of variables constant. Notably, the relationship is unaffected when controlling for corruption and population. However, the relationship loses its statistical significance upon accounting for participation rates; trade openness and GDP growth rates. The positive relationship between economic development and marginal tax rates remains significant, as before.

Notably, countries with large populations tend to use higher marginal tax rates; likewise, participation rates, trade and GDP growth all drive marginal tax rates upward.

Table 2.6: Affect of Informality on Marginal Tax Rates in Democracies vs. Autocracies

	Dependent variable:
	Marginal Tax Rate at Mean Income
Democratic	-6.279^{***}
	(2.424)
Informality (% GDP)	-0.159^{*}
	(0.094)
log(GDP per Cap)	5.280^{***}
	(1.223)
Democratic:Informality	0.140^{**}
	(0.057)
Observations	1,605
R^2	0.895
Adjusted R^2	0.884
Residual Std. Error	4.548 (df = 1451)
Note:	*p<0.1; **p<0.05; ***p<0.01

Table 2.7: Additional Controls When Testing for Effect of Regime and Informality on Marginal Tax Rates: Regression with Fixed Effects for Country and Year

	Dependent variable:			
	Marginal Income Tax Rate (at Mean Income)			
	(1)	(2)	(3)	(4)
Democratic	-6.120^{**}	-5.089^{**}	-3.923	-3.772
	(2.421)	(2.443)	(2.426)	(3.172)
Informality (% GDP)	-0.166^{*}	-0.135	0.002	0.326^{*}
	(0.095)	(0.095)	(0.102)	(0.183)
log(GDP per Cap)	5.278^{***}	6.560^{***}	4.729^{***}	5.248^{*}
	(1.263)	(1.340)	(1.562)	(2.983)
Corruption Index	0.112	-0.037	0.084	-0.020
	(0.205)	(0.211)	(0.227)	(0.524)
log(Population)		7.794^{***}	9.975^{***}	10.494^{*}
		(2.778)	(3.165)	(5.808)
Participation Rate			0.159^{*}	0.500^{***}
			(0.087)	(0.158)
Trade (% GDP)			0.051^{***}	0.044^{*}
			(0.010)	(0.023)
GDP growth rate			0.064^{*}	0.110^{*}
			(0.034)	(0.063)
GINI				-0.213^{***}
				(0.072)
Democratic:Informality	0.138^{**}	0.117^{**}	0.074	0.032
	(0.056)	(0.057)	(0.057)	(0.073)
Observations	1,574	1,574	1,505	394
R^2	0.898	0.899	0.904	0.951
Adjusted R^2	0.887	0.888	0.892	0.928
Note:				*p<0.1; **p<0.05; ***p<0.01

Substantive Effects

Figure 2.1 present a visualization of the predicted values produced from the models in Tables 2.2 and 2.6. I use the regression models to predict how much each tax-instrument is used at different levels of informality for both democracies and autocracies. The graphs offer an opportunity to comprehend the size of the effects that have been discussed.

To produce the graphics, I settle the question of fixed-effects by estimating for the country of Mexico in 2015, imputting a $10,000 GDP per capita. (Note: the selection of GDP per capita, country and year only affects the intercept, not the slope of the line).

The selection of Mexico could be arbitrary: the graph would be substantively similar with many other potential choices. However, Mexico fits the scene: as recently as the 1990s, Mexico was classified by PolityIV as an autocracy. The country faces challenges of informality, which could certainly become better (or worse) given careful (or negligent) government policies. In other words, although the substantive maths would not change, Mexico offers a fitting example of the dilemmas of informality that this paper speaks toward.

The graph presents Mexico as its current-day democracy, but also its counterfactual condition of being under autocracy. Notably, our examples below demonstrate that Mexico behaving as a typical democracy would increase their income taxes from an approximate 25% to over 40% (of government revenues) in the context of shifting between total formality to informality. In contrast, as a dictatorship, we would expect income taxes to be less than half (nearer 15% of revenues). In contrast, lowering the burden on formal sector work would create incentives to grow the formal sector, to lessen the problem of informality in the economy: as an autocracy, Mexico would be more likely to implement such a tax-mix. Without any informality, we would predict an autocratic Mexico to tax incomes at over 35%, but this would fall to 20% given a situation of total informality.

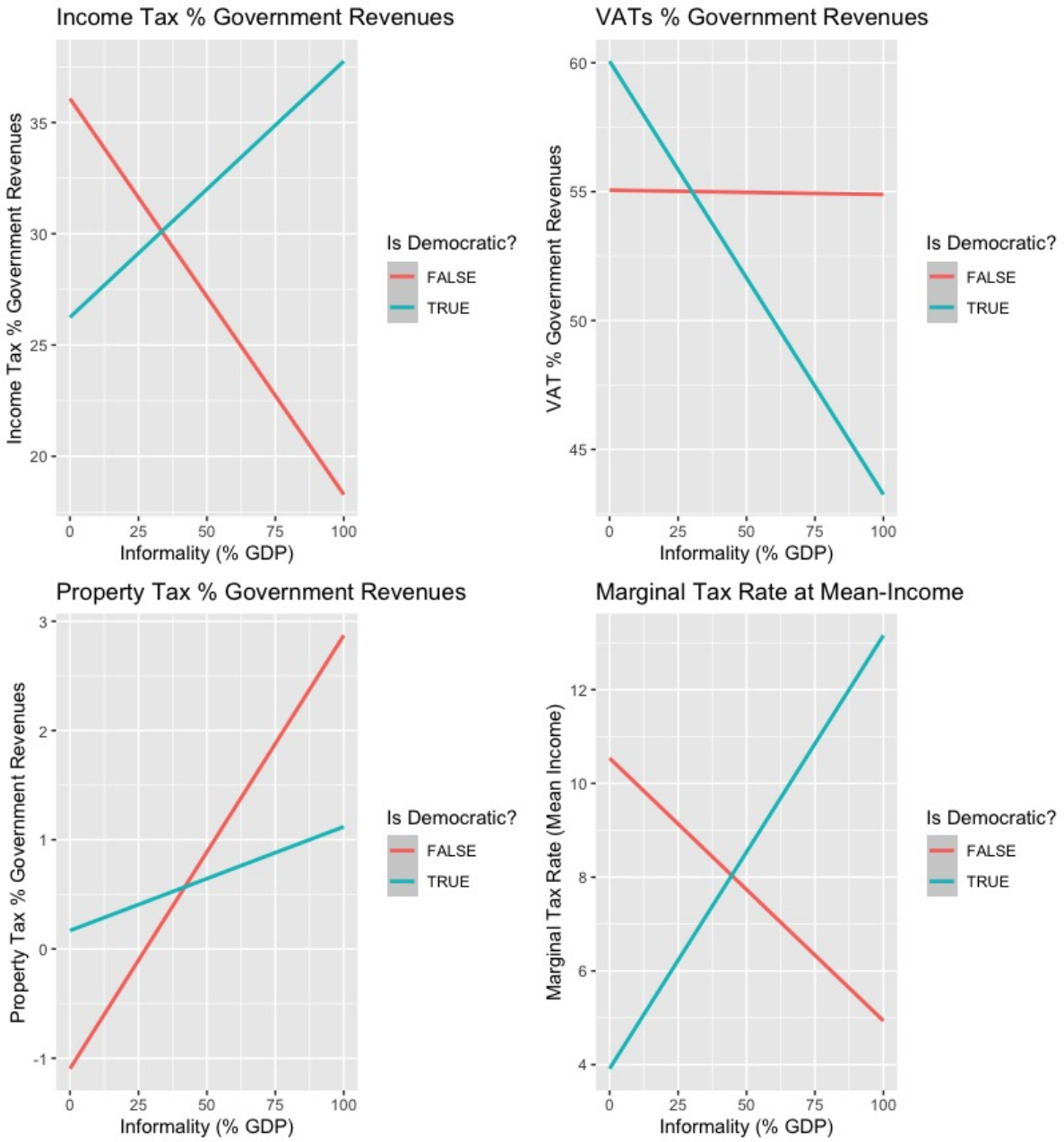
As a democracy struggling with total informality, Mexican VATs would be predicted to fall from 60% of revenues to 45%. As an autocracy, however, the use of VATs

would remain flat. As such, autocracies maintain the use of taxes that incur incidence upon the (growing) informal sector.

I must note, upfront, that property taxes tend to be very small proportions of government budgets. While reviewing a small tax-take, it is important to note the "steeper" relationship between property tax usage and informality in autocracies relative democracies. Unable to hide property, this tax would implicate the informal sector. In democracies, the tax is not used as heavily in the context of high informality.

Finally, it is important to note the mechanism through which my theory predicts income tax usage to decline with informality in democracies. The bottom-right figure demonstrates how marginal tax rates increase with informality in democracies; from an estimated 4% to 13% as we shift from total formality to informality. In contrast, autocracies would set the marginal tax rate much higher in an economy of total formality, near 11%, but allow this to fall in the context of total informality, to a mere 5%. As such, given increasing informality in democracies, the cost of working in the formal sector actually increases. This may result in further disincentives towards working in the formal sector. Politicians, however, may find themselves more popular (amongst large voting blocs in the informal sector) as a consequence of their shifting tax-burden away from informal sector workers and onto formal sector workers.

Figure 2.1: Predicted Tax Usage (Income, Property and Sales) and Marginal Tax Rates; Given Counterfactual Conditions of Autocracy vs. Democracy in Mexico, 2015 at GDP per Capita of $10000



Identification Strategy: Tax Flips

Potentially, autocracies and democracies simply have different long-term trends in their tax policy and informality due to unknown economic factors interacting with their vastly different power structures. As such, I want to specifically demonstrate that changes in tax-policy/tax-incidence revolves around actors battling over the taxation of their inelastic behaviours. To make such a demonstration, I now focus upon "tax flips." I reduce the role upon my results due to long-term "shifts" of informality. Rather, I focus upon cases in which political regimes were upset; whereby the selectorate experienced an increase or decrease in size. In such a case, the use of income taxes and property taxes should flip from low-to-high or vice-versa, given the changing power dynamic between political leaders and the mass citizenry (while holding informality constant).

I re-run the above tests, but I evaluate strictly for specific subsets of countries in which democratization or democratic backslide occurred (hence, this means that a "tax flip" would be predicted). As such, this model removes emphasis from countries that only contribute an informality-based effect upon tax-mix outcomes; rather, regime-based changes are emphasized. First, I use the same model, but the sample is limited to those cases experiencing a regime change. I then further tighten my sample by considering the years immediately pre-transition and post-transition. I compare tax policy in countries that experienced regime changes; I compare taxes 5 years after a notable change to "level of democracy" against the taxes 5 years beforehand. I thus focus on identifying an effect by reducing observations (both in terms of countries and years) to those observations most directly tied to regime change.

Strategy 1: Fixed Effects

My first tests maintains the regression equations of the previous models. These models use fixed-effects for year and country. However, the countries included in the sample are restricted. In the first subset, all country-years are included for those countries to experience (at any point in their history) a one-point shift (or more) in their polity2 score. In the second subset, all country-years are included for those countries to

experience a shift from "democracy" to "autocracy" (or vice-versa) based on crossing the polity2 threshold, set at 5.

Interpretation: Table 2.8 offers the relevant results. Notably, I find that my previous results hold, despite the reduction of sample size. Focusing upon income taxation and Marginal Income Tax Rates, the models find that democracies (i) respond to increased informality by using income taxation as a greater percent of their revenues and (ii) they set relatively higher marginal tax rates compared to autocracies as informality increases. As such, focusing on cases whereby the size of the selectorate shifted (within the time range of available data), we observe an association that parallels predictions. The "spread" between the reaction of autocracies and democracies is larger when reviewing the subset whereby polity scores increased or decreased by at least one point (relative requiring the country to cross the polity threshold set at 5).

