Sectoral Origins of Income Taxation: Industrial Development in Latin America and The Case of Chile (1900-2010)

Héctor Bahamonde

*Postdoctoral Fellow • Center For Inter-American Policy & Research • Tulane University

e:hbahamonde@tulane.edu

w:www.hectorbahamonde.com

April 17, 2018

Abstract

Building on the fiscal sociology and sectoral approaches, this paper outlines the conditions under which the timing of the implementation of the income tax was most likely to happen. The argument stresses the role of sectoral contestation, and how the tax was an important critical juncture for state-building in Latin America. My quantitative analyses cover almost a hundred years of sectoral outputs. I also examine the Chilean case to illustrate the causal mechanisms at work. I find that higher levels of sectoral contestation—characterized by the rising of the industrial class—posed credible threats to incumbent landowners-elites, in turn accelerating inter-sectoral alliances. I focus on one such agreement, the income tax, and explain why this institution was important for state consolidation.

Please consider downloading the last version of the paper here.

There seems to be strong agreement that fiscal capacities are a prerequisite for state-building. For instance, Levi [1989, 1] explains for the continental cases that, "the history of state revenue production is the history of of the evolution of the state." Unfortunately, however, most efforts have been devoted to understanding the relationship between the politics of taxation and state development only in a limited number of European cases,[1] overlooking the origins of fiscal and state expansion in the developing world, and particularly, in Latin America.[2] In fact, in a recently edited volume, Monson and Scheidel [2015, 3] explain that the "New Fiscal History has furnished a valuable set of concepts and questions but so far its scope has been limited to post-classical Europe."[3] Moreover, the bulk of the research done on Latin America has mostly focused on *recent* tax reforms.[4] For instance, Fairfield [2013] studies different strategies policymakers pursue to tax elites starting in 1990, Mahon et al. [2014, 3], Mahon [2004] and Focanti et al. [2013] have studied the causes of tax reform in Latin America starting in the 1960s, 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.[5] However, comparative time series studies focusing on the structural *origins* of income taxation in Latin America seem scarce. By providing a set of broader consequences for state consolidation, this paper is an effort to fill this gap in the literature.

Building on the fiscal sociology approach, I develop an argument centered on the development of the modern fiscal apparatus in Latin America, explaining that it was product of sectoral conflicts and compromises, between the industrial and agricultural elites. The paper presents several panel-data analyses covering almost 100 years of data for a number of Latin American countries. It also presents the Chilean case to illustrate the causal mechanisms at work. I find that the emergence of the industrial sector *accelerated* the implementation of the income tax, while the expansion of the agricultural sector *retarded*, or even *precluded* fiscal development. These findings go in line with Beramendi et al. [2016], particularly, in that as long as agriculture is the leading economic sector, the fiscal apparatus is less likely to emerge.[6]

I argue that the early implementation of the income tax in Latin America was product of an inter-sectoral conflict that took place around in the early 1900's between the agricultural and industrial sectors. Initially, Latin American political institutions and social norms—largely inherited

---

[1]Schneider [2012, 2] explains that even when we have gained considerable knowledge of fiscal expansion in the European cases, the study of developing countries is lacking especially in the presence of "new leading sectors."

[2]Di John [2006, 5].

[3]Some important exceptions are Yun-Casalilla et al. [2015] and Monson and Scheidel [2015] who study a number of premodern Latin American states.

[4]Flores-Macías, in Flores-Macias [2017].

[5]See also Sanchez [2011] and Bergman [2003].

[6]See for similar results Pessino and Fenochietto [2010, 78].

from the colonial period—were designed to serve the interests of the landowning elites.[7] However, the economic structural transformation characterized by "a secular decline of agriculture and substantial expansion of manufacturing,"[8] imposed tight constraints on the way politics was run by the incumbent agricultural political elites. Given the initial advantage of the landed elites, the emergence of the industrial sector lead to the reduction of inter-sectoral inequality. It also lead to the rise of bargaining power of the industrial class, positioning them as challenger elites.[9] In other words, the political monopoly of agricultural elites was disturbed with the rising of a new and strong political elite backed by favorable material conditions rooted in industrial expansion. Industrial emergence, in turn, posed credible political, economic and military threats, to agricultural incumbents, increasing the opportunity costs of conflict, generating pressures for inter-elite compromises, particularly, the implementation of the income tax. The paper explains why industrial elites actually preferred to impose the income tax, and link this to state consolidation.

Some scholars situate the relevant state-building critical juncture either before the colonial period,[10] or at the end of it.[11] While the literature situates these critical moments before the class compromises I identify in this paper, the paper identifies the income tax as an important *additional building block* in that process. Hence, here the focus is on state *consolidation*, rather than strictly state *formation*.

The paper is organized as follows. The argument is explained in two different sections. The first section explains the nature and mechanics of the sectoral conflicts that lead to income taxation, paying especial attention to the role of taxation on state consolidation in Latin America. The following section explains that the timing of implementing the income tax acted as a critical juncture, setting countries in a path of development/underdevelopment. To contextualize the theoretical argument, the following section presents the case of Chile between 1900 and 1950, focusing particularly on the cross-class economic and political dynamics that led to the implementation of the income tax. In an effort to generalize this historical evidence, the quantitative section presents several panel-data analyses covering almost 100 years of data for a number of Latin American countries. Lastly, the paper provides some concluding remarks, and discusses some pending issues.

---

[7]Mamalakis [1971, 90,109].

[8]Johnston and Mellor [1961, 567].

[9]Mamalakis [1971, 112] explains that in "Latin America, agriculture-linked parties lost power between 1900-1960, while those parties linked with mining, industrial, and service sectors gained power."

[10]Mahoney [2010].

[11]Kurtz [2009, 2013] explains that the first critical juncture corresponded to the post independence political economy, stressing whether local rural elites recruited their workers through servile means. In turn, Soifer [2015, 6] argues that the critical tipping point was whether "local administrators were outsiders in the communities in which they served."

I. SECTORAL CONFLICTS AND THE ROLE OF TAXATION ON STATE FORMATION

The paper examines the well-established link between direct taxation and state-making, but it emphasizes the role of sectoral conflicts in the Latin American context, filling an important gap in the literature of the political economy of the developing world.

The basic premise is that income taxation fosters state consolidation. Following Schumpeter who sees "taxation in terms of group conflicts [and] class interests,"[12] and Musgrave [1992, 99], who explains that since taxation (especially on incomes) requires such a high degree of state penetration, this article contends that public finances offer an important element for any theory of state development.

According to fiscal sociologists, indirect taxes do not foster a strong fiscal apparatus.[13] According to Best [1976, 53], "indirect taxes are but substitutes for direct taxes,"[14] and hence they are typically administered by weak states.[15] Since indirect taxes are easier to levy,[16] this kind of revenue is generally considered "unearned income,"[17] or "easy-to-collect source of revenues."[18] Given the relatively lower costs states have to incur to collect them, indirect taxes—particularly tariffs— have a very low impact on state-building. When early Latin American states depended heavily on international trade taxes, the state apparatus tended to be less developed.[19] Since customs administrations in the region have always been concentrated in a few critical locations, especially ports, tariffs and customs duties did not require an elaborate fiscal structure,[20] compromising state consolidation.

Industrial and agricultural elites have different preferences towards taxation.[21] And by extension, state centralization and taxation, affects landowners and industrialists in different ways, nurturing a structural conflict between the two groups.[22] Others have also explained that higher levels of sectoral conflicts lead to taxation. Leveraging the European cases, Mares and Queralt [2015, 3] find that the income tax was adopted "at a time when the economic power of incumbent landowning elites was

---

[12]Monson and Scheidel [2015, 14].

[13]However, see Brewer [1990, 56]. The English state made extensive use of its navy to prevent smuggling and enforce the excise, an indirect tax. The excise employed an important number of state agents and helped to develop skilled state bureaucracies and an efficient fiscal system.

