Structural Transformations and The Political Roots of Fiscal Capacities in Latin America

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Abstract

There is a very strong consensus on the positive role of fiscal capacities on state formation. Unfortunately, current theories focused on Latin America do not sufficiently explain the origins of fiscal capacities. Taking a sectoral politics approach, this paper argues that the political monopoly pursued by agricultural economic elites was broken contingent on the emergence of a strong industrial sector. This major structural transformation triggered a series of institutional investments, as well as economic, political and social changes, planting the seed of states with high capacities. When agricultural monopolists were not challenged, these institutional investments never existed or were weak. The paper tests this theory using cross-national panel data from 1900 to 2010 for a sample of Latin American countries. The Chilean example is offered as a shadow case to illustrate the mechanisms at work, confirming the assumptions made in the econometric models.

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I. Introduction

The only important coercion which is crucial to development is taxation

Arthur Lewis, 1965

The budget is the skeleton of the state stripped of all misleading ideologies

Schumpeter, 1991

According to most political economists, fiscal sociologists, development economist and economic historians, fiscal capacities are a prerequisite for "strong" states. Much effort has been devoted to understanding the relationship between the politics of taxation and state capacities in a number of European cases. However, there is still much work that needs to be done in order to understand the development of post-colonial Latin American fiscal capacities. For example, the political and economic *origins* of fiscal capacities in Latin America remain unclear. Particularly, it is difficult to extend models originally developed to understand the medieval European case, as wars in Latin America have been insufficient to mobilize domestic resources. Moreover, elite structures were very different, challenging the standard assumptions and incentives of these models. *What have been the factors that led post-colonial Latin American countries to self-impose a system to directly tax individuals? What is the relationship between fiscal capacities and state-building in the Latin American context?* These questions are key to understanding the development of the modern state in Latin America and in this paper we shed some light on them.

Though much effort has been devoted to the study of *tax reforms*, we know little about the *origins of taxation* in Latin America. For example, Fairfield [2013] studies different strategies policymakers pursue to tax elites starting in 1990. Mahon [2004] and Focanti et al. [2013] study causes of tax reform in Latin America starting around 1980s and 1990, respectively. Similarly, Ross [2004] studies the relationship between taxation and representation between 1971 and 1997, whereas Sokoloff and Zolt [2007] study the evolution of tax institutions comparing the U.S. with Latin America. However, we share Di John [2006, 5]'s diagnosis that there is no attempt to explain *why* and *how* state and fiscal capacities emerged. We contribute to the literature on state and fiscal capacities by presenting a comparative macro-structural argument that traces under which conditions endogenous investments in fiscal capacities were more likely to happen in Latin America starting in 1900.

This paper argues that the implementation of a modern fiscal system was product of an inter-sectoral conflict that took place around the 1900's between the agricultural elite and an emerging and politically excluded industrial sector. The early passage of the income tax law was the tipping

point that transformed "weak" states into "strong" states, not for the new revenue collected, but because the administration of the income tax law and the inter-elite bargaining process associated with the passage of the law triggered a series of other institutional investments. When agricultural elites were contested, the income tax law was imposed early in history, tying the countries to an institutional development path. However, when the agricultural elites were not contested, they systematically expropriated the industrial sector, and the late implementation of the tax did not reflect this early sectoral conflict but other mechanics which did not necessarily conduce to state development.

The type of conflict was economic and military in nature, but the outcome was political. When the rate of industrial output was fast enough to compensate for long-term losses relative to delayed access to liquidity, agricultural elites did not expropriate industrial wealth but rather imposed an income tax. That is, when industrial growth was promising in the long-run, agricultural incumbents were better off encouraging (via protectionist tariffs) and taxing it (via an income tax), rather than expropriating it (and having immediate access to those resources). In exchange for taxation, the industrial class demanded political representation in the form of a competitive oligarchic system and protectionist tariffs. Both the taxation and political representation dimensions triggered a series of institutional investments such as institutions of checks-and-balances (to monitor tax spending and channel inter-elite conflict) and skilled bureaucracies with enough know-how (to collect and administer the tax). In turn, protectionist tariffs helped the industrial sector to expand further, generating a strong urban middle class, which supplied the state with a critical mass of educated individuals[1]. When industrial output was slow, landowners - who were political monopolists - faced higher opportunity costs and rather than "wait and tax" industrial output "tomorrow", they shifted to expropriation-type strategies "today". In these cases, the agricultural political monopoly was not broken, and the endogenous incentives to invest in institutions to share political power and improve bureaucratic bodies never existed. These countries were then trapped in an underdeveloped sub-optimal equilibria. These relationships are tested using econometric methods for panel data, particularly hazard models, while the Chilean example is offered as a shadow case to illustrate the mechanisms at work, confirming the assumptions made in the econometric models.

II. Taxation and State Formation

Though a number of scholars studying Europe correctly point out that there exists a positive relationship between military conflict, taxation and political representation[2], this mechanism has

[1] The paper proposes a roughly simultaneous process. However, Rota [2016, 43] suggests a different timing. He explains that "[t]he modernization of bureaucracy *preceded* the process of democratization". Emphasis is mine.

[2] See for example Tilly [1992], Levi [1989], Ames and Rapp [1977, 162, 170], Dincecco and Prado [2012], Ertman [1997] and Stasavage [2011].

been challenged for the Latin American cases[3]. For example, Centeno [2002] finds that there were not enough wars to mobilize domestic sources of revenue, and that the few wars that existed were financed by acquiring debt. Others find that the relationship between conflict and state-building is conditional on *prior* state capacities. For example, Arias [2013, 665] finds that in México, "a focal central authority" was required prior to being able to centralize fiscal institutions in the presence of external threats. However, it is not clear where *prior* centralization comes from. Given all these theoretical and empirical difficulties, some have gone up in the "ladder of abstraction" and replaced "war" for "interstate rivalries,"[4] while others have interacted the presence of military conflict and state-military alliances[5]. Though in the Latin American context taxation and state-building seem to be linked, it is not clear what the *origins* of fiscal capacities are[6].

For these reasons, this paper studies state capacities looking at the *origins* of fiscal capacities. Building on the "fiscal sociology" paradigm, we argue that the political economy of public finances offers "the key" for a theory of the state[7]. According to Schumpeter [1991, 108], "[t]axes not only helped to create the state. They helped to form it". From a historical perspective, this paradigm proposes that the great modern cleavage was not the rise of capitalism (Marx) nor the rise of modern bureaucracy (Weber), but the rise of the "tax state", which developed institutions to penetrate private or *individual* economies[8]. While from a conceptual perspective, the mere idea of "tax state" might be misleading: "tax" has so much to do with "state" that the expression "tax state" might almost be considered a *pleonasm*[9]. Critically, this approach argues that the origins of the fiscal apparatus are rooted in sectoral and class conflicts. For example, some have even argued that "tax struggles are among the oldest forms of class struggle"[10].

Although it is true that taxation causes state-building, *not* all kinds of taxes play a state-*formative* role. Broadly speaking, there are two general types of taxes, *indirect* and *direct* taxes. Indirect taxes are, for our purposes, taxes that are collected by a third party, i.e. not the state. Hence, indirect taxes do not need the development of strong fiscal capacities. According to Best [1976, 53], "indirect taxes are but substitutes for direct taxes," and hence they are typically administered by weak states[11]. Since indirect taxes are easier to levy, this kind of revenue is generally considered

[3] However, Boucoyannis [2015] proposes an interesting alternative mechanism for the European case too. For the U.S. case, Besley and Persson [2009, 1218] find that "The United States first introduced a form of income taxation in 1861 during the Civil War, and the Internal Revenue Service (IRS) was founded on the back of this with the Revenue Act of 1862".

[4] Thies [2005].

[5] López-Alves [2000, 37].

[6] A rather counterintuitive argument is presented by Lange and Balian [2008, 314]. They introduce the "instigating" model, where they find that states with high levels of state infrastructural power contain more violence.

[7] Musgrave [1992, 99].

[8] Moore [2004b, 298]. This view is also shared by Schumpeter [1991, 100] and Lewis [1965, 42] - See epigraphs.

[9] Schumpeter [1991, 101].

[10] Goldscheid (1925), in Campbell [1993, 168].

[11] This view is also supported by Moore [2004a, 14].

"unearned income"[12] or "easy-to-collect source of revenues"[13]. Given the low costs states have to incur to collect indirect taxes, they have a nearly null impact on state-building, stable domestic alliances and bureaucratization. In fact, when early Latin American states have depended heavily on the taxation of international trade, the state apparatus has tended to be less developed[14]. Since customs administrations have always been concentrated in a few critical locations, especially ports, tariffs and customs duties did not require an elaborate fiscal structure[15].