Table 2.8: Effect of Regime-type change. Right: all country-years included for countries experiencing polity score change of 1; Left: all country-years included for countries experiencing change in from autocracy to democracy status (or vice-versa)

	Dependent variable: % Government Revenue; Marginal Income Tax Rate (MIRT)					
	Income Tax	MITR (%)	Property Tax	Income Tax	MITR (%)	Property Tax
	(1)	(2)	(3)	(4)	(5)	(6)
Informal	-0.047^{**}	-0.445^{***}	0.017^{***}	-0.020	-0.418^{***}	0.014^{***}
	(0.021)	(0.110)	(0.004)	(0.020)	(0.074)	(0.004)
polity_dummy	-1.471^{***}	-6.958^{***}	0.413^{***}	-1.787^{***}	-6.930^{***}	0.428^{***}
	(0.503)	(2.373)	(0.099)	(0.670)	(2.005)	(0.111)
log(GDP_cap)	-0.350	0.001	0.245^{***}	1.456^{***}	0.245	0.027
	(0.438)	(2.282)	(0.090)	(0.302)	(1.396)	(0.050)
Informal:polity_dummy	0.051^{***}	0.145^{***}	-0.010^{***}	0.062^{***}	0.143^{***}	-0.010^{***}
	(0.012)	(0.056)	(0.002)	(0.016)	(0.047)	(0.003)
Observations	861	468	661	1,796	1,008	1,452
R^2	0.828	0.804	0.736	0.774	0.869	0.833
Adjusted R^2	0.812	0.775	0.707	0.757	0.853	0.819
Note:						*p<0.1; **p<0.05; ***p<0.01

Strategy 2: Comparing Tax-Policy 5 Years Before & After Transitions

This next step seeks to reduce the effects of year-to-year changes in the size of the informal sector upon tax-mix outcomes. I want to assure that the predicted "tax flip" occurs, rather than merely a "tax shift" due to incremental changes in informality. As such, I reduce the time-frame of analysis, while focusing strictly on countries experiencing a change to their "level of democracy." I fix informality to the year of transition and run a linear model that predicts the difference between the pre-transition and post-transition use of income taxation (as a % of revenue). To calculate the use of income taxation, I take the 5 year average on each side of the transition. For example, a transition in the year 2000 would use the following dependent variable: I take the difference between average use of income taxes (% revenue) from '2000 to 2004' minus '1996 to 2000.' I interact the direction of the polity change with informality in the year of transition. I also include controls for the GDP growth occuring within this time-frame (this is particularly important, as GDP growth is likely to vary systematically between societies with small vs. large informal sectors).

In Table 2.9 below, the two left columns correspond to tax-policy changes (5 years before vs. after) a 1-point change or greater in PolityIV score; the centre columns corresponds to 4 point change or greater in PolityIV score; and the two right columns correspond to a change of regime (hence, a crossing over the thresehold between autocracy and democracy set at 5 on the polityIV scale). For example, if a autocracy became democratic in 2000, then the dependent variable would correspond to 'average income tax as a percent of revenues from 2000 to 2004' minus 'average income tax as a percent of revenues from 1996 to 2000.'

Interpretation: Significant differences result in tax-outcomes given democratization (or autocratization) interacted with informality. We find that in the 5 years after a 1-point change to policy-scores, democracies increase income taxes 4.4% more than autocracies. (This is significant controlling for GDP per capita.) The effect is larger when we only review cases in which polity scores changed by at least 4-points. This

is consistent with what my theory would expect: given a large shift in regime towards democracy, members of the informal sector are much stronger in effecting policy than given a small shift (since the size of the selectorate has grown to include more of them). Given a 4-point shift in polity scores towards democratization, we see demoracies use income taxes to the tune of 8% more than autocracies.

As such, results grow stronger as we increase the size of polity change required to enter the sample. This is sensible: a large change in polity2 corresponds with more power afforded to citizens (positive direction) or governments (negative direction). As such, we expect democratization trends, in the context of a large informal sector, to coincide with increased usage of income taxation.

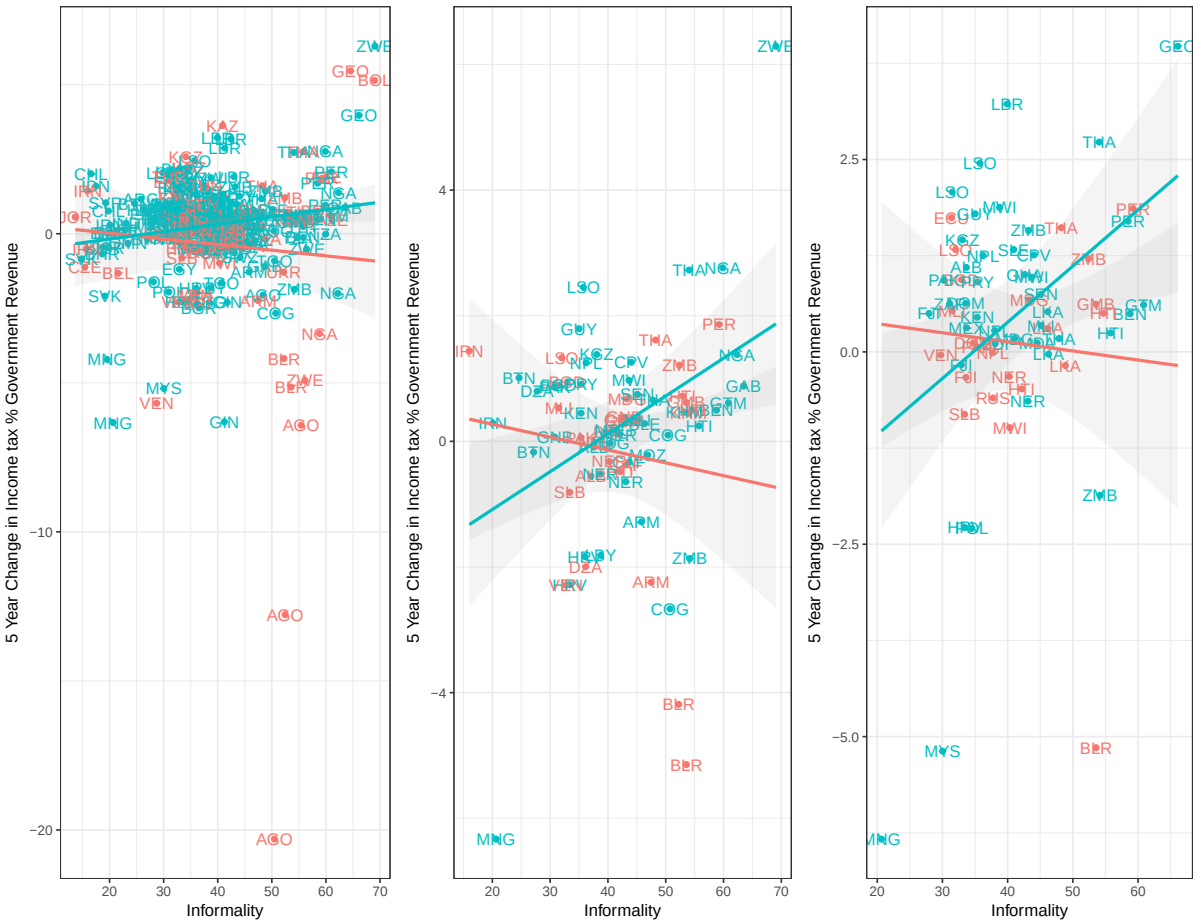
Below, Figure 2.2 illustrates this relationship and helps to make sense of the size of the effects. While 1-point shifts (left-panel) have many observations (since small shifts of polity score are common), the effect of informality upon tax policy is small. Given a requisite 4-point shift to be included (middle-panel), fewer observations may be leveraged, but the overall trend-line is much steeper. Likewise, by only including regime changes between democracy and autocracy (right panel), the number of observations are restricted but, once again, the trend-line has steepened.

To illustrate with an example, consider a society with 20% informality. If this society becoming 4-points more democratic, then its use of income taxation is predicted to fall by 5% of the total tax-mix (i.e., as percent of revenues). In contrast, if it became 4-points less democratic, then we would expect it to increase its usage of income taxation by roughly 3%.

Table 2.9: Linear Regression: "Tax Flips." Left Columns: polity change more than 1; centre columns: polity change more than 4; right columns: change in polity dummy. Green = Democracy. Red = Autocracy.

	Dependent variable: Change of Income Tax Usage as % Government Revenues					
	Income Tax % Govt Rev Before vs. After Transition					
	1-Point	1-Point	4-Point	4-Point	Dummy	Dummy
Informal % GDP	−0.019	−0.016	−0.020	−0.012	−0.012	−0.001
	(0.021)	(0.021)	(0.033)	(0.033)	(0.039)	(0.038)
$\Delta polity > 0$	−1.073	−1.030	−2.972*	−3.151*		
	(1.082)	(1.094)	(1.752)	(1.708)		
$\Delta GDPperCap$		1.205**		2.643**		2.844**
		(0.534)		(1.014)		(1.081)
Informal:$\Delta polity > 0$	0.044*	0.043*	0.081**	0.081**		
	(0.026)	(0.026)	(0.040)	(0.039)		
$\Delta PolityDummy$					−3.137	−2.546
					(1.993)	(1.955)
Informal:$\Delta PolityDummy$					0.085*	0.068
					(0.047)	(0.047)
Constant	0.400	0.138	0.682	0.234	0.602	−0.099
	(0.909)	(0.922)	(1.455)	(1.426)	(1.659)	(1.622)
Observations	275	269	72	70	65	63
R^2	0.034	0.054	0.119	0.205	0.122	0.223
Adjusted R^2	0.023	0.039	0.081	0.156	0.079	0.170
Note:						*p<0.1; **p<0.05; ***p<0.01

Figure 2.2: Change in Use of Income Taxes (% Revenue) by Informal Sector Size (% GDP); left-side: 1-point change in polity score; middle: 4-point change in polity score; right: shift between country identified as democracy vs. autocracy.



Tax Flip of Mechanism

I repeat the above process, but to review informality's effect upon marginal tax rates (at mean incomes) in democracies vs. autocracies. The dependent variable takes the '5-year average tax rate' after a shift in polity score, which is subtracted from the '5-year average tax rate' before this shift in policy. Seperate measurements are taken for 1-point shifts, 4-point shifts and changes of regime type (whereby polity scores cross the threshold from autocracy into democracy or vice-versa). As before, I control for growth in GDP per Capita.

Interpretation: The models' results are consistent with the findings for income tax usage as a percent of revenues. The results are only significant when looking at observations whereby a shift of 4-points (or more) occurred on the polity scale. However, across all three iterations of the model, we find that democratization in the context of large informal sectors drives up the marginal tax rate on income. In contrast, autocracies decrease their marginal tax rates upon income. The '1-point change' and 'regime-change' models do not produce statistically significant results in support of my theory. However, the magnitude and direction of the effects are consistent with my theory's predictions.

Using the middle panel of Figure 2.3, we can visualize the effects. Given a 4-point increase in a country's polity score today (towards democratization), we can expect it to reduce marginal tax rates by 5% if its informal sector is small (20% of economic activity); however, we could expect this same country to boost its tax rates by 2% if its informal sector is quite large (60% of economic activity). However, in the context of democratic backslide (i.e., a democracy becoming more autocratic), this effect would be opposite. The scenario of a small informal sector would see marginal tax rates rise by 4%, but a large informal sector would see the government reduce marginal rates on income by 5%. In cases of the selectorate shrinking, taxes are adjusted to place greater burden upon the informal sector when the informal sector is large, but upon the formal sector when the formal sector is large.

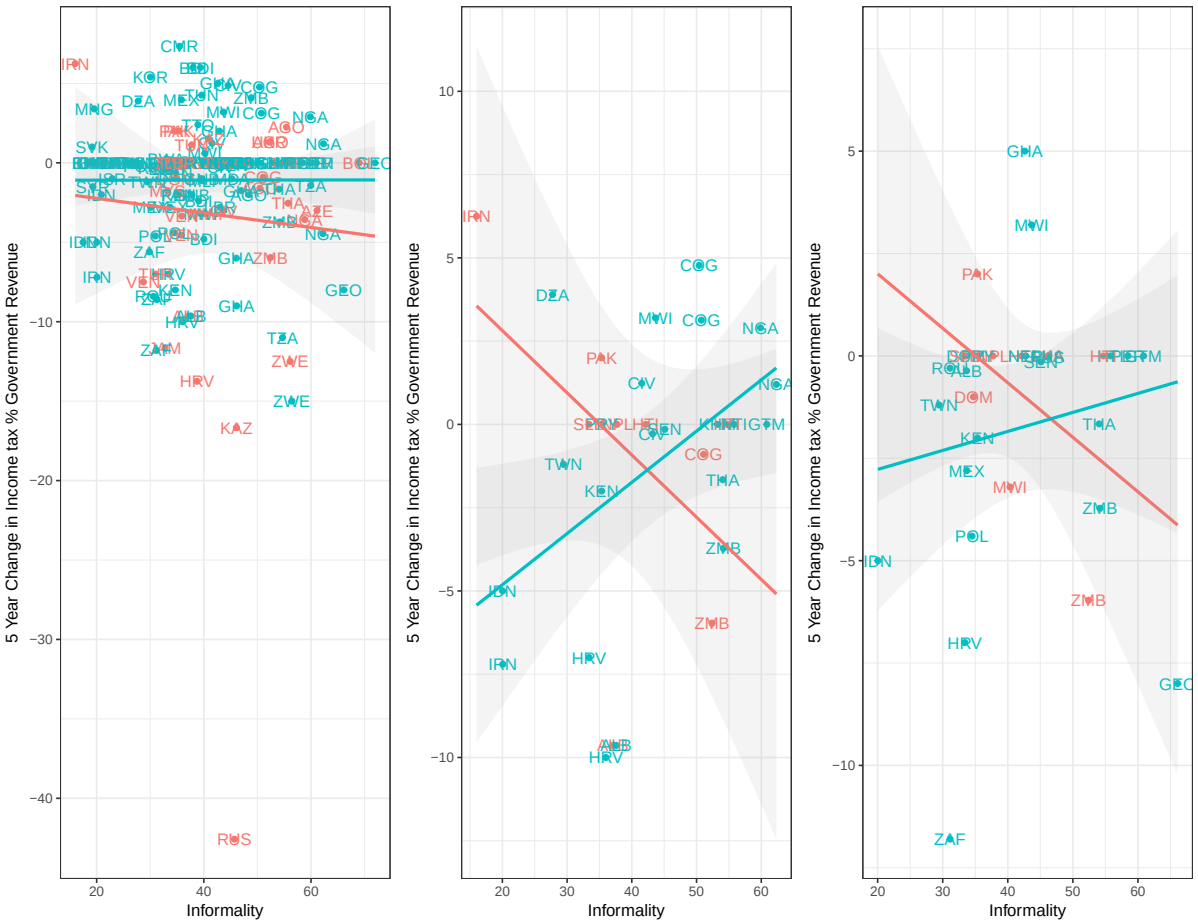
As such, this policy-based mechanism has similar results to (earlier) the outcome-

based metrics. The finding is encouraging for many reasons. First, the data sources are independently compiled. This serves as a helpful robustness check on the data quality of the first models. Second, while income taxes (as % of revenues) may be implicated by unknown economic variables, marginal tax rates are set by political leaders. The findings point to my theoretical mechanism as central: that leaders react to their selectorate through tax-policy concessions.