[14]However, under certain circumstances, indirect taxes are more efficient. Kiser [1994, 291] explains that when the levels of tax variability are high, direct taxation can actually have negative effects, especially when overtaxation is a possibility.

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

[16]Krasner [1985, 46] explains that "tariffs and export taxes are easier to obtain than direct taxes, which require high levels of bureaucratic skill and voluntary compliance." See also Flores-Macías in Flores-Macias [2017].

[17]Moore [2004b, 304].

[18]Coatsworth and Williamson [2002, 10].

[19]Campbell [1993, 177].

[20]Bertola and Ocampo [2012, 132].

[21]Acemoglu and Robinson [2009, 289], Best [1976, 50].

[22]Hechter and Brustein [1980, 1085] explain that "state formation will be most likely to the degree that powerful individual actors form two groups on the basis of *divergent* economic and political interests."

severely threatened by the rise of a new economic elite linked to the emerging manufacturing sector."

Land fixity increases the risk premium of the landed elite's main asset,[23] so they systematically resist taxation. In turn, as capital can be reinvested in nontaxable sectors,[24] industrialists' preferences toward taxation are more elastic. These conflicting preferences about taxation are more likely to be resolved in favor of expanding the fiscal apparatus, contingent on the emergence of a challenger elite, and higher levels of sectoral threat. For instance, leveraging a number of cases, including some Latin American countries, Beramendi et al. [2016, 18] explain that as industrialists depended more on infrastructure implemented at the local level such as roads, railroads and bridges, they "[*preferred*] to shoulder a higher tax burden through progressive direct taxation." The emergence of industrial political elites, reduced the levels of inter-elite economic inequality, closing the gap respect to the access to military resources each elite had. Under these circumstances, war was most likely to exhaust all existent assets without producing positive outcomes for either sector,[25] putting heavier pressures to reach agreements instead of engaging in armed conflicts. Here I focus on one such agreement, the implementation of the income tax law.
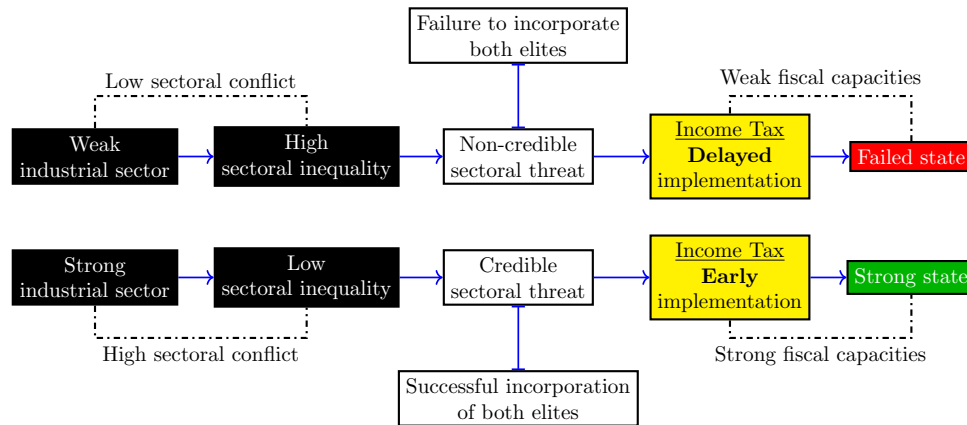

Figure 1: *Causal Argument*

The acquired institutional knowledge associated with income taxation was transfered to other state institutions via positive spillovers, augmenting the overall levels of *stateness*. In other words, income taxation was not only important because of the new revenue it collected, but also for state consolidation.[26] Similarly, Kaldor points out that the revenue service is the "point of entry." Once this institution is established, the expected marginal cost of improving/implementing other

---

[23]Robinson [2006, 512]. However, see Freeman and Quinn [2012].

[24]Hirschman [1970]. See Ronald Rogowski in Drake and McCubbins [1998, ch. 4]. However, see Bates and Lien [1985, 15].

[25]Richard Salvucci in Uribe-Uran [2001, 48].

[26]Moore [2004b, 298].

"state-capacities" is lower.[27] In Chile, in particular, the income tax generated considerable resources for the Chilean treasury,[28] suggesting an expansion in the fiscal apparatus in general, and higher levels of state consolidation. These findings have been generalized to other countries in studies considering both historical and cross-sectional evidence suggesting that *implementing* the income tax helped to foster state-making. For instance, Besley et al. [2013] explain that implementing the income tax law has been "associated with investments in public administrative structures that support tax collection" in a number of countries, including Chile; Dincecco and Troiano [2015, 3] find "a positive and significant relationship between the *introduction* of the income tax and (1) per capita total expenditures, (2) per capita education expenditures, and (3) per capita health expenditures,"[29] (all being common indicators of state-capacities); while Dincecco [2015] explains that states became effective organisms upon centralizing a system of direct taxation and implementing some kind of checks-and-balances system. In the case of Chile, particularly, it was necessary to send official emissaries to check on accounting books of the refinery in the north, the winery in the central valley and the *hacienda* in the south. Eventually, these delegations became more complex, increasing the density of state presence in the territory. Both the mechanism proposed and the evidenced presented in this paper complement this research by theorizing the importance of sectoral conflicts. Particularly, it was necessary to secure elite compliance via an inter-sectoral alliance. Industrial elites accepted to be income taxes in exchange of receiving public goods at the local level, and being allowed to have fair access to national politics. Relatedly, Flores-Macias [2014] finds that Colombian elites were willing to impose higher taxation levels, upon the establishment of an elite-government alliance, fostering closer monitoring levels, particularly regarding public spending.

II. The Timing of the Implementation of the Income Tax: Late and Early Implementers

When countries implement the income tax is an analytically important quantity of interest. Income taxation should have positive spillover effects on state development only if its implementation is situated during the formative years of the polity, that is, in early years, before the modern institutional order was built. Otherwise, once other major institutions are set in place (and once there is a clear set of winners and losers), even if some kind of direct taxation is (lately) imposed, it should be very costly to alter the underlying structure that reproduces the post-colonial institutional order. While all countries in the region have eventually implemented some system of direct taxation,

---

[27]In Brautigam et al. [2008, 15].
[28]Humud (1969, p. 154), in Bowman and Wallerstein [1982, 451-452].
[29]Emphasis is mine.

the process late implementers went through did not reflect the domestic sectoral dynamics explained in this paper, but other forces. That is, while early implementers consolidate the sate *in light* of taxation, late implementers evolve despite taxation. Moreover, since late implementers had lower levels of sectoral conflict, too low to trigger a critical juncture, they kept reproducing the legacies of the post-colonial backwards institutions. Consequently, and in my view, implementing the income tax in contexts where the post-colonial agricultural economic elites were still the ruling political elites, represents a missed opportunity to transform the state. For instance, I find somewhere else that in a number of Latin American countries that when the income tax is adopted under contexts of sectoral contestation, economic growth is more likely to be sustained in the long run.[30] Relatedly, I find somewhere else that the income tax in Chile produced state-capacities overtime.[31] In this paper I focus on how different levels of sectoral contestation delayed/accelerated the timing of the implementation of the tax, compromising/fostering state making.