What played a formative role was the implementation of income taxation, which is a "state-builder" institution. Since direct taxation involves a *compulsory transfer* from private hands to the government sector for public purposes[16], they are harder to collect[17]. Amongst all types of direct taxes, the most invasive one (and hence the most difficult one to levy) is *income taxation*. This type of tax is quite complex since it classifies and transfers private income into public property[18]. From a historical standpoint, its introduction "was one of the major events in fiscal history that contributed to the growth in government observed during the past 150 years"[19]. Political alliances should exist to overcome logistic, institutional and political domestic challenges associated with direct taxation. Critically, economic elites, should agree to comply with direct taxation[20] and inter-elite class tensions should be resolved prior to adopting these policies. As others have pointed out, since tax revenues depend upon the interests of different classes as they attempt to use state power for their own purposes[21], class conflicts are more likely to resolve in favor of direct taxation where income inequality *within the elite* is low[22]. Here it is argued that a political compromise within the elite was the critical juncture that helped to create the endogenous incentives to overcome the initial lack of administrative skills to collect direct taxes. As others have explained, "administrative constraints are identified as the main constraint to the ability of states to collect [an] income tax"[23]. Thus, cases where the income tax law was imposed very late developed incompetent bureaucracies and low levels of stateness. For example, Chile imposed the income tax law in 1924, and the *Servicio de Impuestos Internos* is among the finest tax institutions in Latin America. However, Guatemala imposed the income tax law very late, in 1963, and by 1967 the national income tax office employed 194 people, and only 9 of whom had graduated from college[24].

[12] Moore [2004b, 304].
[13] Coatsworth and Williamson [2002, 10].
[14] Campbell [1993, 177].
[15] Bertola and Ocampo [2012, 132].
[16] *Cfr.* Raja Chellia, "Trends in Taxation in Developing Countries", in Migdal [1988, 282].
[17] Kurtz [2013, 62].
[18] Musgrave [1992, 98].
[19] Aidt and Jensen [2009, 171].
[20] Best [1976, 71] argues that the "actual composition of taxes can be viewed as dependent upon the distribution of power rather than as an expression of the free choice of the majority of the people".
[21] Best [1976, 50].
[22] Tani [1966, 157] explains that the absence of "wealth groups" makes passing the income tax law easier.
[23] Di John [2006, 5].
[24] Di John [2006, 5].

III. Issues in the Literature

Bureaucratization *per se* does not cause state capacities Income taxation has a formative role on state development since its administration requires bureaucracies endowed with know-how (and the necessary inter-elite political alliances to sustain and improve the bureaucratic apparatus). However, bureaucratic development is a necessary but not sufficient condition for state-development. Acemoglu et al. [2002] and Mahoney [2010, 26] correctly suggest that "mercantilist institutions", *which did require developed bureaucracies*, are associated with political under-development. Soifer [2016] also explains that when bureaucratization relied on the hands of "local" elites, weak states were created. Local lites were more likely to pursue their own personal agendas (rather than the central level's). On the contrary, when the central state sent their own agents ("deployed rule"), as they owed their jobs and source of income to the central level, they were more likely to pursue state goals. However, one important issue arises. Even when deployed bureaucrats depended on the central level (as Soifer correctly points out), what remains unclear is the mechanism under which principal-agent problems were solved in favor of the central level. It is still a possibility that, even when perceiving income from the central level, the agenda that is pursued in the periphery is the agent's and not the state's. In the context of poor infrastructure and slow center-periphery communication, what is it that makes the agent's agenda to coincide with the state's? One could argue that the agent fears to be replaced, losing his source of income. However, human capital during the formative years of the late 19th century run in short supply. That is, there was not enough capable individuals to perform complex administrative duties. In fact, Taverne [2014, 208] argues how the *vecinos notables* were the first skilled bureaucrats in the early stages of state building in Chile. They would usually have other important sources of income, as they were typically lawyers and businessmen. Skilled individuals were so scarce that even individuals with a lack of formal training but still capable of performing well as public servants were hard to come by. Sagredo [1997, 293-294] documents how *Director Supremo* Ramón Freire practically forced businessmen Pedro Nolasco Mena, against his will, to serve as secretary of state[25]. Income was not important at all to him. In fact, the day Nolasco Mena was sworn into office, he stated that he was not willing to perceive income as a way to protest against Freire[26].

[25] Nolasco Mena argued that he was a "comerciante práctico, que sin las leyes del cálculo ni los principios de economía giro, como todos los del país, una casa de comercio pasivo: he ahí la historia de mis disposiciones: no conozco la estadística, no he visto siquiera la complicada legislación de hacienda, jamás serví una oficina de ella, no puedo, de consiguiente, aventurarme sin temeridad a la administración del ministerio". Nonetheless, Freire forced him to serve.

[26] That day, Nolasco Mena stated: "he jurado bajo la protesta siguiente: Protesto que, forzado contra mí conciencia a admitir el Ministerio de Hacienda, no soy responsable de derecho por falta de libertad, ni de hecho por la insuficiencia confesada del manejo; renuncio al sueldo que no puedo ganar sin desempeñar; que se me de testimonio de esta protesta y de mi reclamo anterior y se imprima".

Inter-elite conflicts and development In our framework, economic sectors are *forced* to make political alliances. The degree to which agricultural elites were contested (here through increasing industrial output differentials), was what forced both parties to reach agreements. Given that economic power translates into better military capacities, balanced inter-sectoral economic growth prevented military escalation and laid the foundations for inter-elite cooperation. This idea is consistent with Ansell and Samuels [2014, 76], who argue that when inter-sectoral inequality is high, the landed elite expropriates indirectly through "market-distorting policies," harming rising elites such as the industrial elites. In the same line, Boix [1999] points out that elites allow both technological and political progress only if it benefits them. From a relatively different perspective, Kurtz [2009] builds a theory where the oligarchic elites in Latin America, despite their substantial divisions, agree to maintain and impose the necessary tax burdens on themselves to finance a strong state. What makes these elites reach a sustained agreement is the absence of repressive labor practices[27]. That is, the existence of the legal right to leave the farm[28]. Structurally, our theory follows Kurtz's in the sense that we also believe that the organization of the economy causes (endogenous) changes in the institutional order, especially with respect to taxation. In fact, it complements it by offering an alternative channel, that the industrial sector is not strong enough to attract labor, for why laborers do not have any other choice than to remain in farming. Industrialists, being excluded from the political system (as they were), could not alter these repressive institutions from the inside. Hence, in our theory, incorporation of all important elites is also crucial for state-building. However, the paper departs from Kurtz's theory given that our theory sees potential conflict as the the tipping point of eventual political agreements.

Conceptualizing and measuring the state Though many scholars find that income taxation is either one of the most important state-capabilities[29] or the one characteristic that explains considerable variance of state capacities[30], others have argued in favor of other measurements of "stateness". For example, some scholars have argued in favor of military conscription or censuses[31]. Multidimensional measurements are also very popular. Contrasting several existent indexes of state capacities, Fukuyama [2004, 7] argues that "stateness" is a two-dimensional concept, namely, the *scope of state activities*, which refers to different state functions and the *strength of state power*, or the ability of states to execute policies. In a later work, however, Fukuyama [2013, 347] suggests a different two-dimensional framework, *capacity* and *autonomy*. Similarly, Mann [2008, 357] argues that "stateness" is a two-dimensional concept too (*despotic* and *infrastructural*)[32]. Soifer

[27] Kurtz [2013, 83].
[28] Kurtz [2013, 39,67].
[29] See for example Besley and Persson [2011], Kurtz [2013, 2009], Cohen [1994], Gallo [1991], López-Alves [2000], Thies [2005] and Soifer and vom Hau [2008], Soifer [2008].
[30] See for example, Kurtz [2013, 60-62], Hanson and Sigman [2013, 15] and Centeno [2002].
[31] For the latter, see for example, Lee and Zhang [2013].
[32] Soifer and vom Hau [2008, 224] argue in favor of the infrastructural approach proposed by Mann [1984].

[2012] proposes a three-dimensional measurement of state capacity (*security*, *administrative* and *extractive*). Multidimensional conceptualizations of state capacities do improve our understanding of the complexity[33] of state capacities[34]. Beyond being a measurement commentary, this paper develops a theory for the origins of, what we believe, is one of the *main* state capacities.

IV. Argument

Strong State Cases First, following the inertia of the colonial period, early independent Latin American states were governed by agricultural elites. Later around 1900s, an incipient industrial sector established. This sector was comprised of newcomers who were politically excluded. Second, in the strong state cases, industrial output rates were comparable (if not faster) to agriculture growth rates. Third, the agricultural sector decelerated in the late 1900s. In order to sustain the economy, political elites could play one of the next two strategies. They could either *tax* or *expropriate* industrial output. As industrial output was fast, the benefit of taxing a small sum of money "today" via taxation compensated the long-term losses associated of having those resources "tomorrow". Fourth, in exchange, the industrial class demanded commercial protectionism (tariffs) and political representation (early $20th.$ century's oligarchies). Protectionist policies helped the industrial sector to develop further, generating an urban and educated middle class that grew under the eaves of the state. In turn, political representation broke the old political monopoly owned by the agricultural sector, introducing the seed of early political competition.

Weak State Cases Similarly, these nations were governed by agricultural monopolistic elites. However, in these cases agricultural incumbents faced slower industrial growth. This sector did not promise enough resources to tax from in the long run. It was too risky to "wait" and tax those resources in the future. Potentially for subsequent periods, firms could have been declared bankrupt. Moreover, besides being risky, it was too costly to wait for such a small tax revenue in the long run. In other words, discount rates were larger than future payoffs. Hence, agricultural incumbents were better off expropriating industries and politically blocking the industrial class. In these cases, the agricultural political monopoly was never challenged, the traditional economy was not broken and the endogenous incentives to invest in institutions designed to improve bureaucracies and split political power never existed.