Table 2.10: "Tax Flip" of the Marginal Tax Rates on Income

	Dependent variable: Δ Marginal Tax Rates on Income					
	Difference in Marginal Income Tax Rates Before vs After Regime Change					
	1-Point	1-Point	4-Point	4-Point	Dummy	Dummy
Informal % GDP	−0.046	−0.069	−0.187	−0.255**	−0.133	−0.134
	(0.079)	(0.081)	(0.116)	(0.114)	(0.154)	(0.168)
Δ*polity* >0	0.222	−1.333	−14.441**	−16.755***		
	(3.881)	(4.007)	(5.718)	(5.571)		
Growth GDP per Capita		4.499*		−9.643**		1.151
		(2.332)		(3.834)		(3.993)
Informal:Δ*polity* >0	0.046	0.072	0.341**	0.413***		
	(0.089)	(0.091)	(0.135)	(0.132)		
Δ*PolityDummy*>0					−8.368	−8.798
					(7.089)	(7.827)
Informal:Δ*PolityDummy*>0					0.180	0.184
					(0.166)	(0.184)
Constant	−1.319	−0.340	6.551	9.728*	4.667	4.557
	(3.495)	(3.605)	(4.833)	(4.773)	(6.567)	(7.145)
Observations	151	138	31	28	32	28
R^2	0.036	0.057	0.223	0.398	0.058	0.067
Adjusted R^2	0.017	0.029	0.136	0.294	−0.043	−0.095
Note:						*p<0.1; **p<0.05; ***p<0.01

Figure 2.3: Change in Marginal Tax Rates (%) by Informal Sector Size; left-side: 1-point change in polity score; middle: 4-point change in polity score; right: shift between country identified as democracy vs. autocracy.



2.6 Conclusion

This chapter has focused on the theory that political leaders must maintain the support of those who "select" them into power. Whereas in autocracies this is a rather small proportion of the population, in democracies it is quite large. To amass support in democracies, political leaders forgo "planned inefficiency." In essence, this means that they do not implement tax-mixes that would draw heavily upon inelastic behaviours of their key constituencies. For those on whom their time in office depends, we can expect politicians to pursue tax policies which shift tax-burden onto those beyond their selectorate. Due to the large size of selectorates in democracies, we can expect to see large groups of society granted taxes for which their behaviours are "elastic." Taxes that are broadly elastic, however, are taxes that create inefficiencies in the economy. Therefore, democracies face a formidable challenge. As this chapter studied, the problem can be seen in the informal sector. By recruiting informal sector workers as voters, politicians tax the formal sector. However, in doing so, they risk disincentivizing formal sector work.

Using a database on tax-mix and imputations measuring the size of the informal sector, I evaluate how a growing informal sector affects the usage of income taxes in the context of democracies (with broad selectorates) contra autocracies (with narrow selectorates). Tests of mechanisms are performed by testing rates of income taxation, which are set by policy. Additionally, I perform an "effect of regime change" analysis, whereby I find that sudden changes in regime from democracy to autocracy lead to "tax-flips." These ruptures in tax policy were largely consistent with my theory's predictions[44]. Overall, this study points towards a caution: that democracies must be wary the effects of politicians seeking to appease broad selectorates when it comes to tax policy.

[44]As the informal sector grows in democracies, the usage of income taxation increases — which the informal sector entirely avoids, whereas taxes that do affect the informal sector, including property and sales taxes, tend to decrease as a share of government revenues. Checks of mechanism reveal increased income tax rates, confirming a policy avenue through which income taxes as a percent of revenues increases. Moreover, sudden changes of regime, whereby democratization or backslide occur, sees "tax-flips" occur consistently with predictions.

Chapter 3: When are Democracies Efficient at Taxation? The Role of Homogenous Elasticity-Profiles

Abstract

In general, tax instruments do not impact everyone equally. Rather, choices over tax-mix will implicate vertical and horizontal redistribution of society's economic resources. In democracies citizens have some measure of power in the determination of public policy; when certain salient (voting) blocs face disproportionately high incidence due to a particular tax instrument, we can expect conflict to arise. However, when groups across society have very similar "profiles" in terms of their taxable behaviour, (i) shifting tax-burden onto others becomes infeasible and (ii) citizens may become less inclined to free ride upon knowing that others are not free riding upon them.

Due to the need for politicians to acquire broadbases of support in democracies, we can expect to see politicians implement tax-mixes which are easily avoidable for broad segments of their population. These, in turn, are inefficient taxes. This phenomena can be described as an "incidence" vs. "efficiency" trade-off. In a heterogenous society, shifting burden onto others (an incidence effect), can be relatively easily attained. The voter has a strong, monetary, incentive to not pursue efficient taxation. In a homogeonous society, it is very difficult to lower incidence: with everyone being similar in composition, there is no

one to shift incidence onto. As such, without the incentive of incidence-shifting, voters are incentivized to pursue greater wealth through broad-based growth in the economy (through tax efficiency). A voter's ability to pursue lower incidence is obscured and their incentive to pursue lower incidence is offset by potential gains from society's general prosperity (achieved by pursuing "efficiency effects" in the tax code).

In this paper, I will look for evidence of the aforementioned theory by leveraging data from the Luxembourg Income Study (LIS). I will construct a Herfindahl measurement to capture a country's "homogeneity" of taxable behaviours. I will test my theory by seeking evidence that higher rates of taxation upon "one's own group" are found in countries where levels of homogeneity are greatest.

3.1 Introduction

For many, the question of an efficient tax code is fundamentally one about getting the economics right. This is backed by a literature on "optimal tax policy" (Salanie, 2011; Atkinson and Stiglitz, 2015). For others, the question is one of building government administrative competence (Besley and Persson, 2014; Bird, 1992), since efficient taxation generally occurs through sophisticated tax instruments that require vast information gathering and monitoring (including taxes on income and sales). While economists may disagree upon the specific "point-estimates" of how much of each tax instrument should be used to strike the "optimum," the literature has put forward certain rules of thumb for the design of efficient tax policy (OECD, 2010). Despite this, few governments ultimately implement (let alone try to pursue) their advice (Mankiw, Weinzierl and Yagan, 2009; Boadway, 2012). Moreover, for those scholars contending that the efficiency of tax policy is a matter of government capacity (i.e., administrative competence), they must note the many cases of capable governments that leave their potential unexercised (Holland, 2016; Tendler, 2002; Reid, 2017). Within the context of this study, the question of realizing an efficient tax code is fundamentally a political question. It is not, strictly, that governments

do not know what to do, nor that governments are always incapable to do what has been asked of them (in order to implement efficient policies). Rather, the challenge exists that political leaders simply do not want to pursue efficiency in contexts where institutions are designed such that doing so would hurt them. I shall focus on the unique challenges that leaders in democracies face.

How do politicians convince their voters to tax themselves – especially when these politicians desperately need their votes? The Scandinavian countries have become something of a focal point in the literature on the politics of taxation (Steinmo, 1996; Einhorn and Logue, 2010), exactly because they have managed to pull this off. These countries do not simply raise lots of taxes on marginalized blocs of the electorate, they also tax their society's broadest coalitions: including high rates of taxation upon the middle-class.

As it turns out, broad-based taxes – that target society's largest groups – are crucial for efficient taxation (Slemrod and Bakija, 2017; OECD, 2010; Salanie, 2011). Tax loopholes should not be present and taxes should be largely "difficult to get out of" (Reid, 2017; Salanie, 2011). Otherwise, to make up for revenue shortfalls, higher rates must be used on those still paying; crucially, an algebraic increase in tax rates causes an exponential increase in Deadweight Loss (inefficiency).

Given that efficient tax policy is hard for politicians to deliver, how is Scandinavia pulling this off? Being a democracy, their efficient tax-mix requires that voters support policies that will cause them to be taxed (specifically, taxed in ways that they cannot get out of). Hence, the upshot of my research project: when do politicians have the necessary incentives to implement efficient tax-mix policies?

To answer this question, I generalize from the story of taxation in Scandinavia. My insight also borrows from the literature on how ethnic homogeneity effects government spending-levels (Alesina, Baqir and Easterly, 1999); however, I introduce a twist whereby homogeneity is not conceived of in ethnic terms, but in terms of people's economic behaviours. This chapter will argue that the political leaders of democracies, with citizens whose economic behaviours are largely similar, will have a mandate to tax more.

These politicians will also be able to tax the key income sources of their population. As such, these politicians will be enabled to pursue highly efficient tax-mixes.

Voter preferences over tax policy are partially determined by considerations of *efficiency vs incidence* effects. The preference of one relative the other is mediated by homogeneity. If everyone is similar, in the composition of their economic behaviours, then it is difficult to construct a tax-code that benefits some by shifting taxes onto others. If shifting tax burden is highly difficult, or impossible, then a citizen will be "best-off" by pursuing tax policies which cause general economic growth through-out society. (This is paralleled by the coloquial delimna of whether to have a larger piece of a smaller pie, or a smaller piece of a larger pie.) A voter's perspective might be that "if everyone is being taxed, then it is not so bad that I will be taxed also." They might add, "in any case, the taxes have to come from somewhere, and I've no where else to place them."

This paper tests the above theory by using data from the Luxembourg Income Study (LIS, 2021). Using their data, I construct measures for the "homogeneity of income sources" of a country's citizens (in particular, I construct Herfindahl scores). If citizens make their income in similar manners, then their "homogeneity" is predicted to create an incentive for citizens to pursue an "efficiency" effect rather than "incidence" effect. I then use these scores to understand how variations in homogeneity associates with variations in tax-levels and tax-mix. I use three sets of models. First, to understand general cross-national patterns in the data, I use a cross-section of the LIS data. I use homogeneity as the independent variable of theoretical interest; two dependent variables are tested, including income taxation (% Government Revenues) and overall taxation (% GDP). Are countries with more homogenous populations (in terms of how they earn income) more inclined towards efficient tax policy? Second, I repeat the first set of models, however, I use the full panel of LIS data, while accounting for country-level fixed effects. This allows me to test trends occurring within countries. As countries become more homogeneous (heterogenous), do they implement more efficient (inefficient) policy?

A third test is used. My theory implicates a particular mechanism of change:

politicians pursue electorate support by legislating policy favourable to their core constituencies; as such, politicians operate through legislation to implicate policy including tax-rates. In order to test for the mechanism implied by my theory, I test that variations in tax-levels and tax-mix occur *specifically due to changes in legislation* (as politicians select policies to secure a winning coalition of voters). Thanks to the Andrew Young School Marginal Tax Rate Dataset, such policy changes are measured. This dataset tracks of marginal income tax rates (at a variety of income-levels) across the world for the years 1985 to 2005. I use the same models, previously tested (both cross-sectional and panel), but I replace the dependent variable with Marginal Income Tax Rates (the direct result of policy decisions by politicians; in contrast to other measures which are only incidental, such as income tax usage (% of revenue) and tax-levels (%GDP)). This test of mechanism is important, since changes in homogeneity may be associated with changes in the economy (e.g., GDP), which, in turn, could alter government revenues through income taxation, even in the absence of changes to policy decisions.

3.1.1 Motive

This paper was initially motivated by considering the relationship between two puzzles from the political economy literature on redistribution. First, there is the Robinhood Puzzle associated with Median-Voter Theorems (Meltzer and Richard, 1981; Romer and Rosenthal, 1979); second, the Free Lunch Puzzle (Kaufman, 2009; Lindert, 2003). By the former, it is expected that democratization should come with increasing redistribution: as the franchise expands to more and more people of lower and lower incomes, the "decisive voice" in society is someone of relatively lower income; the decisive voter, then, is someone who stands to benefit by increasing the amount of redistribution from the rich. According to this model, democracy is expected to "soak the rich." Additionally, an implication of the model is that those democracies with the greatest inequality (based on pre-tax market income), should be the democracies with the greatest levels of redistribution. However, many empirical studies find this to not actually be the case

(Lind et al., 2005; Kaufman, 2009) (or, at the least, they find the evidence indecisive (Milanovic, 2000)). This lease the Robin Hood puzzle to ask: why not?