Consequently, the ability of the income tax to transform the state should be higher under circumstances of institutional indeterminacy and lower levels of sectoral inequality. The political incorporation of challenger (e.g. industrial) elites into the process of national construction, promoted the inclusion of alternative (and conflictual) economic and political interests. In particular, industrial elites were willing to impose an income tax on their own incomes in exchange of being able to participate in the political life of the polity. In turn, the process of cross-sectoral political incorporation promoted the implementation of mechanisms of checks and balances that altered the post-colonial (e.g. backwards) institutional order, crystallizing a series of reforms and cross-class compromises that fostered state consolidation in the long run. This reasoning is in line with Beramendi et al. [2016, 7] who argue that "so long as agricultural elites are the dominant political power-holders in society, then fiscal capacity should remain relatively small, because such elites will prefer *not* to invest in greater fiscal capacity."[32] Moreover, the logic of the paper—the idea of income taxation as an important critical juncture for state consolidation—is a novel argument, and fills an important gap in the literature.[33]

To contextualize the importance of the timing of implementing the income tax, it should be helpful to mention a brief example about two divergent cases. Chile imposed the income tax law very early, in 1924, and the Chilean *Servicio de Impuestos Internos* is among the finest tax institutions in Latin America. Unlike Chile, Guatemala imposed the income tax law very late in 1963. By 1967,

---

[30]Bahamonde [Unpublisheda].

[31]Bahamonde [Unpublishedb].

[32]Emphasis in original. See also for a similar approach Ansell and Samuels [2014] and Collier and Collier [2002].

[33]Gabriel Ondetti explains in Flores-Macias [2017] that to "[his] knowledge, there is no study that explicitly applies [the] notion [of path dependence] to explain variance in contemporary tax burdens."

the national income tax office employed only 194 people, with only 9 of them with a college degree.[34] In fact, Cabrera and Schneider not only find that "Guatemala collects among the lowest tax levels in Latin America," but also that "the revenues it does collect are gathered inefficiently."[35] That is, while Guatemala did eventually implement the tax, the process did not reflect the foundational sectoral cleavage, truncating the development of state institutions in the long run. In fact, the law responded to exogenous forces. Particularly, the law was implemented by the US-backed dictator Colonel Enrique Peralta Azurdia, not necessarily reflecting the inter-sectoral domestic dynamics. In these kinds of scenarios, landowners were never challenged and there were less pressures to centralize the state via fiscal expansion.

III. Unpacking the Mechanisms: Chile 1850-1950

Historians still debate whether agriculturalists and industrialists comprised two *different* elites. Some claim that this dualism is incorrect.[36] They argue that since landowners also invested in industry,[37] there was a blurry class division between the mining, banking and agricultural sectors.[38] I contend that there are a series of stylized facts that suggest that there was indeed a structural cleavage between the two sectors.

There were certain practices that mask the sectoral dualism. For example, it was common that industrialists invested in real estate. However, in many instances they did so *just* to obtain credit. Kirsch [1977, 59] explains that "in a *rural society* land offered one of the best guarantees for loans [since] loans could not be secured by equipment, machinery, or inventory. Only real estate was acceptable collateral."[39] In fact, this practice shows how the credit system was oriented to give unfair advantage to the landed elites.[40] Similarly, Zeitlin [1984, 174] finds that while there were some instances where there were mixed investments, "the combined ownership of capital and landed property was a distinctive quality of *certain* [elites] actors."[41] There were also other instances where miners invested in banking. However, Segall [1953] argues that Chilean bankers, after the crisis of

---

[34]Di John [2006, 5].

[35]In Mahon et al. [2014, 128].

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

[37]Kirsch [1977, 57, 95] who cites Bauer [2008]. See also Coatsworth and Williamson [2002, 23] argue that "[t]he only landowners that mattered in 19th century Latin American politics were those for whom land represented but one asset in a much broader portfolio." In the same vein, 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."

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

[39]Emphases are mine.

[40]Unda [2017, 9] explains that in Mexico the lack of credit had previously been one of the industrial sector's main obstacles. In fact, industrial elites started to comply with the income tax in exchange of having credit policies more adequate to the industrial sector. Similarly, Mamalakis [1969, 11] develops a theory of sectoral clashes. The leading sector becomes dominant thanks to the interplay between the government, the dominant sector, and the central bank.

[41]Emphasis is mine.

the mining sector around the 1870s, acquired a number of mineral deposits given as collateral years before, again suggesting that the lack of economic dualism is rather apparent. Similarly, but for the Argentinean case, Hora [2002, 609] explains that "the image of an entrepreneurial elite with assets *scattered throughout several spheres of investment* does not appear entirely correct."[42] In addition, the nature of the main factors of production of agriculturalists (land) and industrialists (capital), besides their divergent preferences regarding fiscal policy, produced a strong sectoral cleavage. In fact, borrowing from the Lewis model of economic growth, I explain elsewhere that the agricultural sector's role in the economy is to supply labor to the industrial sector, limiting agriculture's expansion relative to industry's growth,[43] evidencing the lack of incentives for crossed investments.

In all Latin American economies during and right after the colonial period, agriculture was the most important sector.[44] And by extension, the economic interests of the agricultural elite were the only economic interests represented in politics.[45] For example, Collier and Collier [2002, 106] argue that initially the "national government was dominated by the central part of the country, with owners of large agricultural holdings playing a predominant role."[46] Moreover, political institutions and social norms inherited from the colonial period were designed to allocate economic inputs (and hence *growth*) in a way that benefited the landowning class only.[47] Even though the industrial sector was growing, industrial political elites were kept from participating in politics with the same privileges and conditions the landowning political elites had. Consequently, the opportunity costs of implementing policies designed to enhance the agricultural sector were low. 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,[48] leaving the modern sector heavily under-represented.[49] Consequently, fiscal pressures in favor of agricultural taxes were minimal compared with mining taxes,[50] leaving the agricultural

---

[42] Emphasis is mine.

[43] Bahamonde [Unpublisheda].

[44] Keller [1931, 13].

[45] Wright [1975, 45-46]. Mamalakis [1969, 19] refers to this period as the *traditional pattern of government-export sector coalition*.

[46] Similarly, McBride [1936, 15] explains 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.

[47] Bahamonde [Unpublisheda].

[48] Bauer [2008, 45].

[49] As Baland and Robinson [2008, 1748] argue, "[c]ongressional representation was heavily weighted in favor of rural districts."

[50] Mining was one of the first manifestations of industrial activity. For example, while an agricultural income tax was imposed, it was weak and abolished after the civil war of 1891.

sector systematically—and substantially—undertaxed relative to other sectors.[51] 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."[52] For example, the little public infrastructure that existed benefited the agricultural sector.[53]

Both economic sectors were similarly developed but only agriculturalists had access to fair political representation. This asymmetry led these two "antagonistic elites"[54] to confront in the civil wars of 1851-1859 and 1891 between a "large landed property [elite against a] productive capital [elite]."[55] President Balmaceda's overthrowing explains the sectoral nature of these conflicts. On the one hand, he was mainly supported by the landed elites, but later overthrown in 1891 by a mainly industrial/mining coalition.[56] While his agenda on "industrial" infrastructure (mainly roads and railroads) benefited mostly agricultural areas,[57] his attitude towards the banking sector (closely linked to the mining sector)[58] was "all but confiscatory."[59] On the other hand, however, he failed to secure a coalition with his own sector. Zeitlin [1984, 127] explains that the "decline of wheat exports [...] came precisely when a vast new market for agriculture was growing in the nitrate territory." As the agricultural sector supplied the industrial areas with foodstuff, it simultaneously increased the sectoral dependence of the agricultural elites on the industrial sector, forcing the "landed proprietors [to] become dependent to a considerable extent on the continuing prosperity of the major nitrate capitalists."[60] While it would be inaccurate to say that Balmaceda was *completely* supported by agriculturalists and *completely* opposed by industrialists, this example illustrates how a failed inter-sectoral alliance, and a biased strategy regarding the provision of public goods against industrialists, led these two groups to a series of military conflicts.

Additionally, lower levels of inter-elite inequality gave both elites access to similar military resources. While *Balmacedistas* managed to secure the support of the army, *congresistas* (the anti-Balmaceda group) managed to gather support of the navy. Ultimately, the conflict left a permanent scar in the Chilean society. While the civil war lasted only nine months, it took 10,000

---

[51]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."