[33] Mann [1984, 112] argues that "[t]he state is undeniably a messy concept".

[34] It is undeniable true that "state" is a multidimensional concept. As Fukuyama [2004, 9] explains, "[a] country like Egypt, for example, has very effective internal security apparatus and yet cannot execute simple tasks like processing visa applications or licensing small businesses efficiently". In Singerman, (1995).

I. Agricultural Political Monopoly

Right after independence, there existed a situation where the early political system was dominated by a compact social class invested in land. Agricultural elites controlling the economy, would also control the early post-colonial state, imposing social and economic policies favorable for them. Eventually, *all* post-colonial nations saw the emergence of a small industrial sector, which grew at different rates (see Figure 1). However, in countries that eventually turned into strong states, the size of the modern sector grew at faster rates[35]. As in these cases there *was* in fact a competitor, agricultural elites tried first to block it, *artificially* limiting political competition. However, for several reasons we explain later, inter-elite cooperation was incentive-compatible. On the contrary, where the size of the modern sector was small, agricultural elites were *natural* monopolists. In these cases, there were not enough credible threats to move forward a compromise between the two classes, letting the landowners continue ruling without political opposition. This situation generated long-term political and economic distortions.

For example, early Nicaragua developed in a non-democratic context, just like any other country in the panel. However, its industrial sector did not grow fast enough to challenge the traditional sector (see Figure 1), leaving the political system unaltered until the 1980s (see Figure 2). The lack of inter-elite contestation led this country to develop a fiscal system very lately (vertical line in Figure 1). An opposing example is Ecuador, which passed the income tax just before the 1950s, right around when it had its first "democratic" experience. Using Chile as a shadow case, we illustrate the causal mechanisms at work with further details, explaining particularly how the initial monopolistic conditions were broken in the presence of a strong industrial sector and what the inter-elite compromises were.

II. Industrial Output Speed Rates and Inter-Elite Contestation

There are many factors that explain the industrial development in Latin America, among them, tariffs oriented to protect the *agricultural* market *unintentionally* helped protect the industrial sector. Since the first industries processed raw agricultural materials, better conditions for the landowners helped the industrialists to make their way into the economy. Favorable international markets also boosted the demand for rudimentary processed raw products too. We provide further details in our case study. Figure 1 shows output differentials (in logarithmic scales) from 1900 to 2010, for a sample of Latin American countries[36]. Contrary to Bulmer-Thomas [2003, 241], we do *not* find that

[35] It is important to say that the argument does not require European-like degrees of industrialization. As Bertola and Ocampo [2012, 131] confirm, most Latin American countries did *not* experience a proper industrialization *process*, and hence it is inaccurate to say that the industrial sector "had become a strong engine of economic growth". However, even though Latin America did not experience an industrial *revolution*, the modern sector did develop in some countries (Figure 1).

[36] We use the *Montevideo-Oxford Latin American Economic History Data Base* (MOxLAD), specifically the *agriculture value-added* and *manufacturing value-added* variables. The former measures "the output of the sector net

"[e]verywhere [...] industrial growth exceeded agricultural growth".

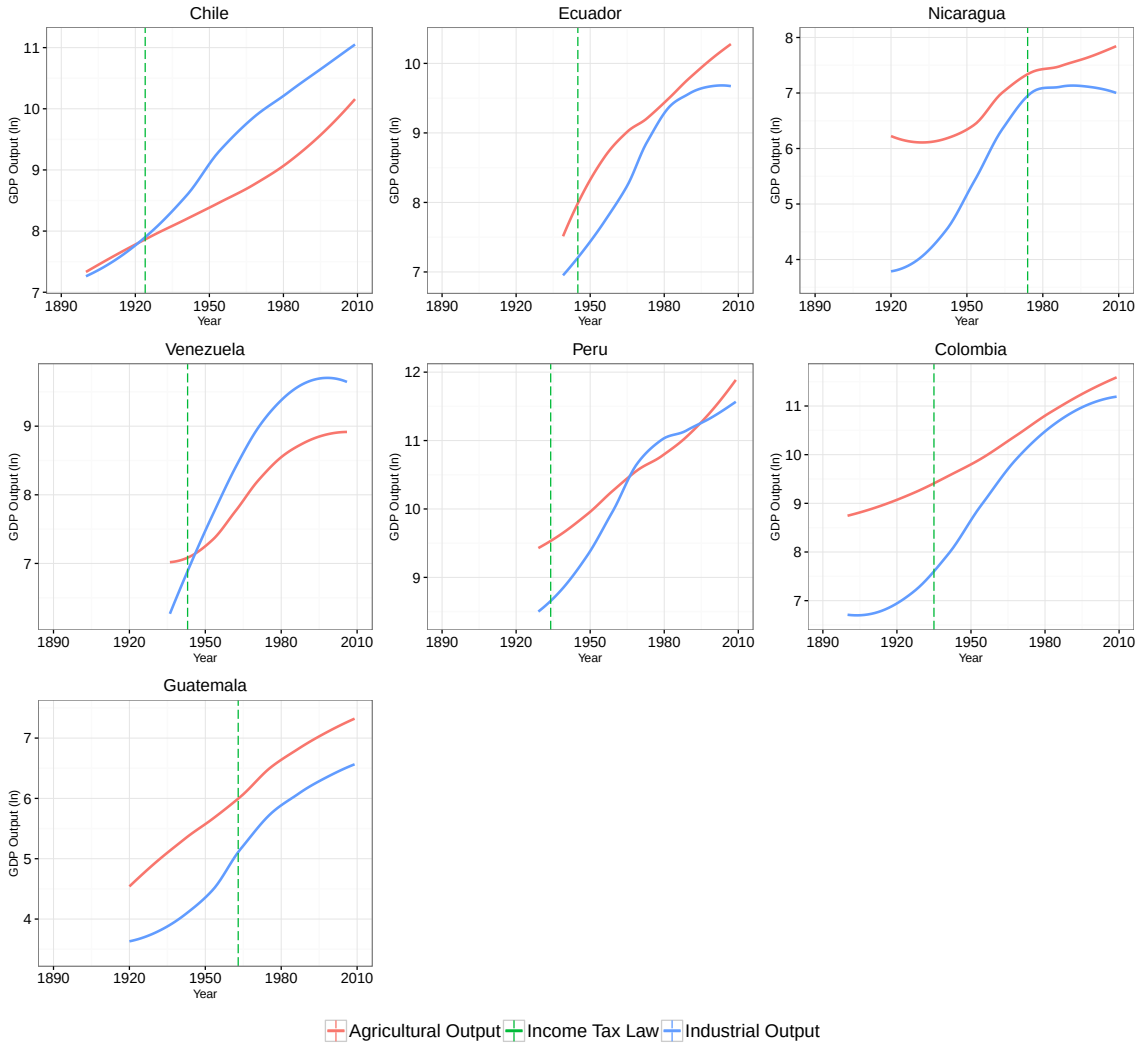

Figure 1: *Industrial and Agricultural Outputs, and The Passage of the Income Tax Law*

This paper uses industrial development as a proxy for how the agricultural sector was contested (see Figure 1). The literature is consistent in agreeing that "more" political competition leads to "better" outcomes when it comes to state-building. For example, Kurtz [2009, 481] argues that where "no faction can easily become permanently dominant," state capacities should be stronger. Similarly, Geddes [1991] argues that competition between two rival parties of about the same size creates

of intermediate inputs and includes the cultivation of crops, livestock production, hunting, forestry and fishing". The later "[r]eports the output of the sector net of intermediate inputs". Both of them are expressed in local currency at 1970 constant prices. Finally, "the depreciation of reproducible assets or depletion/degradation of natural resources were not deducted". Details about this dataset are presented in the data section. The plot also shows a vertical line which indicates when the income tax law was passed (author's data based on several reports and official information). We elaborate on the income tax law in the next section.

clearer incentives to invest in political institutions. Cárdenas [2010, 40] in his formal and empirical models also finds that the "concentration of political and economic power reduces the incentives to invest in state capacity"[37].

Though inter-elite conflicts expressed via both political and military tensions, inter-sectoral contestation itself is deeply rooted in the economic structure. Advantaged economic conditions can relatively easily be translated into better military capacities, which makes it easier for the advantaged group to impose their political agenda in a monopolistic way[38]. However, the *origins* of this inter-sectoral (un)balance (expressed in sectoral output differentials) reflects structural economic dynamics between the two sectors that causes them to compete for limited supply of labor[39]. In fact, for the modern sector to develop, the traditional sector had to decay[40]. Matsuyama [1991, 642-643] explains that "a takeoff is possible in an economy with less productive agriculture, while an economy with productive agriculture will be trapped into the state of preindustrialization"[41]. That is, the process of industrialization also follows the principles of the law of comparative advantages. The case study shows that the economic-structural connotation of inter-elite political contestation was also true for Chile[42]. Moreover, these conditions apply to other Latin American economies too. For example, Bergquist [1986, 8] explains that "Colombia's two traditional political parties crystallized in the 1840's and reflected in many respects the dual nature of the Colombian economy". The sectoral conflict regarding the generation of income and its potential taxation has been studied elsewhere too[43]. For example, Mares and Queralt [2015] study how income taxation in Europe is associated with inter-elites conflicts, particularly between the landed elite and the industrial elite. Taxation and state formation with a sector/class approach has also been studied in Africa. For example, Sanchez de la Sierra [2014] studies the relationship between taxation and state formation in Eastern Congo, and how the interplay between different sectors fostered (or not) state-building processes.