One possible account seeks to explain the Robin Hood Puzzle through the Free Lunch Puzzle (Lindert, 2003). The Free Lunch Puzzle asks how high-redistribution democracies manage to be high-growth democracies, in stark contrast to the theoretical predictions of major works in public economics (Laffer, 2004; Okun, 2015). These democracies seemingly circumvent Okun's leaky bucket (Lindert, 2003) whereby redistribution and efficinecy (and thereby economic growth) are trade-offs. In other words, to have more of one means having less of the other (Okun, 2015). I shall suggest that an answer to this second puzzle might provide an answer to the first.

Lindert suggests that the answer to the second puzzle may be answered with the efficiency of tax codes[1]. High redistribution welfare states happen to be states with highly efficient tax codes. If taxation is done efficiently, then more of it is affordable to a society. Holding the cost and benefits of *government-spending* constant, if you reduce the number of private dollars destroyed per dollar of public revenues raised, then at a given level of taxation there are more private dollars remaining (some portion of which can be kept in the private sector, thereby driving economic growth; and some portion of which can be taxed, thereby generating higher welfare spending). In short, an efficient tax-mix is one way to get a less leaky bucket. And, a less leacky bucket is one way to get more revenue (at a particular rate of extraction).

Now let us return to the Robin Hood Puzzle. My last chapter argued that democracies have incentives, in general, to pursue inefficient tax-mixes[2]. In this manner, it could be that part of democracy's under-performance in redistribution is due to its cost being

[1]Lindert's explanation is less functionalist than the simplified idea presented. He askes, why do some democracies, like the Scandinavians, do taxation relatively well? One possible argument is: because they have to. Once politicians are being held accountable to maintain beloved (or, at least, widely supported) public provisions, they must raise taxes efficiently in order to afford them. The penalty of bothering people with the sorts of taxes that are efficient (i.e., inelastic, unavoidable) is a necessary political price to pay relative that of defunding a public program.

[2]In my previous chapter, I argued that democracies will fail to tax efficiently, because politicians have an incentive to abide by their broad-based selectorate's desire for taxes they personally might avoid. In contrast, in autocracies, the politicians have an inventive to abide the narrow selectorate's desire for taxes that the broad, disenfranchised, masses cannot avoid.

higher. In short, given that democracies (on average) have inefficient tax-mixes relative autocracies, then spending (including on programs of redistribution) will be relatively more expensive.

In short, government spending will burden the economy more in democracies than autocracies due to inefficient tax-mix. Perhaps, then, we can imagine that democracies *would* do more redistribution than dictatorships, if both were held to a constant deadweight-loss per dollar of taxation.

While democracies have less efficient tax codes *on average*, this paper concerns itself with exploring the potential of an exception. Select democracies, including the Scandinavians, may well be closer to having levels of redistribution in-line with the expectations of the Robin Hood puzzle. Thus, an explanation of the Free Lunch Puzzle may go a long way to explaining why some governments spend more than others.

3.1.2 Upshot

In this chapter, I want to recycle the aforementioned solution to the free lunch puzzle, but *I also want to endogenize where efficient tax-policy comes from.* Yes, countries that tax a lot are the countries that tax efficiently. But, this is not only the result of necessity (i.e., taxation is efficient in order to meet demand for high levels of spending), it also is due to homogeneity of taxable behaviours amongst citizens.

Efficient tax-mixes are an "exception to the rule" amongst democracies. I argue this special state is enabled when large swaths of citizens have very similar slates of taxable behaviors: I call this a "homogeneous elasticity profile of taxable behaviours." Essentially, it is hard for citizens to pass the buck when most other citizens are highly similar in terms of their economic behaviours – in terms of: (1) the extent to which the incidence of a particular tax instrument will fall upon them; and (2) how easily they can alter their economic behaviours if they are taxed (i.e., how much can I change my behaviour to avoid taxes, before the costs of changing my behaviour is greater than the taxes themselves). Additionally, the incentive to "free ride," by leaving others to pay

taxes that you try not to pay, is arguably lessened in such a context: one is less inclined to free ride knowing that others are not free riding. It is important to note a potential infinite regress: the homogeneity of taxable behaviours has many potential root causes, including: levels of diversity in the types of work available in the economy; differences in consumption vs. saving habits; income inequality due to different payouts to capital relative labour; the possibility to hide economic behaviours (such as earned income); different preferences over saving rates; etc.

In terms of past literature,arguments have been made about the role of homogeneity conceived in terms of ethnicity and race; these arguments concern themselves with tax-progressivity and, as such, income taxation (Lieberman, 2003). My argument most directly borrows from insights made concerning voter preferences for government spending (Alesina, Glaeser and Sacerdote, 2001): in American jurisdictions where the white population constitutes an overwhelming majority, welfare spending is higher; however, the welfare state is smaller in jurisdictions where the white population constitutes a small majority. Here, heterogeneity in the population leads the white population to restricting resources that would become public and, thus, shared with non-white minorities.

In my case, of course, homogeneity is conceived of in different terms. I am concerned with the homogeneity of individual taxable behaviours, actors in my model are attaining utility by maximizing their individual income (rather than their ethnic group's income). However, the end result carries a major parallel: there exists an "in-group," namely the winning coalition, that minimizes money going-out, while maximizing the "out-group's" tax contributions (from which the in-group benefits, despite having minimized their own contributions). Hence, my study, like studies on ethnic and racial homogeneity, predicts an end-result of "in-group" withholding (which, in my case, also causes a burden-shift onto the "out-group"). In the case of a negligible "out-group," then there is no population for the "in-group" top shift tax-burden onto; in this case, the "in-group's" incentive is to implement an efficient tax-mix, which, in turn, will make taxation "cheaper" and, thus, enable more of it in society.

To recapitulate, voters in the winning coalition generally must choose between a tax instrument's efficiency and incidence. A tax with low incidence for themselves is probably not an efficient tax, exactly because it can be avoided. (This requires higher tax rates to make up for the shortfall in revenue; however, an marginal increase in tax rates causes an exponential increase in deadweight-loss.) In a democracy, the problem of a trade-off between an individual's efficiency and incidence is exacerbated by the fact that the winning coalition of an election is large. Hence, politicians make tax concessions to large sets of individuals. These problems can be avoided, however, in some circumstances. If the citizenry has a homogeneous elasticity profile, then the incidence effect gives way to the efficiency effect: unable to shift incidence unto others, a voter's self interest would demand efficient tax policy. Growing the economy becomes the only way to benefit by the tax code, due to the infeasibility of burden shifting. Despite inelastic taxes being unpopular taxes, one is more able to grudgingly accept when the tax is not only on oneself, but also on everyone else.

3.1.3 Overview

The next section will begin by situating my theory within the current literature. Especially, I will focus on explaining alternate theories that seek to explain this study's dependent variable: income taxation as a proportion of the tax-mix and levels of taxation (as a percent of GDP). (This will also lead me to developing a measure for the mechanism through which my independent variable effects my dependent variable: policy decisions, as observed through marginal income tax rates).

To explore my hypothesis, I will use data from the Luxembourg Income Study. While the scope of this paper will prevent me from studying every dimension of the (interlinking) puzzles that I mention above, I will study whether a citizenry with relatively similar "elasticity profiles" can also be a citizenry that will generally raise higher levels of tax revenues through instruments most inelastic upon themselves.

Ultimately, this paper will construct indices of similarity, at the country-level, for

the citizen's sources of income. The indices will then be used as the independent variable in models. The theory will be tested in both a cross-sectional and panel context (i.e, with fixed effects). I test for the effect of homogeneity on tax-levels and income tax usage. Additionally, I test the mechanism implied by my theory: *taxation-levels and income tax usage* should be the consequence of changes to public policy (particularly regarding *marginal tax-rates*). As such homogeneity should not only explain tax-levels and income tax-usage, but marginal tax-rates as well.

3.2 My Theory's Fit within the Literature

While democracies *on average* have under-performed the redistributive expectations of median voter theorems (Meltzer and Richard, 1981; Romer and Rosenthal, 1979), some democracies do have high redistribution. I shall recapitualate my own theory, and then speak to its relationship with other theories of tax-max.

3.2.1 Theorizing about homogeneity and Elasticity

It is plausible that democracies may afford more redistribution when their tax-mix is efficient, thus enabling revenues to be "cheaply" raised. One possible source of an efficient tax-mix is a population with homogeneous economic behaviors. Barring this situation, citizens as voters face a dilemma: in order to raise tax revenues efficiently, a member of society's largest coalition must consent to be taxed on their inelastic behaviours; however, as member of the winning coalition, this citizen could avoid tax-incidence by selecting taxes that are "elastic" for themselves[3], but not for others — thereby shifting tax burden onto these others. This will, however, mean that the economy will face distortions from inefficient tax policy[4]. In such a case, the selectorate must balance between

[3](I.e., behaviours that they do not engage in, or that the could reduce at minimal cost/burden – such behaviours are highly "malleable.")

[4]Primarily, this is because the government will have to make up the revenues by taxing a smaller base at a higher rate. However, a linear increase in a tax rate will create an exponential increase in a tax rate's deadweight loss. The small group being hit disproportionately with higher tax rates will, in other words, alter their behaviors away from optimum more (in total) than if a full base was taxed at

their "share of the pie" and "the size of the pie." This dilemma does suggest that the worst extreme of tax-mix should be avoided: the winning coalition must partially offset incentives to push taxes onto others when they consider the inefficiency consequences[5]. However, beyond this minimalist victory, the problem is far larger: a person's share of broad societal benefits gets highly diluted across the population; in contrast, the benefits of a favourable tax code are shared amongst a smaller subset of the population. As such, in a heterogeneous the population, the winning coalition is incentivized to increase their income by shifting a (non-zero) proportion of their tax burden onto others (thus inducing inefficiencies).

However, while citizens have an incentive to prefer an inefficient tax-mix when it shifts their tax burden onto others[6] this will no longer apply in cases where citizens are relatively similar in terms of *how they react to being taxed*. If everyone is equally able to avoid a tax, then the inability to burden-shift evaporates the incentive for an inefficient tax-mix. In such cases, citizens stand to benefit by taxing efficiently, which will minimize the cost (economic burden) of raising revenues for the purpose of government spending[7]. The deadweight loss of raising a fixed amount of income shall be higher in heterogenous societies than homogenous.

Plausibly, the Robinhood Puzzle (whereby democracies that have relatively equal market incomes (pre-tax) are unexpectedly the ones to redistribute the most), may be explained through an answer to the Free Lunch puzzle, whereby: homogeneity enables

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the lower rate required to raise the needed revenues.

In short, if a broad coalition presses for an avoidable tax, then this will effect a tax-policy that will also disincentivize (or otherwise distort) economic behaviors amongst a smaller, yet still formidable, group of citizens outside of their coalition.

[5]As such, citizens in highly heterogenous jurisdictions (whereby a taxable behavior is elastic for a coalition larger than a coalition for whom it is inelastic) to select tax-mixes they might avoid, although they still have some incentives, at the margins, to moderate themselves, so as to not burden the economy too heavily with this inefficient tax-mix.

[6]N.b., the costs of government are forgone, but not typically the benefits. With exception of user-pay government programs, citizens can enjoy the benefits of revenues raised from others (i.e., government spending on programs and benefits)

[7]Put in other words, a society of heterogeneous tax-profiles will tend to produce a winning coalition that balances between (i) minimizing taxation through burden shifting; while (ii) also minimizing taxation's impact upon size of the economy (due to the inefficiencies incurred). In contrast, countries with homogeneous tax-profiles need not offset (ii) due to the incentive for (i). The tax-mix will be more efficient and, thus, the costs of taxation will be less.

efficient tax-mixes, which enables higher tax-levels at a fixed level of burden upon the economy. (Additionally, the highly redistributive nature of societies with equal income distributions may plausibly occur because the homogeneity of income-sources correlates highly with the homogeneity of income-levels.) Thus, heterogeneity's interaction with democratic institutions may account for why redistribution in democracies has not outperformed redistribution in dictatorships to the extent predicted by median voter theorems: dictatorships enable small elites to implement efficient tax-mixes upon the masses; in contrast, the winning coalition in a democracy will only be incentivized to implement an efficient tax-mix in the exceptional case of homogeneity. This requires a rare coincidence of similarities across the citizenry's income sources.

3.2.2 Sources of homogeneity and Tax-Mix Outcomes

When economic behaviours are homogeneous, it is easier for a government to collect relatively equal amounts of income across the population. These economic behaviours are potentially many; however, this paper will ultimately focus on the homogeneity of a population's income sources upon income taxation and overall tax levels. I will review the similarity across the population in terms of what share of their income comes from wages; self-employment; capital investments and rents. Naturally, further studies could identify other sources of homogeneity may affect the usage of various tax instruments.