[52]Bauer [2008, 118].

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

[54]Keller [1931, 37-38].

[55]Zeitlin [1984, 23].

[56]Zeitlin [1984, 186].

[57]Zeitlin [1984, 124].

[58]Zeitlin [1984, 118].

[59]Zeitlin [1984, 175].

[60]Zeitlin [1984, 129].

lives (out of a total population of 3 million people), and cost more than $ 100 million,[61] a significant amount for a small country. This legacy materialized in an inefficient, but politically stable system for several years. In part, the immobilism was due to the fact that the political reforms that gave way to the "parliamentary" period, came out from inter-elite alliances.[62] However, the intention to avoid more violence (at least among the elites) tended to persist. For instance, while all "ministers, counselors of state, members of the constituent congress [,] municipal officials, provincial governors and intendants, members of the judiciary and even the lowest functionaries and ordinary employees of Balmaceda's government were investigated [or] brought to trial,"[63] there were a number of amnesties issued. Similarly, there were a number of *aborted* coups in 1907, 1912, 1915 and 1919.[64] I identify a third additional factor. War was more likely to exhaust all existent assets without producing positive outcomes for either sector, putting pressures for a sectoral compromise.[65] Three institutional components were considered: an income tax, industrial protectionism, and equal access to the state. Here I focus on the first component.[66] The faster the industrial growth, the higher the pressures to impose a tax to capture increasing industrial incomes.[67]

The income tax law was passed in Chile in the middle of big political instability. In 1920, President Alessandri obtained a very close victory against Luis Barros Borgoño,[68] who was supported by "the dominant political and landed aristocracy."[69] Governability was seriously compromised as the election let the senate in control of the landowning class, who roundly opposed tax reforms.[70] Particularly, the opposition had "serious differences [...] over [Alessandri's] legislative program, eespecially in connection with the proposed income tax."[71] In 1924, the income tax law was passed. As others explain, the non-agricultural "accepted taxation, *while demanding state services and expecting to influence how tax revenues were spent*."[72] The law taxed 2% on professional income above 2,400 pesos, 3.5% on net profits in industry and commerce above the same sum, 5% on income from mining, and 9% per cent on incomes from real estate.[73] Humud (1969, p. 154) explains that in

---

[61]Zeitlin [1984, 86].

[62]Collier and Collier [2002, 108].

[63]Zeitlin [1984, 87].

[64]Collier and Collier [2002, 109].

[65]Similarly, Geddes [1991] argues that competition between two rival parties of about the same size creates clearer incentives to invest in political institutions.

[66]The SOFOFA pursued a very strong protectionist agenda. Sokoloff and Zolt [2007, 122] explain that the expansion of "manufacturing production [...] helped to nurture the development of a powerful constituency for higher tariffs." In fact, Lederman [2005, 53] finds that in Chile the timing of protectionist and income taxation cycles matches, suggesting the plausibility of the sectoral bargains that took place around in the 1920's between the two elites. See for a similar view Haber [2005, 18].

[67]Besley and Persson [2011, 59], Beramendi et al. [2016].

[68]Collier [1999, 111].

[69]Haring [1931, 2].

[70]Haring [1931, 5].

[71]Haring [1931, 3].

[72]Carmenza Gallo, in Brautigam et al. [2008, 165]. Emphases are mine. She refers specifically to the mining elites.

[73]James [1924, 552].

"1930 [the tax] would become second only to import duties in size."[74]

The Chilean case suggests a number of hypotheses. First, there existed a structural economic cleavage between the industrial and agricultural sectors. Second, agricultural political elites implemented policies that played in their own favor, without necessarily considering industrial preferences. Third, the rising of the industrial class challenged the *status quo* promoted by the landowning group. Fourth, given their similar degree of economic and military resources, both elites compromised the income tax which was beneficial for both the industrial and agricultural classes. The next section is an attempt to generalize this argument in a quantitative manner. Particularly, it tests the third and fourth hypotheses combined, that is, the rising of a strong industrial sector accelerated the implementation of the income tax law. In reverse, uncontested polities did not have the endogenous incentives to invest in fiscal institutions, which are key for state development.

IV.   ECONOMETRIC ANALYSES

Following the economic development typology suggested in Mahoney [2010, 5], nine polities were selected. Three "higher level" countries (Argentina, Chile and Venezuela), three "intermediate level" countries (Mexico, Colombia and Perú), and three "lower level" countries (Ecuador, Nicaragua and Guatemala). I proxy sectoral conflicts, and specifically the degree in which the industrial elites challenged incumbent landowners, by using industrial and agricultural sectoral growth rates as presented in the MOxLAD data.[75] The dataset spans from 1900 to (potentially) 2010.[76] According to Astorga et al. [2005, 790], these data provide extended comparable sectoral value-added series in constant purchasing power parity prices.[77] Using secondary information, Table 1 states *when* the income tax was implemented, which was the specific law, and its corresponding source(s). Figure 2 shows both sectoral outputs (independent variables) and the year when the income tax law was passed (dependent variable). Since population has been associated with the probability elites expand the franchise,[78] and consequently the tax base, I include total country-year population as a control variable.

Table 2 shows 3 models.[79] Following Aidt and Jensen [2009], Model 1 computes the lagged

---

[74]Bowman and Wallerstein [1982, 451-452].

[75]"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." I used the *agriculture value-added* and *manufacturing value-added* variables. The former measures "the output of the sector net 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.

[76]As I explain later, I test this argument within the duration model approach. Since countries are censored once they implement the income tax law, they leave the sample (potentially) before 2010.

[77]Using a similar strategy, Thies [2005] also uses data on taxation and compare those data between cross sections.

[78]Engerman and Sokoloff [2005, 892-893].

[79]All tables were produced using the `texreg` package (Leifeld [2013]). All Cox models were computed using

Country	Available Data	Year Income Tax	Law	Source
Chile	1900 - 2009	1924	*Ley* 3996	Mamalakis [1976, 20] and LeyChile.Cl (official)
Peru	1929 - 2009	1934	*Ley* 7904	Gobierno del Perú [1934] (official)
Venezuela	1936 - 2006	1943	*Ley* 20851	*Gaceta Oficial* (official) and Ventura and Armas [2013, 27]
Colombia	1900 - 2009	1935	*Ley* 78	Figueroa [2008, 9]
Argentina	1900 - 2010	1933	*Ley* 11682	Infoleg.Gob.Ar (official)
Mexico	1900 - 2009	1925	*Ley de Impuesto sobre la Renta*	Unda [2017, 8]
Ecuador	1939 - 2007	1945	-	Aguilera and Vera [2013, 135]
Nicaragua	1920 - 2009	1974	*Ley* 662	Legislacion.Asamblea.Gob.Ni (official)
Guatemala	1920 - 2009	1963	*Decreto* 1559	Instituto Centroamericano de Estudios Fiscales [2007, 165]

Table 1: *Sample, Data Available and Year the Income Tax was Implemented*

conditional hazard ratio of a country which has not yet adopted the income tax, adopts it in a given year, as a function of industrial and agricultural outputs.[80] Countries drop out of the sample when they adopt the income tax. Model 2 shows the estimated coefficients of a generalized estimating equation (GEE). Generalized estimating equations were introduced by Liang and Zeger [1986] to fit clustered, repeated/correlated, and panel data.[81] This method is especially well suited to analyze binary data,[82] something particularly useful given the nature of the dependent variable (e.g. whether a polity has implemented the income tax or not). 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,"[83] Zorn [2006, 338] explains that whereas the choice of estimator makes little or no difference, the unit on which the data are grouped makes a big difference. 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, I assume an "independence" working covariance structure, which also

the `survival R` package (Therneau [2015]). The GEE logistic regression was computed using the `geepack` package (Hojsgaard et al. [2016]). The simulations were performed using the `simPH R` package (Gandrud [2015]).