III. Taxation and Expropriation

As the historical evidence suggests, decelerated international markets put heavy fiscal pressures on agricultural elites to sustain the economy. Building on the idea of the "stationary bandit"[44], the

[37] However, he models inequality between *elites* and *citizens*. We expand on this idea by modeling the period *before* full democratization existed and also by modeling inter-elite conflicts.

[38] Boix [2015].

[39] As Matsuyama [1992, 318] puts it, "the manufacturing sector has to compete with the agriculture sector for labor. Low productivity in agriculture implies the abundant supply of "cheap labor" which the manufacturing can rely on". See also Gollin et al. [2002, 160].

[40] Matsuyama [1991, 621-622] argues that the process of "[i]ndustrialization [consists of] a shift of resources from agriculture to manufacturing".

[41] Skott and Larudee [1998, 293] points out that "an increase in the growth rate of agricultural productivity may reduce the rate of growth of real income under free trade".

[42] But see Robles-Ortiz [2009].

[43] See Best [1976, 55].

[44] Olson [2000].

agricultural political incumbents faced this economic downturn either by *taxing* or *expropriating* the industrial sector. Each strategy was best response depending on the rate of industrial growth. Fast industrial output was associated to higher levels of political contestation and the development of the fiscal system, while slow growth was associated to lack of political contestation. Crucially, industrial elites accepted to be taxed *in exchange of tariffs oriented to protect the industrial sector*, producing a general economic boost which helped these countries to navigate the economic crisis.

Expropriation was best response when the rate of industrial growth was slow. When industries grew slowly, the long-term benefits of having a secured, *but excessively small*, source of tax revenue *did not* offset the benefits associated with having *immediate* monetary resources due to expropriation. Expropriation brought immediate liquidity (fast access to money) in the short run, but it exhausted the industrial output in the long run. That is, when industrial growth is slow, immediate liquidity becomes more attractive, even when these resources get exhausted in the long run. Moreover, since human capital and the technology necessary to administer an industry are non-transferable to the agricultural elite[45], solely expelling the industrial elites and taking over the industries is not an efficient strategy, as it endangers industrial output in the long run. In other words, since landowners do not know how to run industries, they are better off appropriating the surplus rather than taking over the industries. This is a stylized theory. In reality, elites tended to engage not only in expropriation but also in nationalization and forced loaning. The consequences of slow industrial growth were not only economic, but also political. A weak industrial sector did not generate a strong urban middle class, and hence the state did not have a source of skilled labor where to borrow from. Politically, since a strong challenger did not exist, the monopolized political system remained untransformed.

Taxation was best response when the rate of industrial growth was fast. Imposing a tax allowed agricultural incumbents to "rob" industrial output at small "doses" at a time, without exhausting or precluding industrial development. From a strategic perspective, a healthy industrial sector became more attractive for what it had to offer in the future rather than the present. Hence, faster industrial growth shifted the focal point from the short to the long run. In these cases, it was in the agriculture sector's interest to protect and encourage the development of this sector to perceive even higher taxes (though most of the time keeping the same tax rate). Hence, industrial tariffs were implemented to protect this sector, playing a very important role in the subsequent industrial development. Institutionally, the new tax had to be able to closely monitor industrial magnates and their personal incomes. Hence, an *income tax* had to be implemented. This idea is consistent with the notion that political elites generally are better able to impose/raise taxes during economic booms. For example, Campbell and Allen [1994, 647] explain that "economic development should be directly related to individual and corporate income tax rates", while Besley and Persson [2011, 59]

[45] For example, machines used to make glass can't be used to grow potatoes.

argue that "investing in fiscal capacity becomes more attractive [...] when wages or incomes [...] are higher".

IV. Income taxation and Institutional Investments

Income taxation was a "state-builder" institution because it triggered the implementation of other "state" institutions. This paper identifies (though not exhaustively) two critical institutions, political competition within the elite and bureaucratic consolidation[46].

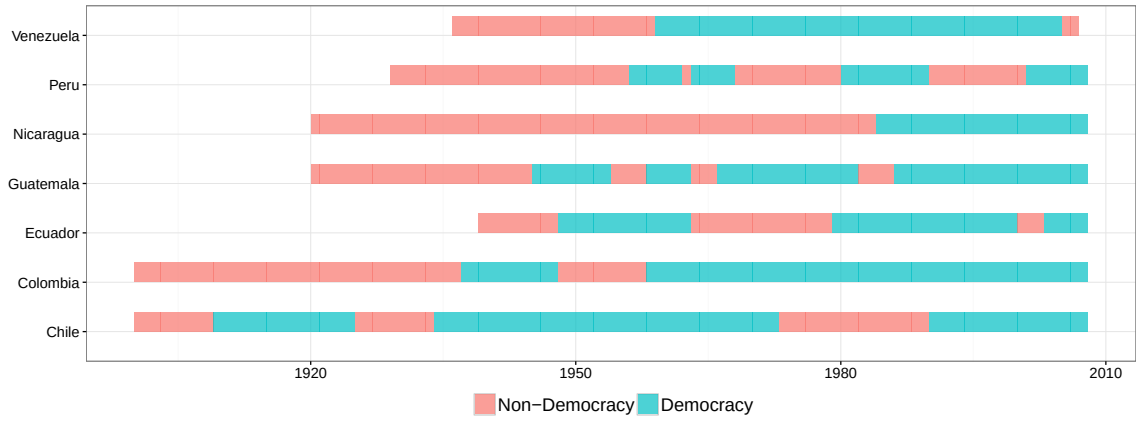

Figure 2: *Historic Regime Type*

The imposition of the income tax law opened the political system for inter-elite competition. Specifically, industrial elites accepted to be income taxed in exchange of being allowed to participate in politics. This gave way to early 20*th.* century oligarchic party systems, the first manifestation of modern electoral political competition. Furthermore, industrial elites were interested in maintaining an active political status since the promise of the agricultural elites to keep income tax rates constant was not credible. This is in line with Rodrik [2000, 3], in that open political systems are the most effective ones for processing and aggregating diverse interests. This channel specifically links regime type with state development. The relationship between strong and democratic states has been studied before. For example, Stephens et al. [1992, 9] argue that "[c]onsolidation of state power was an essential *prerequisite* for democratization"[47]. We relax the causal direction of this mechanism by proposing an *endogenous* mechanism. And while there have been important recent contributions on the relationship between political development and inter-elite (in)equality[48], this paper specifically approaches the state-building question, incorporating regime type in the explanation. This is

[46]Though the public economics literature focuses predominantly on tax revenues, higher revenues do not mean higher stateness levels. For example, since American institutions were deliberately designed to limit the exercise of state power, the U.S. taxes very little (Fukuyama [2004, 6]). However, it is not reasonable to say that the U.S. has a "weak state". Here the focus is on the *politics* of taxation (see for an example Focanti et al. [2013].).

[47]Emphasis is mine.

[48]See for example Acemoglu and Robinson [2009, Ch. 9], Ansell and Samuels [2014] and Boix [2015].

consistent with what several political economists find. For example, Di John [2006, 8] points out that *in less developed countries*, higher tax collection levels are associated with strong political party systems. In particular, it is argued that the introduction of the income tax (Figure 1) and the first democratic waves (Figure 2)[49] were part of the same process of inter-elite conflicts and eventually inter-elite compromises. The tipping point that gave way to inter-sectoral bargaining was the unstable situation that was produced when there existed inter-elite political *in*equality and sectoral/economic equality. That is, both the industrial and agriculture sectors being of about the same size (and hence, having the same military capabilities), but where only the latter has access to political power, i.e. state power. Neither sector had incentives to stay in their respective *status quo*: the industrial class did not want to be just taxed without perceiving something in return, while the agricultural sector did not want to let pass a chance to capture (industrial) resources to navigate the economic downturn in better conditions.

The imposition of the income tax law also produced inter-sectoral *economic* compromises. The most important one was the introduction of higher/newer tariffs designed to protect the industrial sector. Protectionism boosted industrial production and enhanced other structural transformations, such as the rise of an educated middle class (which systematically worked for the state) and higher levels of urbanization (which made income taxation easier). A common misconception is that industrial protectionism started with the ISI. However, the "fact that manufacturing was alive and thriving in Latin America before the 1929 crash is now beyond question."[50] ISI in fact is a continuation of older policies. Haber [2005, 3-4] explains that "governments followed policies designed to subsidize and protect industry in the decades after 1950 precisely because industrialists and industrial workers had been protected since the 1890s". Critically, early industrialists were able to bargain tariffs in exchange of being income taxed. This insight is in line with Lederman [2005, 53], who argues that the timing of protectionist and income taxation cycles match. In fact, the industrialists *as a sector*, gathered around this issue in quite an organized way, reinforcing their class self-image. As Sokoloff and Zolt [2007, 122] argue, the expansion of the "manufacturing production [...] helped to nurture the development of a powerful constituency for higher tariffs". The introduction of higher/newer tariffs was key for the subsequent development of the industrial sector. As Haber [2005, 15] argues, "virtually none of [the industrial development] would have existed had it not been for tariff protection"[51].