Further studies could expand research into other areas, including: how variation across the population's consumption behaviours (in terms of overall spending, and spending on particular types of goods) affect the usage of indirect taxes (especially VATs, including Good and Services Taxes); and how variation across the population's savings rates affects the usage of VATs. In the former case, when the population is homogenous in their consumption behaviours, we can expect wider consent for these behaviours to be taxed. In the latter case, when savings rates are heterogenous across the population, we can expect savers to push for increased consumption taxation, which they avoid paying.

3.2.3 Competing Theories

My thesis argues that greater homogeneity of (taxable) economic behaviours across the population will cause higher levels of taxation, particularly through higher taxes upon inelastic behaviours. Most directly, the inability to do burden-shifting creates higher levels of selectorate support for *higher tax rates* on their most prevalent (homogeneous) behaviours. Less directly, the winning coalition's consent to be taxed leads to an efficient tax-code that enables *higher overall levels of taxation.* Overall tax-levels will be most affected when the traits that are homogeneous in a society are covered by major pieces of the tax code. Most notably, this includes taxes on income and consumption.

To test my theory, I will look closely at homogeneity of income sources. The LIS dataset provides the necessary information to determine what share of an individual's income comes from wages; self-employment; capital investments; and rent. My theory predicts that income taxation will be used to a greater extent in countries where individual's income breakdown is highly homogeneous (i.e., where they receive similar proportions of their income from each of the above sources); moreover, because income taxation is a major tax instrument (as a percent of government revenues) in a vast majority of countries, my theory also predicts that homogeneity of incomes will lead to higher overall levels of taxation as a percent of GDP.

Many alternate theories offer explanations as to why we might see greater or lesser usage of income taxation as a percent of revenues and taxation as a percent of GDP. My theory will be tested against these alternate explanations. I will select variables to operationalize the concepts discussed below. As such, I will have my own theory and alternate theories to consider. These will include:

Economic Development

Economic development is predicted to cause an increased usage of BOTH government revenues (as a % of GDP) and income taxation (as a % of Revenues). Theories of economic development point to a broad array of mechanisms that cause government

spending to appear as a luxury good – whereby individual consumption of the product (as a proportion of total spending) increases with income (Auteri* and Costantini, 2004; Caserta and Reito, 2015; Martinez-Alier, 1995; Parkin, McGuire and Yule, 1987; Wagner, 1890; Peacock, Wiseman and Veverka, 1967; Wagner and Weber, 1977). Other theories of economic development point out that income taxation, in particular, is a massively complex administrative achievement and has high fixed-costs to undertake. This literature speaks to the need of competent government and for economies of scale: income taxation only become feasible and affordable given a broad-base of citizens with relatively high incomes that can be exposed to the tax instrument (Boadway and Sato, 2009; Besley and Persson, 2014; Bird, 1992; Buehler, 1933; Kau and Rubin, 1981). Otherwise, the fix-costs are not sufficiently diluted to reduce administrative costs per dollar collected.

Income Inequality

Few tax instruments can easily be structured to induce income-progressivity. Income taxation, however, can be made an instrument of redistribution by charging increasing marginal rates at higher-levels of income. Political economists have built models that predict income taxes will be used more highly in the context of democracies with high levels of income inequality. Income inequality leads to an incentive amongst those of low-income to "soak the rich." Increased income taxes of progressive design will extract money from the wealthy so as to fund programs and cash transfers to the benefit of those with relatively low incomes (Meltzer and Richard, 1981; Romer and Rosenthal, 1979; Congleton, 2004).

Homogeneity

At this point I wish to my own theory to this list, in order to explain variations in tax-outcomes across countries.

When citizens earn their incomes in a similar manner relative one-another (e.g., in terms of the proportion of their income coming from wages, self-employment, rent

and, capital investments), the government may relatively easily create forms of income taxation that affect everyone across the population equally. This creates two incentives for citizens to accept taxation upon their most common, and inelastic, behaviours: first, any attempt to change the tax code to reduce incidence will fail (i.e., shift taxes onto others), since any change to the tax code will effect everyone equally; second, citizens may feel better about paying a certain share of their income on taxes, knowing that everyone else must do likewise (free riding, in other words, becomes normatively less attractive).

As such, the government may gain a mandate to issue inelastic taxes. In turn, these taxes will have efficiency benefits for the economy. As such, we can expect homogeneous populations (in terms of citizen's income sources) to make greater use of income taxation and to have higher tax-levels overall. In contrast, a highly heterogeneous population would see large coalitions trying to select a tax-mix that would be elastic for themselves, but not for others. In an effort to shift tax-incidence onto others, members of the winning coalition would increase their disposable incomes. However, the tax-code would be elastic for large segments of the population, which would induce tax inefficiencies upon the economy. The relative cost of taxation will be high. In such societies, self-interested actors to forgo the broad-based economic gains of efficient tax policy. Income taxation will make up a smaller share of tax receipts and overall levels of taxation will be lower.

Ultimately, each theory will need to be operationalized and tested within this paper. The first two mechanisms have relatively straightforward measures. For the first, one can operationalize economic development through a society's. economic production per capita. For the second, one can operationalize income inequality as the standard deviation of income-levels across the population. As a proponent of the third mechanism, I need to find a way to answer, for each individual country, "are citizens making their money in relatively similar ways?" In the following section I will construct such a measure; moreover, I will elaborate on the measures used to control for the effects of alternate explanations.

3.3 Data

The first set of models for this paper will consider the role of heterogeneity of income sources upon (1) the proportion of government revenues to come from income taxation; and (2) the overall level of taxes raised. A second set of models will test the association of income homogeneity upon public policy more directly by looking at Marginal Income Tax Rates. In other words, not only is more revenue raised when income sources are homogenous, but the higher levels of income should be directly tracable to policy. While some variables are directly pulled from reputable databases, some required my own formulation. I will review all the variables that I draw upon, but I will provide an extended focus upon how I constructed my measure of homogeneity; this Herfindahl index was constructed from source data in LIS.

Sample Limitations

Finally, it should be noted that LIS is constantly expanding to include more countries and year in its dataset. However, a limitation in research for this project has been limited observations. I will exploit the full database, at the cost of using a maximally coherent sample. In other words, rather than limit the sample to highly comparable countries (such as those within the EU, OECD, etc.), a broad array of countries will be included so as to maximize the observations upon which quantitative models can perform estimations.

3.3.1 Variables

This study will draw upon two dependent variables: income Taxes as a Percent of Government Revenues and Overall Levels. of Taxation as a Percent of GDP (ICTD/UNU-WIDER, 2017). These variables will be measured as percentages. Income taxes as a percent of GDP are derived by dividing income taxation as a percent of GDP by Government Revenues as a percent of GDP. The choice of variable avoids certain complications

(e.g., adjusting for currency, inflation, etc.).

Upfront, I wish to consider the 'control' variables used within this paper. Afterward, I will finish this section with the (much lengthier) discussion about the Herfindahl index that was constructed to measure homogeneity.

First, regression models will control for levels of economic development, which will be operationalized as (logged) GDP per capita (Dahlberg et al., 2021). This will aid in accounting for a major theoretical explanation for taxation, and income taxation in particular. Additionally, many point-out that it is not simply the level of economic development, but the extent to which government has developed. Sophisticated government is required to increase tax-levels in society and to use sophisticated instruments, such as income taxation. As such, I will use the Bayesian Corruption Index as a proxy for the competency of government administration(Dahlberg et al., 2021). (Other proxies exist, but tend to have poor coverage of the LIS data that I most rely upon.) Second, I will control for the effects of income inequality, which, in particular, is theorized to impact the usage of income taxation(LIS, 2021). This will be accomplished by taking the normalized standard deviation of income for every country-year in the dataset. Additionally, tax policy may be the construct of national ideologies. Therefore, I include a control for left partisanship, as measured by left-wing party vote shares(Armingeon et al., 2017). In recognition of the findings from the government-expenditures literature, I will include a measure of ethnic fracture in societies(Fearon, 2003). This serves to account for the possibile effect of ethnic homogeneity upon government revenues, given its well-documented effect upon the size of the welfare state(Alesina, Glaeser and Sacerdote, 2001).

Finally, models using fixed-effects will add a cubic spline for the year. The spline is neccessary for two reasons. First, a fixed-effect for year would be overly restrictive: most countries in LIS are not included every year. Many countries only have a few entries. As such, a fixed-effect for year would often result in a coefficient driven by very limited observations. Alternatively, year could be included as a continuous variable. However, trends in tax policy are partially cyclical. Certain instruments fad in and out

of popularity. Therefore, they are not simply linear phenomena.

In the following subsection, I wish to outline the final variable of interest, which seeks to account for the level of homogeneity existing in a society.

Operationalizing Homogeneity

In order to operationalize homogeneity of income sources in a society, I will produce a Herfindahl Index. A Herfindahl Index is constructed to test the similarity of citizens in the composition of income. I make an index for each of every individual's income sources. This will be constructed from the following items as a proportion of an individual's income: wages, self-employment, rent & interest/dividends (LIS, 2021).Then, I also create weighted-average Herfindahl index as an aggregate measure for homogeneity across all income sources. This aggregate measure takes the individual Herfindahl scores for each income source, and then weights them by the percent of economic activity that particular income sources is responsible for. In most societies, wages are the largest source of income. As such, wages will generally have a large weight, such that the homogeneity of wages counts the most towards the measure of aggregate homogeneity. To the best of my knowledge, the construction of a Herfindahl index on this subject matter is an original construct.

Taking wages, for example, a Herfindahl index would register a low number if all individuals in a society received a similar proportion of their income from wages. The number would be high, however, if one individual got all their income from wages, whereas all the others got none of their income from wages. I will review an example shortly.

In the below equations, x is the *proportion* of an individual's income from one particular source. (x = income for an individual from a particular source divided by individual's total income.) For each individual income source, I compose the following metric:

$$Herfindahl\_Index_j = \Sigma s_{i,j}^2 = (\frac{x_{i,j}}{\Sigma x_{i,j}})^2 + (\frac{x_{i+1,j}}{\Sigma x_{i,j}})^2 + ... + (\frac{x_{n-1,j}}{\Sigma x_{i,j}})^2 + (\frac{x_{n,j}}{\Sigma x_{i,j}})^2$$

Where,

j = the income source: either wage, self-employment, rent or interest & dividends.

$i, i+1...n-1, n$ = individuals as observations within a country-year.

s = income from source 'j' as a proportion of individual 'i's' total income. source for each individual, (for each of the income sources labeled "j": wages, self-employment, rent, interest and dividends).

x_i = Each individual's proportion of income from one particular source

Let's consider the following example. A society with three people earn a total of \$60 in wage income. In scenario 1, they each make \$20, which is exactly 4/5th their total income. They also each make \$5 on investments (so, \$15 of society's income comes from investment). (Total income in society = \$75.)

$$Herf_{wages} = \left[\frac{\frac{20}{25}}{\sum[\frac{20}{25} + \frac{20}{25} + \frac{20}{25}]}\right]^2 + \left[\frac{\frac{20}{25}}{\sum[\frac{20}{25} + \frac{20}{25} + \frac{20}{25}]}\right]^2 + \left[\frac{\frac{20}{25}}{\sum[\frac{20}{25} + \frac{20}{25} + \frac{20}{25}]}\right]^2$$

$$Herf_{wages} = (1/3)^2 + (1/3)^2 + (1/3)^2 = 1/3 = 0.33$$

Note that repeating the above calculation for investment income would get us an identical Herfindahl score of 0.33.

On the other hand, imagine in Scenario 2 that wages are still \$60 of society's income and total income is still \$75 (\$15 from investments). However, one citizen makes \$25 in wages (\$0 from investments); another makes \$20 in wages (\$5 from investments);

and the last makes $15 in wages ($10 from investments). Overall income is equal between all citizens (indeed, total income from wages is the same as well as total income from capital), but where each individual gets their income from now differs.

$$Herf_{wages} = \left[\frac{\frac{25}{25}}{\sum[\frac{25}{25} + \frac{20}{25} + \frac{15}{25}]}\right]^2 + \left[\frac{\frac{20}{25}}{\sum[\frac{25}{25} + \frac{20}{25} + \frac{15}{25}]}\right]^2 + \left[\frac{\frac{15}{25}}{\sum[\frac{25}{25} + \frac{20}{25} + \frac{15}{25}]}\right]^2$$

$$Herf_{wages} = (5/12)^2 + (1/3)^2 + (1/4)^2 = 50/144 = 0.35$$

Note that repeating the above calculation for investment income would get us a Herfindahl score of 0.56.

As such, the difference that now exists – between citizens in terms of their income source heterogeniety – has caused the Herfindahl score to increase. Keep in mind that everything else was held constant: wages as a proportion of society's total income; income equality; etc. All that changed was the diversification of income sources between individuals.