[80]I do not combine both variables nor do I construct an index. Since I am interested in the *contribution* of each individual sector in the acceleration of the implementation of the income tax law (keeping constant the other), keeping both variables separately is a better strategy.

[81]Zorn [2006, 322].

[82]Hanley et al. [2003].

[83]Carlin et al. [2001, 402] argue that "[r]elatively minor differences in estimates may arise depending on how the estimating equations are weighted, in particular within the generalized estimating equation (GEE) framework." **?** and Gardiner et al. [2009, 227] make the same point.
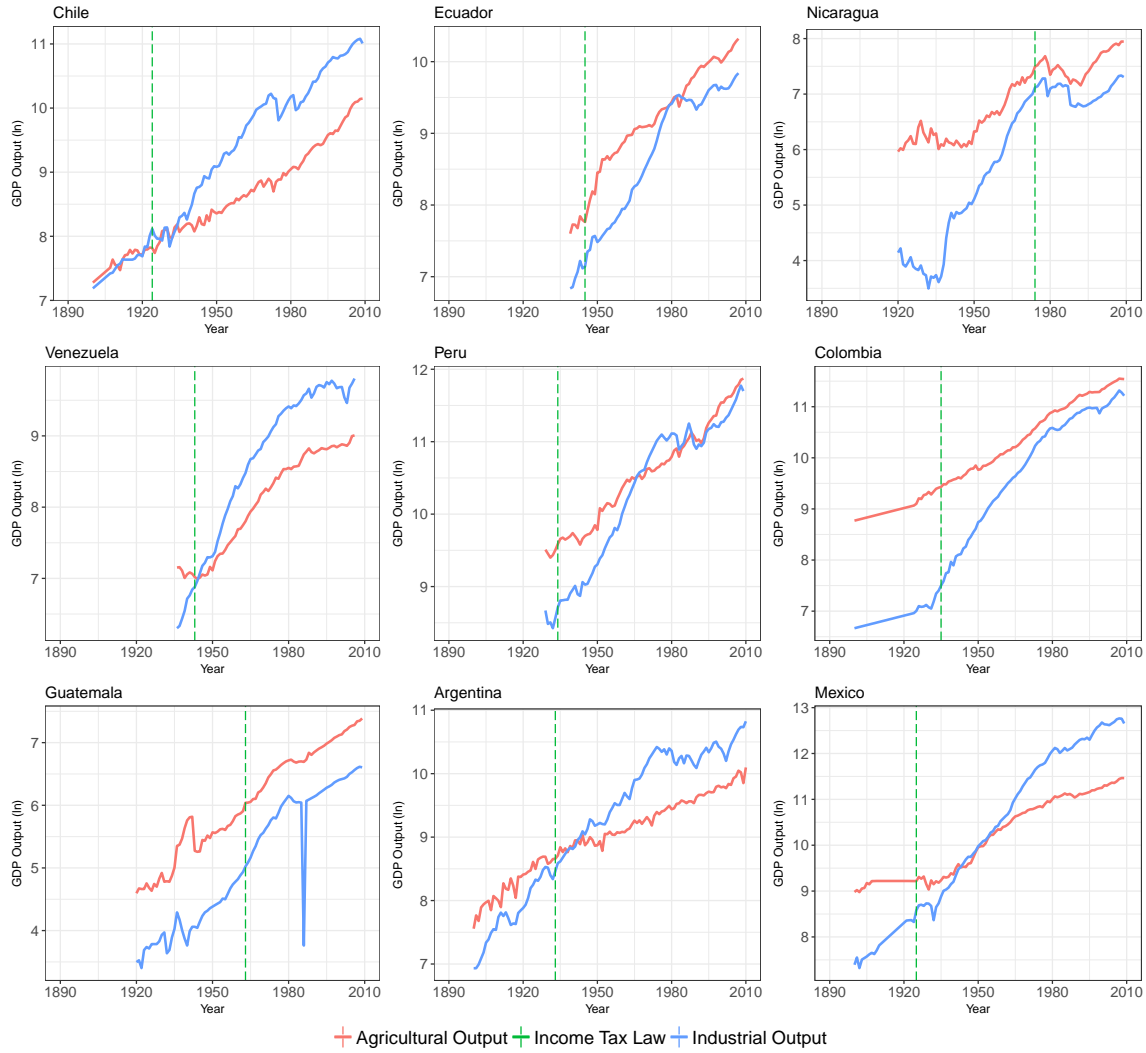
Figure 2: *Industrial and Agricultural Outputs, and The Passage of the Income Tax Law*
Note: *Figure shows historical sectoral outputs, and year of the passage of the income tax law. Following convention, the figure shows logged values.*
Source: *MOxLAD and other souces compiled by the author (see Table 1).*

corrects for small-sized panel designs.[84] From a substantive standpoint, GEE models provide an estimated marginal mean, or the *weighted average* of all cluster-specific effects (or conditional means). Model 3 is a conditional logit (or "fixed effects" model). One important advantage of this strategy is the ability to account for country-specific effects. For example, fiscal development could be a function of country-specific prior state-building capacities.[85] A number of scholars rightly argue that post-colonial state-capacities are in part a function of pre-colonial state-capacities.[86] Fixed-effects should be able to account for these, and other unobserved or hard-to-measure covariates, which if left unaccounted for, would introduce omitted variable biases.[87] Table A1 in the appendix section

14

	(1) Cox (1 lag)	(2) Logit GEE	(3) Conditional Logit (FE)
Manufacture Output$_{t-1}$	4.923**		
	(1.851)		
Agricultural Output$_{t-1}$	−4.208*		
	(1.638)		
Total Population	0.000**		
	(0.000)		
intercept		−11.832$^{\cdot}$	
		(6.468)	
Manufacture Output (ln)		1.924***	0.668***
		(0.514)	(0.143)
Agricultural Output (ln)		−1.596**	−0.941***
		(0.603)	(0.281)
Total Population (ln)		1.259	1.030**
		(1.052)	(0.391)
AIC	12.796		4505.538
R^2	0.059		0.341
Max. R^2	0.085		0.997
Num. events	9		610
Num. obs.	241	842	842
Missings	0		0
PH test	0.388		
Num. clust.		9	

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$, $^{cdot}p < 0.1$. Robust standard errors in all models

Table 2: *Sectoral Origins of Income Taxation: Income Tax Law and Industrial Development*

shows other models, including one with a different transformation to capture different shapes of the baseline hazard, and another one to account for possible spatial dependency. The result do not vary. All models suggest that the rise of a strong industrial sector largely accelerated the implementation of the income tax law. Moreover, a strong agricultural sector not only has zero impact on fiscal development, but a negative one.

Using the estimations from Model 1, I follow Gandrud [2015] and King et al. [2000], and in Figure 3, simulate 5000 times the Hazard Rate of implementing the income tax law conditional on industrial and agricultural growth rates.[88] While the outcome of interest does *not* depend *directly* on time,[89] sectoral outputs do grow in time.[90] Consequently, it will be necessary to account for this tendency by allowing estimations to vary with time as well.[91] Since the Hazard Rate "is the probability that a case will fail at time t,"[92] I take advantage of this quantity of interest which allows some dependency on both time *and* the covariates.[93] Figure 3 strongly suggest that the faster the agricultural sector develops, the less likely the implementation of the income tax. This relationship does *not* change at later stages of development, suggesting that polities with a strong agricultural elite are not associated with fiscal development. However, rapid industrial development is associated with an earlier implementation of the income tax law.