The second big transformation was bureaucratic development. Bureaucratic capacities were channeled via a structural transformation that encompassed economic, political and social changes.

[49] Data from Boix et al. [2012].

[50] Bertola and Ocampo [2012, 129].

[51] See also Coatsworth and Williamson [2002, 21]. There is some debate on whether protectionism is associated with economic growth, however. Coatsworth and Williamson [2002, 10] argue that "protection was associated with faster growth in the European core and their English-speaking offshoots [...] but it was *not* associated with fast growth in [...] Latin American periphery" (emphasis in the original).

Inter-sectoral economic contestation led to political agreements (political incorporation of industrial elites) that helped the industrial sector to develop (tariffs). In turn, further industrial development gave rise to the middle class composed of urban professionals, state employees, artisans and craftsmen[52]. This critical mass of skilled individuals conformed the first modern bureaucrats. The positive relationship between regime type and human capital accumulation has been studied before[53]. As Collier and Collier [2002, 394] suggest, "the middle classes did well under [the competitive oligarchies regimes]. The size of the middle class expanded significantly not only as a result of economic growth in general, but also as a result of growing public employment as the state expanded"[54]. Consequently, the formation of the middle-class is endogenous to the expansion of the state itself.

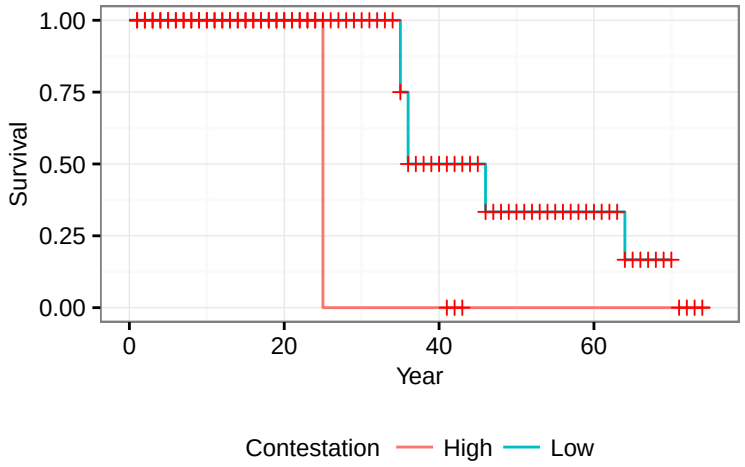

Figure 3: *Kaplan-Meier Curves: Size of the Industrial Sector and the Accelerated Rate of the Imposition of Income Tax Law*

It is important to rule out the possibility that income taxation and elite contestation are not linked through a spurious time dependence relationship (i.e., "something that would have happened anyways"). That is, the occurrence of the outcome of interest (taxation) is not directly related to time itself, but to the degree in which a contested agricultural sector (this argument's key independent variable) *accelerates* the imposition of the income tax law. Figure 3 shows the failure rate of the average country in our sample of implementing the income tax law if the size of the industrial sector had increased by half. When inter-elite contestation is high, countries pass the income tax law

[52] Stephens et al. [1992, 185].
[53] Brown and Hunter [2004, 842].
[54] Geddes [1996, 12] explains that government officials are self-interested individuals, and hence "their responses differ". However, we assume that the political interests of bureaucrats, presidents and congresses, are in line with their respective sectoral interests. Thus, we consider that "the state" is itself an actor.

sooner than when inter-elite contestation is low. This figure strongly suggests that institutional investments are a function of inter-elite competition rather than time itself. It is also important to rule out that both outcomes (inter-elite contestation and fiscal capacities) are not a function of what modernization theorists argue about[55]. As we explain in section VI, economic well-being indicators do *not* predict fiscal capacities nor inter-elite political contestation. Statistical results in section VI strongly suggest that the way in which industrialization is associated with state-building is not channeled through economic "well-being" but through inter-elite contestation.

V. Unpacking the Mechanisms: Illustrative Case, Chile 1850-1950

In all Latin American economies during and right after the end of the colonial period, agriculture was the most important sector, supplying a variety of foods and goods such as sugar, coffee and tobacco[56]. In parallel, the economic interests of the agricultural sector were the only ones represented in politics. Chilean agricultural elites were not the exception[57]. For example, Collier and Collier [2002, 106] argue that the "national government was dominated by the central part of the country, with owners of large agricultural holdings playing a predominant role". Historians still debate whether there were two *different* elites, however. Some say that they were obvious antagonists. Some have argued, for example, that the landed elite consolidated very strong economic and political monopolies[58]. Others have claimed that this antagonism is incorrect[59]. The main argument against this vision is that there was a blurry division between these "two" classes[60]. For example, landowners were also invested in industry[61]. However, there are some stylized facts that strongly suggest that in general, agricultural and industrial elites were two antagonist classes. Zeitlin [1984, 13] argues that "landowners controlled both the vote and the labor power of the agrarian tenants (*inquilinos*) and dependent peasants (*minifundistas*), and this was the *sine qua non* of their continuing political hegemony". In Congress, and the presidency itself, landowners were the single most important group[62], leaving the modern sector heavily under-represented. As Baland and Robinson [2008, 1748] argue, "[c]ongressional representation was heavily weighted in favor of rural districts". For example, immediately following the independence in 1823, the secretary of the treasury, Benavente,

[55] Lipset [1981, 31] for example argues that democracy is "related to the state of the economy. The more well-to-do a nation, the greater the chances it will sustain democracy".

[56] Marichal [1989, 74]. The demand for such items was stimulated by the rising consumption of the new and prosperous European bourgeoisie.

[57] Wright [1975, 45-46].

[58] McBride [1936, 15] argues that "Chile's people live on the soil. Her life is agricultural to the core. *Her government has always been of farm owners. Her Congress is made up chiefly of rich landlords.* Social life is dominated by families whose proudest possession is the ancestral estate". Emphases are mine.

[59] See for example Mamalakis [1976, 125].

[60] Bauer [2008, 30, 44, 94, 108].

[61] Coatsworth and Williamson [2002, 23] argue that "[t]he only landowners that mattered in 19th century Latin America politics were those for whom land represented but one asset in a much broader portfolio". In the same line, Bauer [2008, 180] argues that "[m]iners and merchants bought haciendas but landowners in turn invested in banks, insurance companies, commercial firms and the incipient industrial sector".

[62] Bauer [2008, 45].

addressed a predominately agricultural congress to propose an agricultural income tax. The congress rejected his idea, especially due to pressures by the landowning class[63]. In fact, fiscal pressures in favor of agricultural taxes were minimal as opposed to mining taxes[64], leaving the agricultural sector systematically and substantially undertaxed relative to other sectors[65]. Though eventually an agricultural income tax was imposed, it was weak and abolished after the civil war of 1891. This bias was consistent with any type of governmental interference. Historians explain that "[i]n those areas where the government did interfere in the countryside, the effect was to strengthen the position of the landowning class"[66]. For example, the few public infrastructure that existed was in favor of the agricultural sector. The state would either invest huge amounts of money or borrow resources to build infrastructure capable of mobilizing agricultural goods, starting with the gold rush in both California and Australia[67]. Presidents also engaged in the same biased practices. For example, "the Montt regime did invest in the construction of Chile's railways but only in the Central Valley and south-central zones [b]ut there was no public investment [...] in railroads built in the Norte Chico mining provinces"[68].

In contrast, the industrial sector started very small and critically its origins are much older than the ISI policies of the 1950s. "The development of large-scale, mechanized (and even "heavy") industry can be dated back to the 1890s"[69]. For nearly 400 years, mining was the most important activity unrelated to agriculture. Minerals had to be processed near the areas where they were mined in order to keep transport costs to a minimum, leading to the construction of foundries and refineries, which became the cornerstones for the early industrialization processes[70]. Although mining was very important during the colonial period, "Latin American's consumption of industrial metals continued to be very small until toward the end of the nineteenth century", but also was very rudimentary showing little or no technological refinement[71]. Most of the mineral-related industry (if not all) was foreign owned, with the exception of Chile[72]. Mining elites made their fortunes during the 1840s-1850s during the mining boom. After the boom, the mining elite shifted their focus to what is considered the first "true" industrial work, which actually was born under agricultural

[63] Sagredo [1997, 306]. It is important to stress that during this period, "political parties" did not follow very clear ideological divisions. Most of the secretaries/ministries were recruited due to their technocratic skills.

[64] As explained below, mining was one of the first manifestations of industrial activity.

[65] Best [1976, 56]. Bauer [2008, 81] provides a very plausible explanation for why the agricultural sector was "structurally" protected against taxation. As he explains, "[t]he availability of an easily accountable source of public revenue - bags of nitrate or bars of cooper - meant that any need for the Chilean government to intrude into the affairs of landowners was reduced [...] the state kept its political hands off the countryside until the overwhelming urban demands for more food and political support in the 1960s". Zeitlin [1984, 38] also points out that "public revenues came almost exclusively from taxes on mining and its exports".

[66] Bauer [2008, 118].

[67] Rippy [1971], Marichal [1989], Zeitlin [1984], Bauer [2008].