With the Herfindahl index constructed for each income source, I then aggregate the Herfindahl scores after weighting them by each's source of income as a proportion of total income. This ensures that society's largest sources of income have a larger weight in the aggregate score. Hence,

$$Aggregate\_Weighted\_Herfindahl =$$

$$\frac{Total\_Wages}{TotalIncome} \times Herfindahl_{Wages} + \frac{Total\_Self\_Employment}{TotalIncome} \times Herfindahl_{Self\_Employment} +$$

$$\frac{Total\_Interest\&Dividends}{TotalIncome} \times Herfindahl_{Interest\&Dividends} + \frac{Total\_Rent}{TotalIncome} \times Herfindahl_{Rent}$$

Once again, we can build from the previous example. In both cases, income from

wages was $60 out of a total of $75 total income (i.e., including $15 from investments). For Society 1, we punch in its Herfindahl scores.

$$Aggregate_{Herf} = \frac{60}{75} \times 0.33 + \frac{15}{75} \times 0.33 = 0.33$$

Now we can use Society 2 to demonstrate that the Aggregate Herfindahl score will be higher for the society with income source disparities. For Society 2, the Herfindahl scores is as follows:

$$Aggregate_{Herf} = \frac{60}{75} \times 0.35 + \frac{15}{75} \times 0.56 = 0.39$$

Note that Herfindahl scores – built out of income proportions – will increase from a near-zero number given equality, towards a near-one number as inequality increases. As such, a score approaching 0 is nearing total homogeneity (i.e., everyone gets the exact same proportion of their income from a given source). Alternatively, a score approaching 1 suggests total heterogeneity (i.e., there is one person who gets 100% of their income from a particular source, where everyone else is receiving 0). For all Herfindahl scores, including the aggregate measure, a declining Herfindahl indicates increasing homogeneity of income sources; whereas, an increasing Herfindahl indicates increasing heterogeneity of income sources.

3.4 Research Design

In states where citizens have relatively similar profiles of economic behavior (for the time being, this will focus on sources of income), my theory predicts that taxes on the particular behaviour will be higher (i.e., the specific tax-instrument as a % of total government revenues). When this implicates the use of major tax instruments (such as income taxation, VATs, etc.) overall levels of taxation (as a percent of % GDP) will be higher as well.

My tests will focus upon homogeneity of income sources for citizens of a country, based on Herfindahl scores constructed for the Luxembourg Income Study (LIS, 2021). Therefore, I will primarily focus upon the study of income taxation.

There will be three types of tests. First, a standard linear regression for a cross-section of the data. In these models, I use every country's most recent year of data. Second, I perform a check on the theoretically relevant mechanism. My theory predicts that changes to income taxation will occur through alteration to tax-rates. As such, the second set of tests will repeat the earlier models, but substituting-in Marginal Rates on Income Taxation as the dependent variable (instead of measures of tax revenues).

3.4.1 Tests I: Cross-Sectional

My first tests will review cross-sectional evidence. The cross-section uses each country's most recent year available in the LIS dataset. This will allow me to illustrate any potential associations between 'homogeneity of income sources' and taxation outcomes. Then, I seek to test whether a relationship between the variables, when regressed, will be statistically significant given the inclusion of controls to account for competing theories. This will include measures of income) inequality and economic development (and, related, quality of government).

Hence, the first set of models use cross-sectional analysis. This is an exploratory analysis to seek whether a trend exists between homogeneity and taxation. Multivariate regression will test whether any notable trends remain upon control for a battery of variables that the literature lists as influential over tax policy.

3.4.2 Tests II: Panel Data for Regression with Fixed-Effects

My second set of tests will consider the full slate of panel data available through LIS. This will enable me to consider the relationship between homogeneity and taxation that exists *within* countries over the course of time. These regression models will use

fixed-effects at the country-level. Hence, trends will be studied within countries rather than across. Multivariate regression will be used to understand whether relationships exist between homogeneity and taxation. This research design serves to remove omitted variable bias due to unobserved confonders that strictly vary across countries (but not time).

As before, I will operationalize concepts from competing theories in order to test whether relationships between homogeneity and taxation hold while controlling for alternate accounts of taxation.

Finally, the panel data will seek to reduce the probability omitted variable bias that occurs across time by including cubic splines for time (i.e., a year variable). This enables controlling for secular trends in taxation across time, without presuming a strictly linear relationship (whereby a tax instrument is incrementally used more (or less) over time). Rather, this allows for cyclical patterns in the usage of tax-instruments. While this offers some redress for spuriousness occurring in variables across time, my study stops well-short of promising to eliminate all omitted variable bias that occurs within countries over time (given the potential for unobserved confounders).

3.4.3 Tests III: Mechanistic Checks

On the one hand, my theory predicts that increases in homogeneity of income sources will increase the use of taxation (% GDP) and income taxation (% Government Revenues). On the other hand, this is not a spontaneous reaction, but due to a particular mechanism. Homogeneity leads to citizens to accept higher levels of taxation, which leads politicians (in seeking their support) to increase tax rates. As such, my theory also predicts that increased homogeneity of income sources will increase marginal tax rates. A third set of models tests for this mechanistic effect.

The third set of models introduce a new dependent variable but otherwise will mimic the cross-sectional and fixed-effects models as listed above. The dependent variable will be replaced with the marginal income tax rate at a country's mean income-levels. As

before, I will consider the effect of my Herfindahl index on the dependent variable while controlling for competing explanations.

The models will serve to test the particular mechanism implied by my paper: variations in homogeneity will implicate income tax revenues (and tax revenues overall) through changes to the *rates* of taxation. In other words, variations of homogeneity should not only alter tax-take, but they should implicate tax-take through alterations to tax-rates. This mechanistic check helps to eliminate spuriousness whereby: (1) a third variable implicates both homogeneity and tax-levels; or, relatedly, (2) when homogeneity affects tax-levels through a different, but unknown, mechanism (e.g., rising or falling homogeneity may occur due to fluctuations in the GDP of a country, which would also affect a government's potential tax revenues; more specifically, homogeneity potentially increases during recessions, while recessions also cause government revenues to fall).

3.5 Findings

I begin by demonstrating a cross-sectional relationship between homogeneity and both (i) income taxation and (ii) total government revenues. Looking at every country's most recent data in LIS, I provide the below plots in Figure 3.1.

Original attempts to produce the plots below revealed the need to linearize the data by taking the logged value of the Herfindahl score. Additionally, because the Herfindahl score produced very small numbers below one, I re-scale such that the minimum Herfindahl value is 1. This is done by multiplying all Herfindahl values by the inverse of the lowest Herfindahl score in the dataset.

The Herfindahl score, then, shows rising heterogeneity as it's value increases. (A low number is homogeneous, whereas a high number is heterogeneous.) My theory predicts that income tax usage and tax-levels decrease as Herfindahl scores increase (i.e., as we move rightward upon the x-axis).

The correlations are inconsistent. In contrast to my predictions, greater homogeneity

of income correlates with less income taxation – not more, as I would predict. However, consistent with my theory, homogeneity does correlate with increase taxation levels overall (as a percent of GDP). (In otherwords, when the Herfindahl is near 0, marking homogeneity, tax-levels are the highest.) In the sample, the most homogeneous societies tend to have higher levels of taxation, relative heterogeneous societies.

It is, of course, possible that a potential relationship is being obscured through intervening variables. As such, I include regression models in Tables 3.1 and 3.2, which consider a range of potentially confounding variables. In particular, I consider variables chosen to operationalize the key concepts of competing explanations: economic development and income inequality (both of which are argued to impact the usage of income taxation and tax-levels in general).

The purpose of the regression models in Table 3.1 and 3.2 is to compare in a cross-national setting the relative effects of variables that operationalize a range of theories that seek to explain tax-outcomes. The first model tests for effects upon income taxation (% government revenues) and the second tests for effects upon overall tax levels (%GDP).

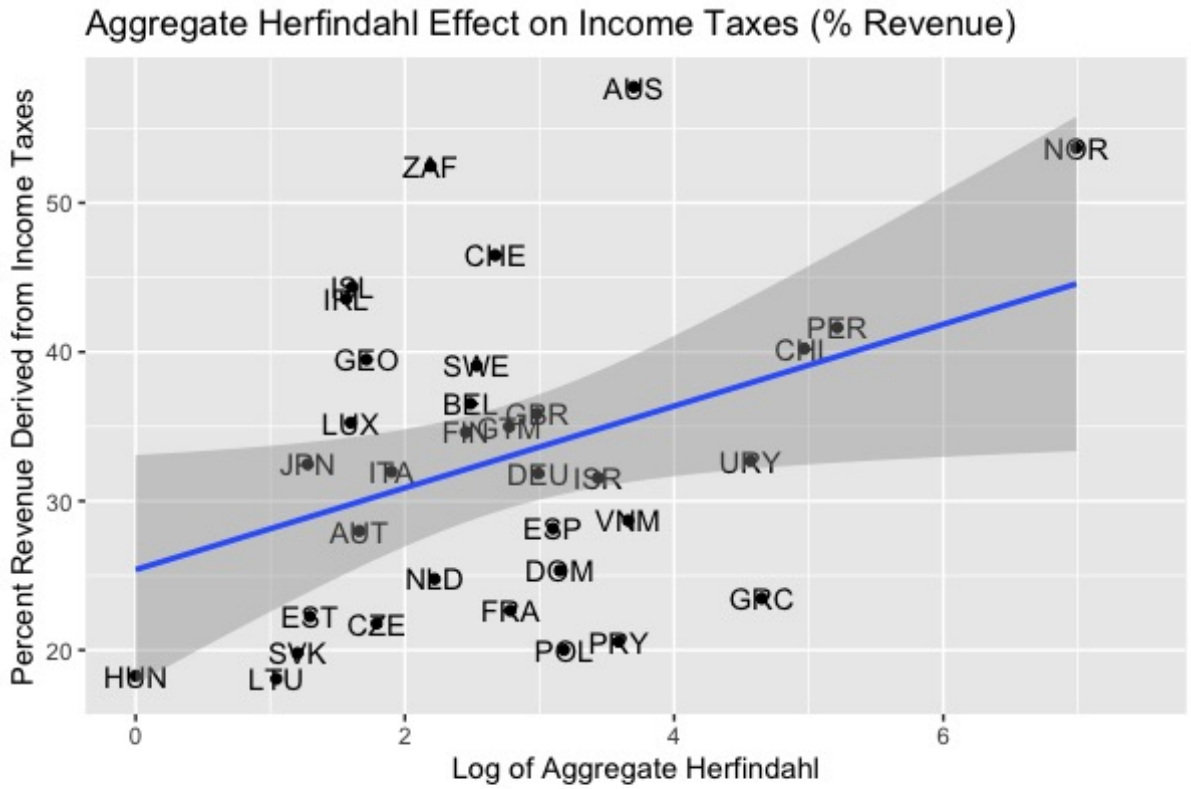
Considering the aggregate Herfindahl scores, we see that income taxes actually increase with rising levels of income heteroeniety. This is opposite of my predictions. The findings are statistically significant across all models testing for a battery of controls. However, in contrast, homogeneity has the predicted directional effect upon taxation (% GDP), but this findings are not consistently significant across models. Curiously, the result is statistically significant under the restricted scenario of controlling for economic development, income inequality, corruption and ethnic fracture. However, even removing a single control eliminates the significance of this relationship.

In terms of alternate theories, we find support for the notion that taxation (% GDP) rises with economic development (GDP per Capita). Corruption is seen to have a negative relationship with income taxation, which provides support for theories explaining the importance of quality of government to administering broad-based programs of taxation. Additionally, income inequality has a positive effect upon the usage of income

taxation; however, the direction of the relationship with tax-levels overall is negative (this relationship is not statistically significant). Finally, no significant relationships are found between either dependent variable with ethnic fracture nor left partisanship. It ought to be noted that the number of observations drops sharply when accounting for left partisanship. This may drive findings, rather than effects of the variable itself.

As such, initial cross-sectional findings fail to support a key hypothesis of my theory.

Figure 3.1: Cross-sectional relationships between homogeneity (as measured by Herfindahl Index) and metrics of taxation.