What the quantitative analyses suggest are twofold. First, the stronger the industrial sector, the earlier the tax is implemented. Second, agricultural expansion, in fact, *delays* the implementation of the income tax. In simple, industrial expansion is the one to "blame for" implementing the income tax. Substantively, *when* countries implement their income taxes is an important factor for state development. Particularly, *early* implementers situated the timing of implementing this state-making institution before the post-colonial order was crystallized, impeding the consolidation of the landed political elites. Early implementers in fact were able to consolidate the state *in light* of taxation. These results are robust to a number of alternative hypotheses, specifications and functional forms. In concrete, I do not find evidence in favor of spatial dependency, neither do I find different results once the variables are lagged-logged (to capture different shapes of the

---

[84]Hardin and Hilbe [2013, 166] explains that if "the number of panels is small, then the independence model may be the best; but [analysts should] calculate the sandwich estimate of variance for use with hypothesis tests and interpretation of coefficient," which is what I report in Table 2.

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

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

[87]Angrist and Pischke [2008].

[88]Box-Steffensmeier and Jones [2004, 15] explain that the Hazard Rate is the most common quantity of interest analysts focus on. Figure 3 shows 95% confidence intervals.

[89]See Figure A1.

[90]As seen in Figure 2.

[91]The economics literature refers to these kinds of time series "integrated" or I(1) processes.

[92]Licht [2011, 231].

[93]Box-Steffensmeier and Jones [2004, 15].

Industrial Output

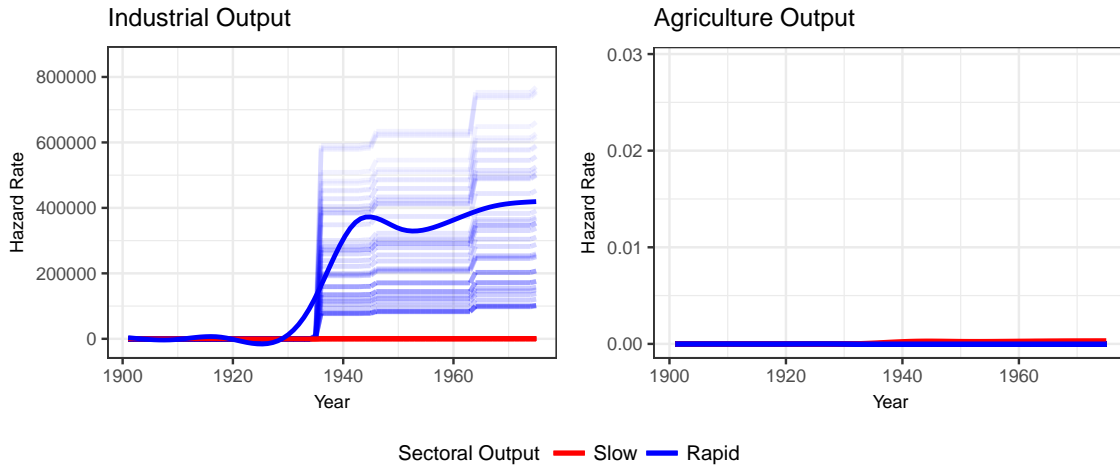## Agriculture Output

Sectoral Output ▬ Slow ▬ Rapid

Figure 3: *Hazard Rate of Implementing the Income Tax Law.*
*   **Note***: Using estimations of Model 1 in Table 2, figure shows 5000 simulations with different sectoral growth speeds. Slow is the minimum value, while rapid is the maximum value for each sectoral output. The figure also shows the 95 % confidence intervals.*

baseline hazard).[94] Furthermore, every approach used (duration model, pooled model, and fixed effect model) in Table 2 gives exactly the same substantive results. Importantly, the simulation plot shows very clear patterns. As long as the landowning elites are the most influential elites (backed up by the expansion of their material conditions), fiscal development, and the positive spillovers on state consolidation associated with it, are expected to be very unlikely to emerge. Moreover, by simulating a quantity of interest in Figure 3 that accounts for possible time dependency (e.g., the hazard rate), I am able to incorporate—at least indirectly—different waves of democratization, and other factors that are expected to happen as time goes by, such as the impact of international markets, like crises or economic booms.

V.   Discussion: Slow Industrial Growth and Lack of Contestation

Historically, agriculturalists were a hegemonic group protected by practices inherited from institutions originated in colonial times. These norms survived due to institutional inertia, perpetuating their advantaged position. However, the emergence of a strong industrial elite altered the inter-sectoral balance of political power, making unsustainable the political monopoly run by the landed elites. Given the initial advantage of the landed elites, the emergence of the industrial sector reduced the levels of inter-sectoral inequality, in turn generating political, economic and military threats to agricultural incumbents. Moreover, low inequality also increased the opportunity costs of conflict,

---

[94]Table A1.

putting pressures for inter-elite compromises.

The data analyses suggested that faster industrial growth accelerated the hazard of implementing the income tax. I interpreted the Chilean case through the lenses of the fiscal sociology paradigm. Leveraging historical evidence, I find that industrial elites accepted to be income taxed by agriculturalist incumbents in exchange of having access to state politics. Importantly, all these elite compromises took place during the formative years of the Chilean state, and during a period of structural indetermination, where no elite had a clear economic/military/political advantage, fostering the incorporation of all major economic elites into the same national project. When the income tax was implemented under politically contested circumstances, this institution expanded the overall state-capacities by crystallizing a series of reforms, dismantling the old institutional order inherited since colonial times. Given the initial advantage of the landed elites, the emergence of a strong industrial sector increased levels of sectoral contestation. Countries with low levels of state-capacities did eventually implement the tax. However, later implementation had to do more with exogenous forces, leaving unaltered the backwards institutional order inherited since colonial times.

Both the argument, and the empirical findings, are situated within the broader literature on political and economic development, particularly within the fiscal sociology paradigm, emphasizing how fiscal development fosters state-making. Concretely, this paradigm proportionates a theory of state-building as it links the mechanics between the state-led effort of taxing incomes, and the expansion of other state services. Future research should explore more avenues of fiscal expansion, emphasizing domestic channels of political development, particularly considering different types of bargaining dynamics between the agricultural and industrial elites. To the best of my knowledge, Beramendi et al. [2016] and this paper, are among the few of such accounts.[95]

---

[95]In p. 19, they argue that their "paper is among the first to systematically establish that fiscal development may take place even in the absence of interstate military competition and warfare."

VI.   Appendix

I.   Kaplan-Meier Curves: Ruling out Spurious Time Dependency

It is important to rule out the possibility that income taxation and sectoral development, are not linked through a spurious, time-dependent relationship. In other words, the occurrence of the outcome of interest (income taxation), should not be directly related to time itself, but to the rise of the industrial elite. Within the framework of survival analyses, Figure A1 shows the failure rate of the sample average country of implementing the income tax, if industrial development had increased/decreased by half (rapid/slow).[96] The figure clearly shows that the implementation of the income tax law is largely accelerated when the size of the industrial sector increases, and that this relationship does not depend directly on time. It is important to note that this figure shows the unparameterized behavior of the failure rate, e.g., the empirical distribution of failures that comes directly out of the data, before any model is actually estimated.
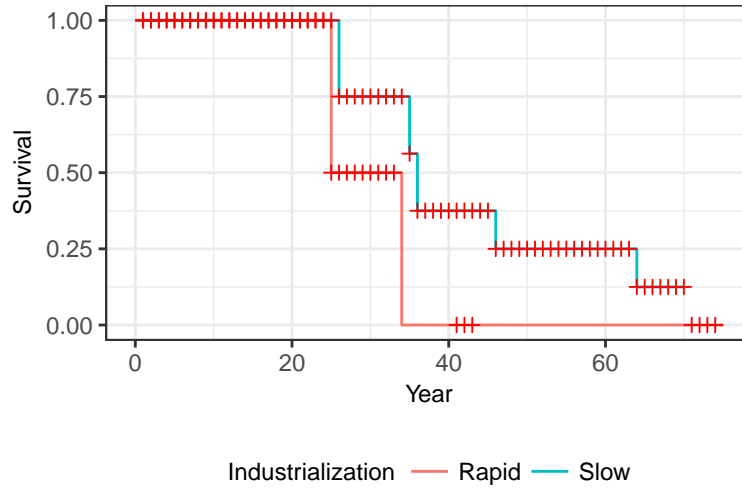

Figure A1: *Kaplan-Meier Curves: Size of the Industrial Sector and the Accelerated Rate of the Imposition of Income Tax Law*

---

[96]"Failure" in this case means "implementing" the income tax law.