[68] Zeitlin [1984, 41].

[69] Haber [2005, 2]. For example, Rippy and Pfeiffer [1948] and Pfeiffer [1952] explain how by the 1870's the carriage industry were put on a firm basis.

[70] Bertola and Ocampo [2012, 129].

[71] Rippy [1971, 230].

[72] Stephens et al. [1992, 165, 176, footnote 5, 324].

auspices, i.e. the cotton mills[73].

The first (pseudo) "industries" were called *obrajes*[74]. Though servile and slave labor were used at the end of the colonial period, all labor was free and waged starting in the independence period. "Large-scale *obrajes* existed alongside smaller units of production - modest workshops and prosperous artisan-dominated enterprises - in virtually all urban centres"[75]. Beyond cotton and the textile industries, early industrialists also processed other agricultural goods[76]. Other industries for domestic consumption also developed around 1900[77]. The industrial sector was boosted by the international arena as well. For example, "[m]eat exports required the development of cold-storage technologies"[78]. From an international trade perspective, Haber [2005, 5] argues that given a change in the metallic standard, "exchange rate depreciation resulted in the expansion of the tradables sectors at the expense of non-tradables". Lower transportation costs and higher demand for processed grains in Europe also played a big role in boosting early industrial production. As Bauer [2008, 68] argues, "[b]ad harvests in Europe and disruptions caused by wars were other factors that enabled Chilean grain to be sold on European Markets".

Proper industrial activities started very small too[79], progressing "from the shop to the factory during the latter half of the nineteenth century"[80]. In Chile, almost all non-agricultural produce were personified by an incipient, yet a strong group of individuals. As historian Francisco Encina described it, "[i]t was precisely this segment of the dominant class that consummately personified the development of Chilean capitalism (mineowner and banker, railroad magnate and manufacturer, shipper and trader, *hacendado* and miller were [...] not only close associates, or drawn from the same family, but they were same individuals)"[81]. Most critically, the early industrial class was greatly dominated by foreign investors[82]. Pfeiffer [1952, 139] explains how Chile was one of the few Latin-American nations which managed to make substantial progress in the development of

[73] See Rippy [1971, 231] and Bethell [1986, 271]. As Bethell [1986, 271] argues, "[t]he first power looms were brought [in Perú, Ecuador, and Venezuela] in the 1840s, 1850s; but in all three they were a failure, some of the early mills in Ecuador being destroyed by an earthquake. It was not until after 1890 that textile industries of these nations began to operate with reasonable success. Guatemala's first cotton mill was established in 1882, and between that date and 1910 a few mills appeared in Chile, Argentina, Uruguay, and Colombia" (Rippy [1971, 232]).

[74] I.e., Proto-industrial redoubts.

[75] Bethell [1986, 271]. Emphasis in original.

[76] For instance, they processed animal grease and tallow (for soap and candles), dried and cured meats, flour, bread, beer, wines, spirits - most of these were for domestic consumption (Bethell [1986, 272]). Other food industries, such as sugar (Bertola and Ocampo [2012, 129]) to be used in the production of chocolate, candies, biscuits. Vegetable oils were also very important. "The flour mills were probably the first of the Chilean industrial plants to utilize steam power" (Rippy and Pfeiffer [1948, 300]).

[77] Some examples are tobacco, pottery, felt hats, matches, footwear, specially in Argentina, Brazil, Chile, Uruguay and Perú (Rippy [1971, 235]).

[78] Bertola and Ocampo [2012, 129].

[79] Marichal [1989], Rippy and Pfeiffer [1948, 68].

[80] Rippy [1971, 235].

[81] In Zeitlin [1984, 30]. He describes several last names which are still associated with the Chilean elite, such as Ossa, Edwards, Vicuña Mackenna, Matta, Goyenechea, Cousiño, Urmeneta, Gallo and Subercasaux. Emphasis in the original. Similarly, Wright [1975, 48] supports the thesis that the nitrate development did lead to the development of an "incipient industrial establishment".

[82] Rippy and Pfeiffer [1948, 295].

industries (other than those producing consumer goods) and how the most extensive industrial operations had been dominated by foreign firms.

From the process of going from mineowners to proto-industrialists, this incipient elite developed a strong sense of social *class* that consistently sought political representation and influence. Collier and Collier [2002, 109] explain that the *Alianza Liberal* was "the political expression of the new groups that began to emerge in the late 19th century with the expansion of the commerce and industry and the opening of the new mining areas [...] As these groups gained social and economic importance, they began to emerge as a political force". In fact, during the 1920s, industrialists started to "form trade associations to engage in lobbying and propaganda as more coherent interest groups,"[83] such as the *Sociedad de Fomento Fabril* (SOFOFA). The SOFOFA was founded in 1883 to represent the interests of the the industrial sector against the interests of the agricultural sector, represented by the *Sociedad Nacional de Agricultura* (SNA), which was founded 45 years earlier in 1838. The society "was the most powerful associational interest group in nineteenth-century Chile"[84], which was clearly self-conceived in class terms[85].

As the Chilean industrial sector developed, the tensions with agricultural incumbents increased. The first time the agriculture sector engaged in predatory practices was due to the fiscal deficit originated in the deceleration of trade taxes. The deficit put heavy fiscal pressures on rulers to draw on industrial output. Agricultural exports in Chile, such as wheat production, had a boom between 1865-1875 until 1880[86]. However, "[t]he importance of trade taxes as sources of public revenues began a steady decline in 1918, which lasted until 1925. This downfall is explained by the fall of export revenues caused by the collapse in the prices of Chile's major exports during the war"[87]. Before the 1920s, both fiscal pressures and the lack of a political counterpart, made politically represented agricultural elites easier to hold several confiscatory policies. These policies had many "faces". As some historians have argued, incumbents engaged in "nationalization by means of naturalization, government intervention, and government participation"[88]. Chile, Perú, Uruguay, among others, went through a clear process of nationalization for non-agricultural assets around the 1920s[89]. For example, Bulmer-Thomas [2003, 255, 342-343] explains that it was very common to nationalize non-agricultural assets such as transport companies, financial institutions, and mining industries.

These two sectors had enough antagonistic preferences that they initially confronted each other in two bloody civil wars, however this strategy was not sustainable, consequently political

[83] Weaver [1980, 107].
[84] Wright [1973, 244].
[85] Wright [1975, 51].
[86] Bauer [2008, 68-69-70]. See also Lederman [2005, 55]. Declining custom duties also happened in several other countries of Latin America. See Bulmer-Thomas [2003, 245].
[87] Lederman [2005, 54-55].
[88] Rippy [1971, 238].
[89] Chua [2010].

compromises were made. Zeitlin [1984, 23] argues that the civil wars challenged a "large landed property [elite against a] productive capital [elite]". Clearly, fast industrialization brought an unstable combination: *inter-sectoral balanced growth paired with inter-elite political inequality was not a sustainable equilibrium.* Being both elites about the same size, but only one of them with political representation, leaved the unrepresented group too exposed. Military confrontation occurred, but it was not sustainable in time. As both economic sectors could mobilize armies with relatively similar capabilities, war was more likely to exhaust both sides without producing any positive outcome for any sector. Consequently, Chilean agricultural and industrial elites opted for a political compromise instead. Three institutional components were incorporated: an income tax, political representation and protectionist policies for the industrial sector. In 1924 the income tax law was passed. As others have observed, "[t]here was visible bargaining: [the non-agricultural sector] (reluctantly) accepted taxation, *while demanding state services and expecting to influence how tax revenues were spent*"[90]. The SOFOFA pursued an agenda in favor of protective industrial tariffs[91]. In particular, "by the early 1920s Chile's manufacturers were no longer just demanding (and obtaining) protective tariffs, they actively lobbied for government subsidies to establish a range of new industries"[92]. Eventually, the Aguirre Cerda government in 1939 created the CORFO, an agency that "undertook the responsibility for economic planning and direction by identifying certain industrial sectors to support through various sorts of credits, subsidies [and] government investments"[93].

These political compromises within the elite triggered a series of other investments in state institutions. Because of these structural transformations, the early Chilean government "was able to impose a substantial tax [...] and pay the salaries of government and military employees"[94]. Importantly, the income tax law was influential beyond Santiago, the capital city, but in the whole territory. *Art. 104* and *Art. 105* of the income tax law[95] empowered all municipalities in the collection of the tax. In fact, all municipalities had to send a detailed list of taxpayers twice a year, forcing the development of local bureaucracies able to count and classify population according to their incomes and sources of income. The income tax law actually specified different payments depending on whether earned income came from industrial or agricultural sources[96]. Lastly, protectionist tariffs helped to develop an even stronger industrial sector, which in turn established the basis for the new middle class, the most important ingredient for the development of the modern bureaucracy. The aperture of the political system, while breaking the agricultural-led political monopoly, also helped the industrial class to gain influence in how the income tax was spent. Moreover, the

[90] Carmenza Gallo, in Brautigam et al. [2008, 165]. Emphases are mine. She refers specifically to nitrate producers.
[91] Lederman [2005, 54] and Haber [2005, 18].
[92] Haber [2005, 18].
[93] Collier and Collier [2002, 393].
[94] Bauer [2008, 80]. He refers particularly to taxes on "nitrate exports".
[95] *Decreto* number 1269.
[96] As article 104*th.* reads, "Los municipios estarán obligados a enviar semestralmente a la Direccion de Impuestos Internos una copia autorizada del rol de patentes industriales, comerciales y profesionales".

incorporation of the modern sector into the political system played a fundamental role in furthering the industrialization process itself. That is, the industrialization process was also a *political* process too. Critically, both elites channeled their sectoral demands through political institutions. As Collier [1977, 683] points out, "the real story of Chilean industrialization belongs to the Parliamentary period", between 1891 and 1925, right after the civil war. This idea is also in line with Kurtz [2013, 36], who explains that the incorporation of upper-class actors from all major factions into the national political system was crucial to enabling substantial taxation, public goods provision and essentially, state building.