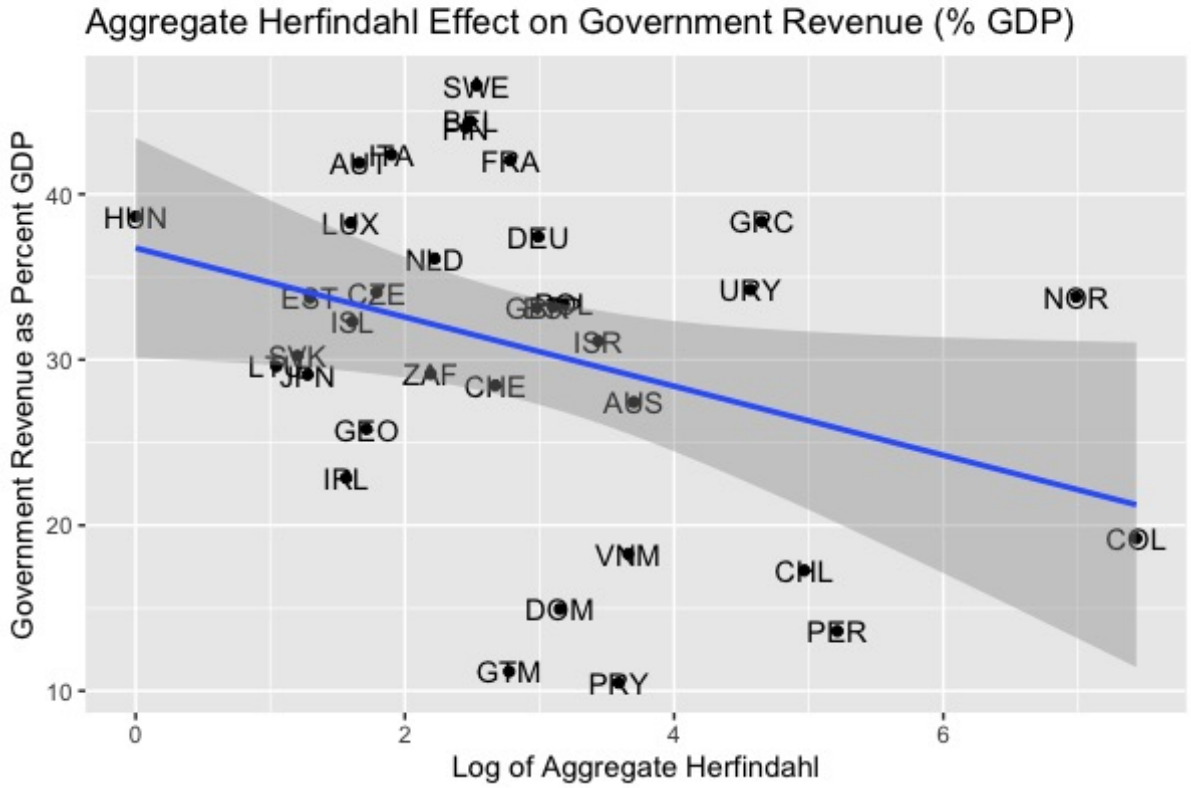


Table 3.1: Effects of Aggregate Herfindahl upon Income Taxes

	Dependent variable:			
	Income Taxation (% Government Revenues)			
	(1)	(2)	(3)	(4)
Herfindahl	2.573**	2.302**	2.684**	2.269*
	(1.135)	(0.980)	(0.988)	(1.215)
log(GDPperCap)	4.412**	−0.828	−0.205	15.087***
	(1.647)	(2.095)	(2.159)	(4.397)
Income Std. Dev.	81.330**	102.268***	85.472**	63.142
	(36.185)	(31.737)	(39.276)	(43.463)
Corruption		−0.418***	−0.365***	0.030
		(0.123)	(0.125)	(0.151)
Ethnic Fracture			8.475	−0.928
			(8.472)	(8.301)
Left Vote Share				−0.209
				(0.183)
Constant	−41.933*	19.296	12.084	−149.707***
	(22.911)	(26.717)	(26.779)	(49.656)
Observations	34	34	32	22
R^2	0.331	0.522	0.566	0.790
Adjusted R^2	0.265	0.456	0.482	0.705
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 3.2: Effects of Aggregate Herfindahl upon Overall Taxation

	Dependent variable:			
	Taxes (% GDP)			
	(1)	(2)	(3)	(4)
Herfindahl	−1.249	−1.250	−1.373*	−0.035
	(0.757)	(0.769)	(0.802)	(1.398)
log(GDPperCap)	5.232***	5.425***	5.586***	−1.946
	(1.245)	(1.877)	(2.011)	(5.060)
Income Std. Dev.	−41.392	−42.141	−50.590	−44.414
	(27.495)	(28.454)	(36.141)	(50.021)
Corruption		0.015	0.007	−0.076
		(0.109)	(0.114)	(0.174)
Ethnic Fracture			1.472	−0.211
			(7.607)	(9.554)
Left Vote Share				0.115
				(0.211)
Constant	−5.924	−8.154	−6.766	70.059
	(17.404)	(23.855)	(24.941)	(57.148)
Observations	35	35	33	22
R^2	0.548	0.549	0.559	0.098
Adjusted R^2	0.505	0.488	0.478	−0.262
Note:				*p<0.1; **p<0.05; ***p<0.01

3.5.1 Considering the Panel Data

Cross-national studies are always vulnerable to the many, non-obvious, differences across countries. Controls, in such instances, will be missed. Moreover, countries likely differ in more manners than there are countries at all (which presents a 'degrees of freedom' problem for regression analysis). Many factors may vary cross-country that implicate both homogeneity and taxation.

The following models will take advantage of the full panel of LIS data by using country-level fixed-effects, so as to review the effects of homogeneity upon taxation strictly using *within country* variations. Additionally, general trends across time will be accounted for by adding a cubic spline for a 'year' variable, in order to account for fluctuations across time. This is important as many tax instruments were innovated or popularized within the time-frame of my data (note, especially, increased usage of social security contributions and VATs). Otherwise, the following models in Tables 3.3 and 3.4 will use the same variables as the models previous.

In these models, utilizing fixed-effects, I find a relationship between homogeneity and taxation that runs opposite to my predictions. As countries become more heterogeneous in terms of income profiles, they tend to use income taxation more heavily (% Government Revenue) and they raise more taxes (% GDP). The finding is not statistically significant for the use of income taxation, but it is for overall tax levels. The latter results are significant when testing for all combinations of controls. Hence, contra my predictions, it is heterogeneity, not homogeneity, that leads to higher usage of income taxes (% Revenues) and general tax-levels (% GDP).

Curiously, while the usage of income taxes increases with economic growth, the usage of taxation overall declines. The former finding supports the thesis that economic development drives increased usage of income taxes. The latter finding, however, works against the *taxation as a luxury good* hypothesis. Interestingly, increased income inequality leads to lower overall tax-levels. Similarly, ethnic fractionalization does the same, in a manner consistent with past findings (Alesina, Glaeser and Sacerdote, 2001).

Table 3.3: Panel Data. Effects of Aggregate Herfindahl upon Income Taxation (% Government Revenue)

	Dependent variable:			
	Income Taxation % Revenues			
	(1)	(2)	(3)	(4)
Herfindahl	0.591	0.535	0.540	0.433
	(0.438)	(0.444)	(0.452)	(0.348)
log(GDPperCap)	17.443***	18.042***	18.477***	8.113***
	(2.289)	(2.405)	(2.452)	(1.994)
Income Std. Dev.	−17.380	−17.029	−16.462	−0.897
	(11.048)	(11.065)	(11.214)	(8.958)
Corruption		0.067	0.078	0.077
		(0.082)	(0.083)	(0.060)
Ethnic Fracture			42.923***	−35.835***
			(6.990)	(3.525)
Left Vote Share				0.012
				(0.038)
bs(year)1	15.304	15.045	15.440	15.987**
	(9.552)	(9.564)	(9.685)	(7.012)
bs(year)2	3.413	3.103	3.128	4.000
	(4.842)	(4.860)	(4.907)	(3.505)
bs(year)3	3.516	3.291	3.289	5.906
	(6.409)	(6.420)	(6.491)	(4.682)
Constant	−133.277***	−140.536***	−152.096***	−34.828*
	(23.506)	(25.144)	(26.388)	(20.750)
Observations	269	269	261	210
R^2	0.948	0.948	0.949	0.976
Adjusted R^2	0.938	0.938	0.938	0.972
Note:				*p<0.1; **p<0.05; ***p<0.01

Table 3.4: Panel Data. Effects of Aggregate Herfindahl upon Overall Taxation (% GDP)

	Dependent variable:			
	Taxation % GDP			
	(1)	(2)	(3)	(4)
Herfindahl	0.582**	0.540**	0.492**	0.546**
	(0.231)	(0.235)	(0.235)	(0.270)
log(GDPperCap)	−2.679**	−2.301*	−2.399*	−6.743***
	(1.219)	(1.288)	(1.290)	(1.544)
Income Std. Dev.	−14.414**	−14.141**	−13.342**	−14.757**
	(6.210)	(6.219)	(6.199)	(6.934)
Corruption		0.041	0.048	0.037
		(0.045)	(0.045)	(0.047)
Ethnic Fracture			−7.067*	−14.621***
			(3.654)	(2.729)
Left Vote Share				−0.012
				(0.029)
bs(year)1	21.406***	21.206***	21.208***	23.210***
	(5.414)	(5.420)	(5.398)	(5.428)
bs(year)2	8.180***	7.997***	8.024***	11.102***
	(2.731)	(2.739)	(2.720)	(2.713)
bs(year)3	14.569***	14.411***	14.482***	17.552***
	(3.624)	(3.630)	(3.609)	(3.624)
Constant	47.844***	43.296***	45.179***	90.867***
	(12.587)	(13.541)	(13.950)	(16.062)
Observations	280	280	272	210
R^2	0.975	0.975	0.976	0.960
Adjusted R^2	0.970	0.970	0.971	0.953
Note:				*p<0.1; **p<0.05; ***p<0.01

3.5.2 Mechanism Check: Effect of Homogeneity on Marginal Income Tax Rates

The following section seeks to check-upon a mechanism implied by my theory. Changes to taxation, due to homogeneity, should occur via policy changes to tax rates. Till this point, I have only reviewed how amounts of taxation change. However, this could be due to spurious factors. Changes to a population's homogeneity may be endogenous to economic variables that also affect the government's potential to tax. For instance, income profiles are potentially more homogeneous during times of economic distress; such times also limit potential government revenues.

Since my theory regards political decisions (i.e, whether politicians attempt to appeal to voters through favourable tax policies?), I wish to directly review the effects of homogeneity upon government decisions over tax rates. In the following, I consider how Marginal Income Tax Rates are effected by homogeneity. If increased homogeneity of income sources correlates with higher marginal tax rates, then this would work in support of my theory.

I begin by looking at cross sectional data. A plot demonstrates that marginal tax rates decline with increase heterogeneity (i.e., income taxes are more greatly used in contexts of homogeneity). As before, to understand if this relationship is simply endogenous to other predominant theories, I run a cross-sectional regression with controls to hold constant variables representing other well-known explanations.

The results in Table 3.5 suggest that increasing homogeneity is associated with higher income tax rates. This works in support of my theory. The results are statistically significant. A one-point shift in terms of a logged-Herfindahl score coincides with a 3.5% reduction in marginal tax rates on mean incomes, when accounting for controls on economic growth, inequality, corruption and ethnic fractionalization. As with earlier models, the inclusion of Left Partisanship alters the findings; however, this may very well be driven by lost observations, rather than any endemic effect of partisanship itself.

Figure 3.2: Cross-sectional relationships between Herfindahl Index and Marginal Income Tax Rate