II. Alternative Models: Lagged-logged Independent Variables and Spatial Dependency

Model 1 is a Cox regression, but with lagged logged variables. By including time-transformed variables, in the form of a lagged dependent variable (to account for partial adjustment of behavior)[97] or "the use of the natural log transformation [to capture] different forms (or "shapes") of the baseline hazard,"[98] Model 2 accounts for possible spatial-temporal dependence.[99] Given that most countries in the sample are contiguous neighbors, it is reasonable to expect a "domino" effect.[100] Theoretically, being the first country in implementing the income tax, might not require the same level of domestic "effort" than being the last one. Early-implementers might not have prior experience, being harder for them to pass the law. To account for this possible spatial-temporal dependence, a cumulative count of countries which have implemented the law at time t was included.[101]

	(1) Cox (1 lag, ln)	(2) Spatial Dependence
Manufacture Output$_{t-1}$ (ln)	7.685*	
	(3.333)	
Agricultural Output$_{t-1}$ (ln)	-6.971^*	
	(3.227)	
Total Population (ln)	5.059*	4.676˙
	(2.228)	(2.682)
Manufacture Output (ln)		7.148
		(4.815)
Agricultural Output (ln)		-6.465
		(4.636)
AIC	10.894	11.056
R^2	0.068	0.065
Max. R^2	0.088	0.085
Num. events	9	9
Num. obs.	232	241
Missings	0	0
PH test	0.877	0.667

$^{***}p < 0.001$, $^{**}p < 0.01$, $^*p < 0.05$, $^{cdot}p < 0.1$. Robust standard errors in all models

Table A1: *Sectoral Origins of Income Taxation: Alternative Explanations*

---

[97] Wawro [2002].

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

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

[100] For a more detailed spatial take on fiscal expansion, see Thies et al. [2016].

[101] I clustered the standard errors at the counting variable level. Clustering by the counting variable allows me to cluster by early or late implementers.

.... **Word count**: 9,792 ....

References

Daron Acemoglu and James Robinson. *Economic Origins of Dictatorship and Democracy.* Cambridge University Press, 2009.

Xavier Aguilera and Efren Vera. Analisis del Impacto de las Variaciones del Anticipo del Impuesto a la Renta en Sociedades del Austro Periodo 2007-2012, 2013.

Toke Aidt and Peter Jensen. The Taxman Tools Up: An Event History Study of the Introduction of the Personal Income Tax. *Journal of Public Economics*, 93(1-2):160–175, 2009. ISSN 00472727. doi: 10.1016/j.jpubeco.2008.07.006. URL http://www.sciencedirect.com/science/article/pii/S0047272708001229.

Joshua Angrist and Jörn-Steffen Pischke. *Mostly Harmless Econometrics: An Empiricist's Companion.* Princeton University Press, 1st. edition, 2008.

Ben Ansell and David Samuels. *Inequality and Democratization: An Elite-Competition Approach.* Cambridge University Press, 2014.

Pablo Astorga, Ame Berges, and Valpy Fitzgerald. The Standard of Living in Latin America During the Twentieth Century. *Economic History Review*, 58(4):765–796, nov 2005. ISSN 0013-0117. doi: 10.1111/j.1468-0289.2005.00321.x. URL http://doi.wiley.com/10.1111/j.1468-0289.2005.00321.x.

Hector Bahamonde. Structural Transformations and State Institutions in Latin America, 1900-2010. Unpublisheda.

Hector Bahamonde. Income Taxation and State Capacities in Chile: Measuring Institutional Development Using Historical Earthquake Data. Unpublishedb.

Jean Marie Baland and James Robinson. Land and Power: Theory and Evidence from Chile. *American Economic Review*, 98(5):1737–1765, 2008. ISSN 00028282. doi: 10.1257/aer.98.5.1737.

Robert Bates and Donald Lien. A Note on Taxation, Development, and Representative Government. *Politics & Society*, 14(1):53–70, jan 1985. ISSN 0032-3292. doi: 10.1177/003232928501400102. URL http://pas.sagepub.com/cgi/doi/10.1177/003232928501400102.

Arnold Bauer. *Chilean Rural Society: From the Spanish Conquest to 1930.* Cambridge University Press, 2008.

Pablo Beramendi, Mark Dincecco, and Melissa Rogers. Intra-Elite Competition and Long-Run Fiscal Development. 2016.

Marcelo Bergman. Tax Reforms and Tax Compliance: The Divergent Paths of Chile and Argentina. *Journal of Latin American Studies*, 35(3):593–624, 2003. URL http://www.jstor.org/stable/3875313.

Luis Bertola and Jose Antonio Ocampo. *The Economic Development of Latin America since Independence*. Oxford University Press, 2012. URL https://global.oup.com/academic/product/the-economic-development-of-latin-america-since-independence-9780199662142?cc=us{&}lang=en{&}.

Timothy Besley and Torsten Persson. *Pillars of Prosperity: The Political Economics of Development Clusters*. Princeton University Press, 2011.

Timothy Besley, Ethan Ilzetzki, and Torsten Persson. Weak States and Steady States: The Dynamics of Fiscal Capacity. *American Economic Journal: Macroeconomics*, 5(4):205–235, oct 2013. ISSN 1945-7707. doi: 10.1257/mac.5.4.205. URL http://pubs.aeaweb.org/doi/10.1257/mac.5.4.205.

Michael Best. Political Power and Tax Revenues in Central America. *Journal of Development Economics*, 3(1):49–82, 1976. ISSN 03043878. doi: 10.1016/0304-3878(76)90040-7.

John Bowman and Michael Wallerstein. The Fall of Balmaceda and Public Finance in Chile: New Data for an Old Debate. *Journal of Interamerican Studies and World Affairs*, 24(4):421–460, 1982.

Janet Box-Steffensmeier and Bradford Jones. *Event History Modeling A Guide for Social Scientists*. Cambridge University Press, Cambridge, 2004. ISBN 9780521546737.

Deborah Brautigam, Odd-Helge Fjeldstad, and Mick Moore. *Taxation and State-Building in Developing Countries: Capacity and Consent*. Cambridge University Press, 2008. ISBN 9781139469258. URL http://books.google.be/books?id=yKqioeqwsTkC.

John Brewer. *The Sinews of Power: War, Money and the English State, 1688-1783*. Harvard University Press, 1990. ISBN 0674809300. doi: 10.2307/204418. URL https://books.google.com/books?id=uqzA-Xp416YC{&}pgis=1.

John Campbell. The State and Fiscal Sociology. *Annual Review of Sociology*, 19(1):163–185, aug 1993. ISSN 0360-0572. doi: 10.1146/annurev.so.19.080193.001115. URL http://www.annualreviews.org/doi/abs/10.1146/annurev.so.19.080193.001115.

John Carlin, Rory Wolfe, C. Hendricks Brown, and Andrew Gelman. A Case Study on the Choice, Interpretation and Checking of Multilevel Models for Longitudinal Binary Outcomes. *Biostatistics*, 2(4):397–416, dec 2001. ISSN 14654644. doi: 10.1093/biostatistics/2.4.397. URL http://www.ncbi.nlm.nih.gov/pubmed/12933632http://biostatistics.oupjournals.org/cgi/doi/10.1093/biostatistics/2.4.397.

John Coatsworth and Jeffrey Williamson. The Roots of Latin American Protectionism: Looking Before the Great Depression. Technical report, National Bureau of Economic Research, Cambridge, MA, jun 2002. URL http://www.nber.org/papers/w8999.pdf.