VI. Econometric Analyses

This paper argues that the origins of fiscal capacities can be explained by the presence of an inter-sectoral compromise between the agricultural and industrial elites. These compromises were possible when the industrial sector was big enough to posit challenges to agricultural political incumbents. Sectoral competition is operationalized using sectoral industrial and agricultural growth rates of all Pacific coast countries for which we have available data, that is, Chile, Ecuador, Nicaragua, Venezuela, Perú, Colombia and Guatemala. In particular, the MOxLAD data are used[97]. The time span goes from 1900 to (potentially) 2010. According to Astorga et al. [2005, 790], this dataset provides extended comparable sectoral value-added series in constant purchasing power parity prices. The outcome variable is when this panel of countries impose the income tax law. Figure 1 shows both sectoral outputs and the year when the income tax law was passed.

Following Aidt and Jensen [2009], we model the conditional hazard ratio that a country which has not yet adopted the income tax adopts it in a given year as a function of the relative size of the agricultural and industrial sectors. We compute these hazard ratios using several functional forms. First, we assume a Cox proportional hazard parametrization to compute the hazard rate of a country at a given year to "fail" (i.e., implement the income tax law) conditional on baseline covariates[98]. Countries drop out of the sample when they adopt the income tax[99]. We also assumed a generalized estimating equation (GEE) functional form. Generalized estimating equations were introduced by Liang and Zeger [1986] to fit clustered, repeated/correlated and panel data[100]. This method is especially well suited when the data are binary[101]. GEE methods require analysts to parameterize the working correlation matrix. Though Hedeker and Gibbons [2006, 139] explain that "the GEE is robust to misspecification of the correlation structure"[102], Zorn [2006, 338] explains

[97] "These data build on the studies and statistical abstracts of the Economic Commission for Latin America, but also rely on Mitchell's International Historical Statistics, International Monetary Fund's International Financial Statistics, the World Bank's World Development Indicators and a variety of national sources".

[98] Box-Steffensmeier and Jones [2004].

[99] That is why the time span goes from 1900 to *potentially* 2010.

[100] Zorn [2006, 322].

[101] Hanley et al. [2003].

[102] Carlin et al. [2001, 402], argue that "[r]elatively minor differences in estimates may arise depending on how

that whereas the choice of estimator makes little or no difference, the unit on which the data are grouped introduces a great deal of differences. Hence, following the advice of Hardin and Hilbe [2013, 166], who point out that when "the observations are clustered (not collected over time) [...] the exchangeable correlation structure" should be used, we assume an "independence" working covariance structure, that is, there are "no within-unit correlation"[103]. From a substantive standpoint, GEE models provide an estimated marginal mean, that is, the *weighted average* of all cluster-specific effects (or conditional means).

We also employ a conditional logit form ("fixed effects" model). One important advantage of this strategy is to be able to account for country-specific effects. For example, fiscal capacities could be a function of prior state-building capacities[104]. A number of scholars rightly argue that post-colonial state capacities are in part a function of pre-colonial state-capacities[105]. Fixed-effects should be able to account for this and other unobserved or/and hard-to-measure covariates, which if left unaccounted for would introduce omitted variable biases[106].

In order to account for time dependency, we included different time-transformed variables, in the form of a lagged dependent variable to account for partial adjustment of behavior[107] and also time-transformed functions[108] "through the use of the natural log transformation [and] polynomials [to capture] different forms (or "shapes") of the baseline hazard"[109].

Additionally, in order to test that income taxation initiated a *path* of institutional investments, particularly opening the political system for oligarchic competition, Andersen-Gill (AG) models[110], a generalization of the Cox models[111], were incorporated. Using a slightly different data structure[112] and within a multiple failure-time framework, the *jointly* occurrence of income taxation *and* democracy was estimated. One drawback of AG models is that both events are assumed to be the same and independent[113]. Though this paper proposed an endogenous relationship between both outcomes, here we adopt a strategy that tries to break this possible endogeneity "problem"[114]. We fit two Cox models, having taxation on the RHS and political competition on the LHS for the first model, and then we invert these two covariates for the second model.

the estimating equations are weighted, in particular within the generalized estimating equation (GEE) framework". Westgate and Burchett [2016] and Gardiner et al. [2009, 227] make the same point.

[103] Zorn [2006, 332].

[104] I thank Matthias vom Hau for this suggestion.

[105] Wimmer [2015, 10], Mahoney [2010] and Lange et al. [2006, 1426].

[106] Angrist and Pischke [2008].

[107] Wawro [2002].

[108] Carter and Signorino [2010].

[109] Box-Steffensmeier and Jones [2004, 75].

[110] Andersen and Gill [1982].

[111] Therneau and Grambsch [2000, 185]. Box-Steffensmeier et al. [2014, 2] explain that AG models are "Cox model[s] with robust standard errors".

[112] This data structure is different in the sense that countries drop out of the sample once *both* income taxation *and* democracy occur.

[113] Box-Steffensmeier et al. [2006, 240].

[114] I thank Christopher Zorn for this suggestion.

Another model was included to account for spatial dependence[115]. Given that the set of countries we are modeling are all contiguous neighbors, it is reasonable to expect a "domino" effect. Theoretically, being the first country to implement the income tax cannot have the same effect than being the last one. There are clearly diminishing returns which should be accounted for. First-implementers have no prior experience and hence, it should be harder for them to pass the law in the first place. Similarly, it should be easier for last-implementers. To account for spatial dependence, a cumulative count of countries which have implemented the law at time t was included[116].

Finally, to rule out modernization-like theory outcomes, a last model including annual per capita GDP was included. Modernization theory argues that higher levels of education, income and urbanization make democratization more likely. Annual per capita GDP is a good proxy of aggregate well-being.

All these models strongly suggest that larger industrial sectoral outputs accelerate the passage of the income tax law and the implementation of the first democratic waves.

I. Results

Table 1 shows six models[117]. The first three are Cox models, under different time-transformations (splines, logged and log-lagged). The fourth model is a conditional logistic regression ("fixed effects" model). The fifth model is an Andersen-Gill model which predicts the jointly realization of both the income tax and democratization. The sixth model shows a GEE logistic regression model. The seventh and eight models show results for standard Cox models, where the outcome (whether taxation or democracy) is switched. The ninth model controls for spatial dependence while the tenth model controls for a per capita GDP. For the Cox, Andersen-Gill models, taxation-democracy, democracy-taxation, spatial dependence and modernization theory models, the coefficients are expressed in hazard ratios. That means that "a positive coefficient indicates that the hazard is increasing as a function of the covariate (and hence, the survival time is decreasing)"[118]. In this application, the hazard is either implementing the income tax law or switching to a democratic state, or both (depending on the model). For the conditional logit and GEE models, the coefficients are in logit scales.

These results strongly suggest that as the industrial sector developed, it challenged the agricultural

[115] I thank both Christopher Zorn and David Darmofal for this suggestion.

[116] Given the small number of events (no event, democracy or taxation, and taxation and democracy) and the small panel (just seven countries, where some of them experience taxation/democratization rather early, shortening the panel length), the variable could not be introduced on the RHS due to a perfect classification problem. Rather than that, we opted for clustering the results at the counting variable level. The intuition is that countries are exposed to a cluster number that increases with time.

[117] All tables were produced using the `texreg` package (Leifeld [2013]). All Cox models were computed using the `survival R` package (Therneau [2015]). The GEE logistic regression was computed using the `geepack` package (Hojsgaard et al. [2016]). This paper was written in LaTeX using the dynamic report `R` package `knitr` (Xie [2016]), for fully replicable research.

[118] Box-Steffensmeier and Jones [2004, 50].