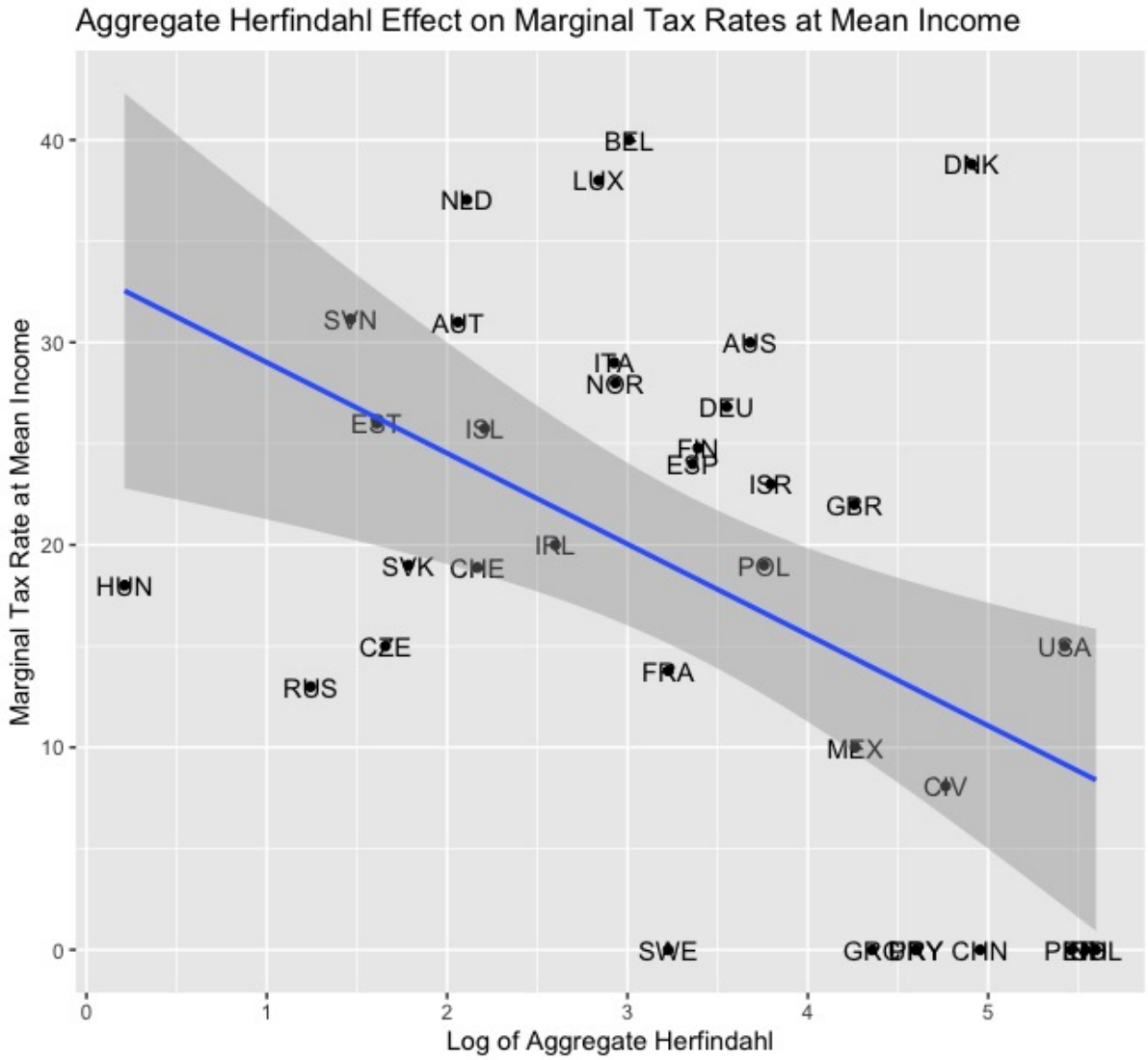


Table 3.5: Effects of homogeneity on Marginal Tax Rates

	Dependent variable:			
	Marginal Tax Rate at Mean Income			
	(1)	(2)	(3)	(4)
Herfindahl	-2.855^{**}	-3.353^{**}	-3.444^{**}	-2.228
	(1.380)	(1.460)	(1.527)	(2.363)
log(GDPperCap)	6.511^{***}	4.426^{*}	4.038	-3.582
	(1.585)	(2.565)	(2.813)	(8.615)
Income Std. Dev.	19.129	24.511	21.631	31.034
	(38.210)	(38.522)	(42.886)	(60.272)
Corruption		-0.166	-0.179	-0.373
		(0.160)	(0.171)	(0.311)
Ethnic Fracture			2.341	2.973
			(9.248)	(15.782)
Left Vote Share				0.334
				(0.683)
Constant	-41.879^{*}	-15.487	-10.996	67.530
	(22.409)	(33.965)	(36.697)	(94.794)
Observations	35	35	33	23
R^2	0.524	0.541	0.518	0.164
Adjusted R^2	0.478	0.479	0.429	-0.150
Note:				*p<0.1; **p<0.05; ***p<0.01

Mechanism Check using Fixed-Effects

As before, there are many important reasons to bracket-out cross-country variations in the data; as such I use the full panel of LIS data with country-level fixed-effects in order to strictly review the effects on tax policy of variations occurring *within* countries.

Hence, I wish to bracket-out potential omitted variable bias due to cross-country variations by using fixed effects. The model below is otherwise identical to the model in Table 3.5, except for the addition of a cubic spline for years (in order to account for trends across time).

Table 3.6 demonstrates weak results; however, it is important to note that this is likely driven by a lack of data. Unfortunately, the overlap is poor between available years in the LIS dataset and the Andrew Young Dataset on Marginal Tax Rates. As such, the model has poor coverage given the available data.

Minor observations include the negative association between economic development and tax rates, in addition to the positive relationship between corruption and tax rates. Income inequality, as measured through normalized standard deviation of income, has negative results (statistically insignificant at $p < 0.05$); however, it is interesting to note the direction of the results is negative, suggesting that unequal societies set lower marginal tax rates at mean incomes.

Ultimately, the results concerning homogeneity upon tax-rates are null. While the relationship is negative upon including controls (i.e., in the predicted direction), approximately 2/3rds of the observations have been lost (relative Table 3.3. and 3.4).

Table 3.6: Effects of homogeneity on Marginal Tax Rates using Panel Data, with Fixed-Effects

	Dependent variable:			
	Marginal Tax Rate at Mean Income			
	(1)	(2)	(3)	(4)
Herfindahl	0.026	−0.043	−0.081	−0.856
	(1.414)	(1.389)	(1.417)	(1.875)
log(GDPperCap)	−27.385**	−31.428***	−31.476***	−55.469***
	(11.262)	(11.280)	(11.373)	(19.833)
Income Std. Dev.	−38.400	−18.227	−18.714	−27.560
	(33.360)	(34.582)	(34.966)	(41.331)
Corruption		2.492*	2.502*	3.078
		(1.367)	(1.379)	(1.883)
Ethnic Fracture			−145.204***	−164.303**
			(54.177)	(75.756)
Left Vote Share				0.506
				(0.548)
bs(year)1	−37.009***	−36.665***	−36.760***	−36.865***
	(11.095)	(10.897)	(10.997)	(12.266)
bs(year)2	11.830*	18.166**	18.218**	22.936**
	(6.853)	(7.575)	(7.641)	(9.886)
bs(year)3	−11.284	−2.762	−2.771	6.626
	(8.111)	(9.237)	(9.310)	(13.503)
Constant	343.752***	330.587***	352.800***	601.358***
	(119.474)	(117.554)	(118.452)	(202.113)
Observations	104	104	101	80
R^2	0.949	0.952	0.949	0.906
Adjusted R^2	0.917	0.920	0.917	0.849
Note:				*p<0.1; **p<0.05; ***p<0.01

3.6 Conclusion

The above study sought to understand the relationship between a society's homogeneity and its taxation practices. When the economic behaviours of citizens are largely homogeneous, I theorized that citizens would consent to being taxed on their inelastic behaviours. After all, citizens in homogeneous societies would struggle to shift tax burden (thus, limiting any "incidence effect"). Moreover, given the consequent efficiency benefits of taxes upon inelastic behaviours, I also predicted that such societies will collect more taxation overall (as a % of GDP).

Largely, this chapter came to negative results. However, my study found two promising results, including: (1) that marginal tax rates, in cross-sectional analysis, do correlate in the manner predicted. Even though homogeneous societies did not prove to raise more income taxes (as a % of revenues), they did use higher income tax rates. Additionally, the relationship retained statistical significance upon controlling for a host of well-established alternate explanations. (2) Cross-nationally, overall levels of taxation (% GDP) was observed to decline with increasing homogeneity. However, beyond these two findings, the study failed to find support for its hypothesis. Statistically significant correlations were found, running in the opposite direction predicted, between homogeneity and the use of income taxation in cross-sectional context (i.e., homogeneity led to lesser use of income taxation – not more as I had predicted). Moreover, using panel data, my regression models using fixed-effects found a statistically significant relationship between homogeneity and overall tax-levels that ran opposite of theoretical predictions. Otherwise, models came to null findings, lacking any statistical significance.

While the negative results of the fixed-effects models do not inspire confidence in my proposed theory – whereby increasing the homogeneity of citizen's income sources will cause increased usage of taxation (and, in particular, income taxation) – the results are nonetheless interesting for the many theories of taxation they fail to support. Notably, fixed-effects models did not produce results that easily align with median voter theorems:

taxes generally declined given rising inequality. Moreover, fixed-effect models failed to support theories of government as a luxury good: increased economic development did not see increased revenue as a percent of GDP across all models (namely, in the panel context). However, as an exception to a rule of negative results, all models within this manuscript did support theories of *income taxation* (as a % of government revenues) as being driven by economic development.

This study faced the challenge of using blunt instruments. Homogeneity of income sources may encompass many societal divides. Consider an example. Not only are there conflicts between salaried employees and those self-employed, but also between both of these groups and retirees. In future studies, I wish to build more refined instruments by which to measure levels of homogeneity in the "elasticity profiles" of citizens. I also wish to focus the study on relatively clearer societal cleavages. One such method might look to the divide between "spenders" and "savers" in society. Savers can avoid Value-Added Taxes in a way that spenders cannot. While such data is difficult to attain, it may provide a clearer read on the effects of homogeneity across the population.

Conclusion

This manuscript has spoken to the incentives political leaders face when seeking to implement tax policy. Taxation is, arguably, the most vital and challenging function of government. Taxes are vital because nothing else can be done without funds to make it happen; and it is challenging because, while the beneficiaries of government spending will be easy supporters for political leaders, doubt and grudging will creep into the minds of (even the most fervent) supporters when a political leader delivers the bill.

The manuscript highlights the role of the selectorate in driving political leaders to implement particular tax-mixes. Taking one step back, in what is inevitably an infinite regress, the selectorate's tax preferences are argued to be largely the consequence of their "elasticity profiles." In simple English, in exchange for the support of key constituencies, politicians will offer a tax-mix that targets behaviours these individuals can avoid paying taxes upon, but which others cannot.

The first chapter reviewed many studies that already offer support for the notion that tax-mix outcomes are the consequence of elasticity-driven tax-preferences being mediated by political institutions (which, in turn, determine power relations in society). Even though the many studies cited do not use the terminology of "elasticity," their theoretical consistency with the concept means that their findings in support of their relatively "localized" theories are largely consistent with my more general theory (and may, thus, lend some measure of support).

The second chapter found support for the an elasticity-based theory of tax-mix, by studying how political regime type (democracy or autocracy) interacts with the size of the

informal sector to determine tax-mix outcomes. Growth of the informal sector in democracies tended to see growth in the usage of income taxation. The chapter points-out the consequent inefficiencies implied by such policy upon the tax code. Autocracies, on the other hand, reduce income taxation in the context of a growing informal sector. Rather, they focus upon bolstering tax instruments (e.g., consumption and property taxes) that the informal sector is more likely to be stuck paying. I sought to address some concerns of endogeniety by using a research design that focused upon discovering whether "tax-flips" occur after regime changes (i.e., changes to the size of the selectorate). I found that regime changes are followed by changes to the tax-mix in a manner consistent with my theory. Of grave concern, future research ought to address whether the inefficiencies created in democratic economies (due to politicians trying to shore up support amongst informal sector workers) have a large or small magnitude effect upon economic development.

The third chapter researched whether the problems democracies face, in terms of implementing efficient tax codes, might be overcome in circumstances of "homogeneous elasticity profiles." Here, the key idea is that voters will give politicians the mandate to tax their inelastic behaviours – thereby increasing the efficiency of the tax code – in the context of a society where economic behaviours are largely homogeneous across the citizenry. Homogeneity prevents voters from being able to shift tax-burden onto others. It also relieves voters' concerns that others are free riding on their tax dollars. Ultimately, the third chapter arrived at mixed-results, with many core hypotheses having negative results. Nonetheless, a future studies could approach this problem from potentially more fruitful angles; particularly, this might be accomplished by honing-in on a two-dimensional societal cleavage, rather than a societal cleavage with many dimensions.

Moving forward, I like to think the research in this paper provides a helpful starting point for further study. First, my research failed to uncover many cross-national surveys that ask voters about their tax-mix preferences. Such surveys could highlight the role of a key mechanisms, crucial to my theory. Namely, whether tax policy outcomes (in democracies) reflect upon actual stated preferences of a conceivable selectorate. Second,

cross-national data on the consumption habits of households could open-up my research to the study of homogeneity based upon a much tighter research designs. Elasticity profiles based upon consumption vs. saving preferences has the potential to create a much clearer divide across society relative elasticity profiles based upon income sources. Contrasting the tax preferences of "savers" and "spenders," may prove enlightening, since the later are predicted to prefer increase consumption taxation and reduced income taxation. The difference of elasticity profile is very stark, relative the magnitude effect of income sources to drive variance in elasticity profiles (as per Chapter 3). Finally, the effects upon economic development due to large selectorates demanding elastic tax policy, which is inefficient, ought to be studied much closer. If the effects are relatively small, some urgency is removed; however, if (as I predict) the effects are of great magnitude, then new studies are justified. This could include studies on institutional design, whereby we seek to find solutions to protect tax-mix decisions from reflecting the short-term thinking of political leaders (in a manner kin to how central banks remove the autonomy of politicians over interest rates).

Finally, a meta-study might find the extent to which different variables prove more (or less) determinate over tax policy decisions. Is tax policy primarily a story about levels of economic development? Or, perhaps, about government administrative competency? Is taxation primarily about ideology: a left-wing seeking higher taxes through more progressive instruments, against a right-wing that seeks fewer and flatter taxes? Or, finally, is the story primarily one of politics: voters seeking to maximize their disposable income, and politicians choosing which, amongst these voters, they most desperately need to recruit? Ultimately, the story of variations in tax policy across nation-states is messy and nuanced. Unwinding which factors have, historically, mattered most, may help to understand what limiting factors facing our societies are most dire and in need of being redressed.

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