	(1) Cox	(2) Cox	(3) Cox	(4) Cond. Logit	(5) And.-Gill	(6) GEE	(7) Tax.-Dem.	(8) Dem.-Tax.	(9) Spat. Dep.	(10) Modern. Th.
Manufacture Output$_{tt}$	0.742**									
	(0.236)									
Agricultural Output$_{tt}$	−0.440									
	(0.239)									
Manufacture Output (ln)		2.193*		0.921***	0.710**	2.640**			2.193*	
		(0.861)		(0.157)	(0.236)	(0.950)			(1.111)	
Agricultural Output (ln)		−1.347		−0.433	−0.411	−2.605*			−1.347	
		(0.816)		(0.230)	(0.232)	(1.098)			(0.910)	
Manufacture Output$_{t-1}$ (ln)			2.193*							
			(0.861)							
Agricultural Output$_{t-1}$ (ln)			−1.347							
			(0.816)							
Total Population (ln)						5.432**				
						(1.837)				
Manufacture Output							0.003**	−0.000		0.000
							(0.001)	(0.000)		(0.000)
Agricultural Output							−0.000	0.000		−0.000
							(0.000)	(0.000)		(0.000)
Democracy (cum. sum)^2							0.027***			
							(0.005)			
Income Tax (cum. sum)^2								0.004		
								(0.005)		
Per Capita GDP										−0.004
										(0.005)
AIC	12.963	9.271	9.271	3248.152	30.677		8.944	21.704	9.271	21.655
R^2	0.028	0.048	0.049	0.323	0.021		0.060	0.006	0.048	0.006
Max. R^2	0.075	0.075	0.078	0.996	0.127		0.075	0.079	0.075	0.079
Num. events	7	7	7	447	14		7	8	7	8
Num. obs.	181	181	174	621	234	621	181	207	181	207
Missings	0	0	0	0	0		53	27	0	27
PH test	0.795	0.966	0.966		0.817		1.000	0.778	0.854	0.981
Num. clust.						7				

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$. Robust Standard Errors in All Models

Table 1: *Structural Origins of Income Taxation: Income Tax Law and Democratic Development*

political monopolists, making the passage of the income tax more likely. Once unobserved sources of heterogeneity are accounted for (in the "fixed effects" model), past stateness levels do not alter the mechanisms presented in this paper. The AG model suggests that once we assume taxation and early oligarchic electoral competition are the same process, the sizes, signs and statistical significances do not change either. However, once we assume them to be different and try to break the endogeneity "problem", we see that oligarchic competition "causes"[119] income taxation, but not the other way around (model 7 and model 8, respectively). Once we cluster by early and late-implementers, results remain substantively identical. Finally, once per capita GDP is included, the model crashes, neither this measure of well-being nor more industrialization levels predict oligarchic competition/democracy nor fiscal development. The GEE model includes a measurement of population density. Population has been associated with the probability in which elites expanded the franchise. Denser populations also expand the tax base. The scarcity of people meant that local and state governments were extremely concerned with attracting migrants. Because population inflows would lower the cost of labor, and boost land values and tax revenues, these societies were induced to adopt institutions attractive to immigrants. Among these, were cheap land and political participation[120].

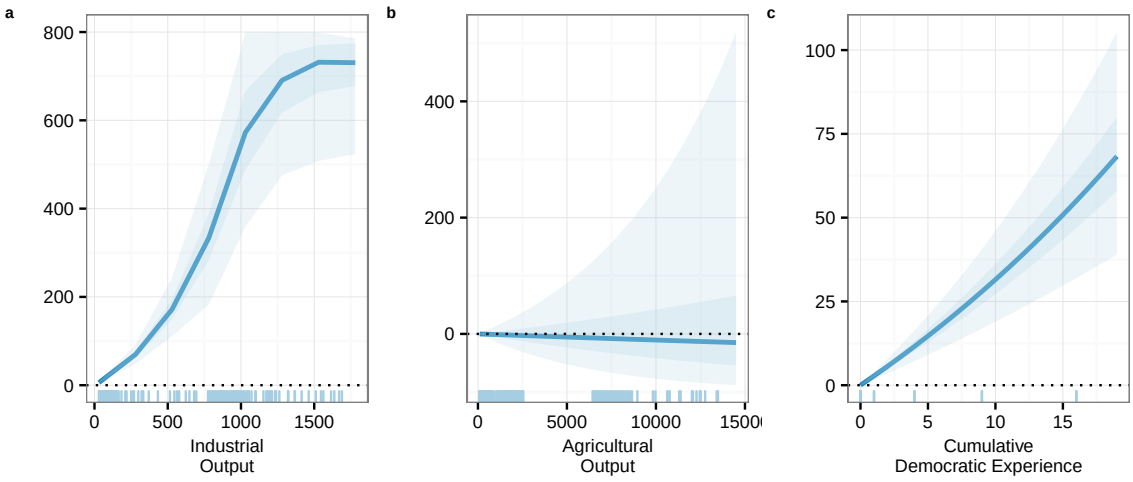

Figure 4: *First Differences of Industrial Output, Agricultural Output and Democratic Experience*

Following Gandrud [2015] and King et al. [2000], Figure 4 shows in three panels, different variable of interests simulated 2,000 times. Using a variant of model 2 in Table 1[121], panel **a** and **b** simulate the average effect of industrial and agricultural outputs on the hazard of passing the income tax law. Using the estimations of the seventh model in Table 1, panel **c** simulates the effect of the cumulative

[119] We use the term loosely, without claiming any causal inference.
[120] Engerman and Sokoloff [2005, 892-893].
[121] The `simPH` package does not handle natural logs well. The only difference was the inclusion of the unlogged variable. It is important to stress that *both* sectors were included in the model, and hence, one sector acts as the control variable of the other sector. In the appendix section, Table 2 shows the results of the model employed to generate the 2,000 simulations. The numbers differ from the main results in Table 1 because the scales are different.

democratic experience on the passage of the income tax law. These plots strongly suggest that higher industrial output substantively boosted the hazards of introducing the income tax, while higher agricultural output did not play a role in the modernization of the fiscal system. We argued in favor of an endogenous process between oligarchic electoral competition and the development of a fiscal system. However, model 7 in Table 1 suggests that once we include oligarchic electoral competition on the right-hand-side, we find statistically significant results. Panel **c** in Figure 4 simulates those effects. However, income tax adoption does not fit oligarchic electoral competition (model 8). We leave this question open for future research.

VII. Discussion: Slow Industrial Growth and Lack of Contestation

The paper argued that in order to understand state capacities, it is necessary to understand the origins of the main "state-builder" institution, i.e. income taxation. Direct taxation, and especially, income taxation (being a much more complicated tax to collect), requires the development of better bureaucracies, a fundamental part of the modern state. Its introduction was not important because of the new resources the treasury acquired, but because it triggered a series of inter-elite compromises and other institutional investments too. Our theory claims that the countries that made the big jump sustained fast industrial growth rates. These rates challenged the traditional sector, forcing them to make political concessions with the modern sector. One of the most important ones was the aperture of the closed post-colonial political system, granting access to industrial organized groups. Specifically, the industrial class accepted to be income taxed in exchange for the ability to participate in politics. In terms of economic compromises, the industrial elite managed to articulate its demands as a coherent class, including in the bargain industrial tariffs to protect their sector. In this sense, the analytical device that allowed the rupture of the old political monopoly was similar sectoral output levels between elites. It is inter-elite *equality* that causes state formation and cooperation, not inter-elite inequality as other scholars have claimed[122]. A situation of balanced growth potentially allowed each sector to acquire the same level of military power, deterring sustained conflict and forcing both political and economic compromises. Importantly, it is in this way that industrialization is important (as a contestation device), not in the way modernization theorists have argued.

[122] Boix [2015, 73] argues that states only exist to counteract a potential situation of conflict between agents with *different* economic interests and military capacities.

VIII. Appendix

I. Model used for Simulation Plot

Table 2 shows the estimates used to compute the 2,000 simulations in the Figure 4 (panels **a** and **b**).

	Cox-PH
Manufacture Output	0.00^{***}
	(0.00)
Agricultural Output	-0.00
	(0.00)
AIC	9.26
R^2	0.05
Max. R^2	0.07
Num. events	7
Num. obs.	181
Missings	0
PH test	1.00

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$. Robust Standard Errors in All Models

Table 2: *Structural Origins of Income Taxation: Model Used to Compute Simulations*

II. Robustness Checks

Cox *proportional* models rest on the assumption that hazard rates are *proportional* to time dynamics[123]. Non-proportional hazard model are becoming an increasing problem across all subfields in political science[124]. In this section, we test whether this assumption holds. Non-significant p-values indicate that the proportionality assumption holds. Also, Figure 5 shows how the spline fitted lines are constant across time. Each of the seven dots represents the regression coefficients of our seven countries[125]. All in all, steady splines confirm that the hazard rates are, in fact, *proportional*.

```
##                        rho chisq     p
## log(constmanufact) -0.365 0.111 0.739
## log(constagricult)  0.360 0.107 0.744
## GLOBAL                 NA 0.117 0.943
```

[123] Box-Steffensmeier and Jones [2004].
[124] Licht [2011].
[125] This is for our main model, column 2 in Table 1.

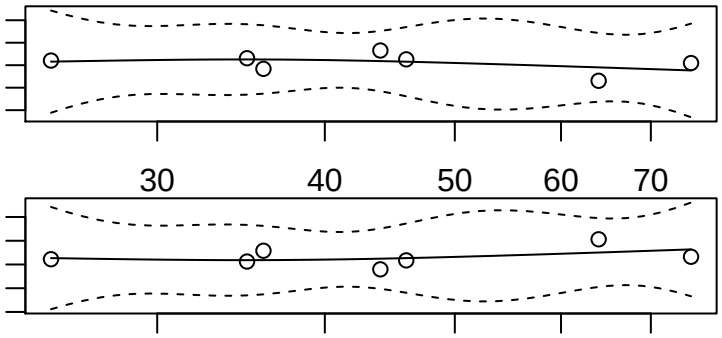

Figure 5: *Plots of the Coefficient Estimates against Time*

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