Ruth Collier. *Paths toward Democracy: The Working Class and Elites in Western Europe and South America.* Cambridge University Press, 1999.

Ruth Collier and David Collier. *Shaping The Political Arena: Critical Junctures, the Labor Movement, and Regime Dynamics in Latin America.* University of Notre Dame Press, 2002.

Jonathan Di John. The Political Economy of Taxation and Tax Reform in Developing Countries. 2006.

Mark Dincecco. The Rise of Effective States in Europe. *The Journal of Economic History*, 75(03):901–918, sep 2015. ISSN 0022-0507. doi: 10.1017/S002205071500114X. URL http://www.jstor.org.ezproxy2.library.arizona.edu/stable/41678585http://www.journals.cambridge.org/abstract{_}S002205071500114X.

Mark Dincecco and Ugo Troiano. Broadening the State: Policy Responses to the Introduction of the Income Tax. *NBER Working Paper*, (21373):1–25, 2015. doi: 10.3386/w21373. URL http://www.nber.org/papers/w21373.

Paul Drake and Mathew McCubbins, editors. *The Origins of Liberty: Political and Economic Liberalization in the Modern World.* Princeton University Press, 1998.

Stanley Engerman and Kenneth Sokoloff. The Evolution of Suffrage Institutions in the New World. *The Journal of Economic History*, 65(04):891, dec 2005. ISSN 0022-0507. doi: 10.1017/S0022050705000343. URL http://journals.cambridge.org/production/action/cjoGetFulltext?fulltextid=354329http://www.journals.cambridge.org/abstract{_}S0022050705000343.

Tasha Fairfield. Going Where the Money Is: Strategies for Taxing Economic Elites in Unequal Democracies. *World Development*, 47:42–57, jul 2013. ISSN 0305750X. doi: 10.1016/j.worlddev. 2013.02.011. URL http://linkinghub.elsevier.com/retrieve/pii/S0305750X13000648.

Alfredo Lewin Figueroa. Historia de las Reformas Tributarias en Colombia. In *Fundamentos de la Tributación*, page 371. Universidad de los Andes Editorial Temis, Bogotá, 2008. ISBN 9789583507069.

Gustavo Flores-Macias. Financing Security Through Elite Taxation: The Case of Colombia's 'Democratic Security Taxes'. *Studies in Comparative International Development*, 49(4):477–500, dec 2014. ISSN 0039-3606. doi: 10.1007/s12116-013-9146-7. URL http://link.springer.com/10.1007/s12116-013-9146-7.

Gustavo Flores-Macias, editor. *The Political Economy of Taxation in Latin America*. 2017.

Diego Focanti, Mark Hallerberg, and Carlos Scartascini. Tax Reforms in Latin America in an Era of Democracy. 2013.

John Freeman and Dennis Quinn. The Economic Origins of Democracy Reconsidered. *American Political Science Review*, 106(01):58–80, feb 2012. ISSN 0003-0554. doi: 10.1017/S0003055411000505. URL http://www.journals.cambridge.org/abstract{_}S0003055411000505.

Christopher Gandrud. simPH: An R Package for Illustrating Estimates from Cox Proportional Hazard Models Including. *Journal of Statistical Software*, 65(3):1–20, 2015. ISSN 1548-7660. doi: 10.2139/ssrn.2318977. URL http://www.jstatsoft.org/v65/i03/.

Joseph Gardiner, Zhehui Luo, and Lee Anne Roman. Fixed Effects, Random effects and GEE: What Are The Differences? *Statistics in Medicine*, 28(2):221–239, jan 2009. ISSN 02776715. doi: 10.1002/sim.3478. URL http://doi.wiley.com/10.1002/sim.3478.

Barbara Geddes. A Game Theoretic Model of Reform in Latin American Democracies. *The American Political Science Review*, 85(2):371, jun 1991. ISSN 00030554. doi: 10.2307/1963165. URL http://www.jstor.org/stable/1963165?origin=crossref.

Gobierno del Perú. Ley Nº 7904, Ley de Impuestos a la Renta, 1934. URL http://docs.peru.justia.com/federales/leyes/7904-jul-26-1934.pdf.

Stephen Haber. Development Strategy or Endogenous Process? The Industrialization of Latin America. 2005.

James Hanley, Abdissa Negassa, Michael Edwardes, and Janet Forrester. Statistical Analysis of Correlated Data Using Generalized Estimating Equations: An Orientation. *American Journal of Epidemiology*, 157(4):364–375, 2003. ISSN 00029262. doi: 10.1093/aje/kwf215.

James Hardin and Joseph Hilbe. *Generalized Estimating Equations*. CRC Press, Boca Raton, FL, 2nd. edition, 2013. doi: 10.1002/0470013192.bsa250.

Clarence Haring. Chilean Politics, 1920-1928. *The Hispanic American Historical Review*, 11(1):1–26, 1931. URL http://www.jstor.org/stable/250648.

Michael Hechter and William Brustein. Regional Modes of Production and Patterns of State Formation in Western Europe. *American Journal of Sociology*, 85(5):1061–1094, mar 1980. ISSN 0002-9602. doi: 10.1086/227125. URL http://www.journals.uchicago.edu/doi/10.1086/227125.

Donald Hedeker and Robert Gibbons. *Longitudinal Data Analysis*. Wiley Series in Probability and Statistics. John Wiley & Sons, Inc., Hoboken, NJ, USA, mar 2006. ISBN 9780470036488. doi: 10.1002/0470036486. URL http://doi.wiley.com/10.1002/0470036486.

Albert Hirschman. *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States*. Harvard University Press, 1970.

Soren Hojsgaard, Ulrich Halekoh, and Jun Yan. *geepack: Generalized Estimating Equation Package*, 2016.

Roy Hora. Landowning Bourgeoisie or Business Bourgeoisie? On the Peculiarities of the Argentine Economic Elite, 1880-1945. *Journal of Latin American Studies*, 34(03):587–623, 2002. ISSN 0022-216X. doi: 10.1017/S0022216X02006491. URL http://www.journals.cambridge.org/abstract{_}S0022216X02006491.

Instituto Centroamericano de Estudios Fiscales. Historia de la Tributacion en Guatemala. Technical report, Instituto Centroamericano de Estudios Fiscales, 2007.

Herman James. Latin America in 1923. *American Political Science Review*, 18(03):541–552, aug 1924. ISSN 0003-0554. doi: 10.2307/1944176. URL http://www.journals.cambridge.org/abstract{_}S0003055400109062.

Bruce Johnston and John Mellor. The Role of Agriculture in Economic Development. *The American Economic Review*, 51(4):566–593, 1961. URL http://www.jstor.org/stable/1812786.

Carlos Keller. *La eterna crisis chilena.* Nascimiento, Santiago, Chile, 1931.

Gary King, Michael Tomz, and Jason Wittenberg. Making the Most of Statistical Analyses: Improving Interpretation and Presentation. *American Journal of Political Science*, 44(2):341–355, apr 2000. ISSN 00925853. doi: 10.2307/2669316. URL http://www.jstor.org/stable/2669316?origin=crossref.

Henry Kirsch. *Industrial Development in a Traditional Society: The Conflict of Entrepreneurship and Modernization in Chile.* The University Presses of Florida, 1977.

Edgar Kiser. Markets and Hierarchies in Early Modern Tax Systems: A Principal-Agent Analysis. *Politics & Society*, 22(3):284–315, sep 1994. ISSN 0032-3292. doi: 10.1177/0032329294022003003. URL http://pas.sagepub.com/cgi/doi/10.1177/0032329294022003003.

Stephen Krasner. *Structural Conflict: The Third World Against Global Liberalism.* University of California Press, 1985.

Marcus Kurtz. The Social Foundations of Institutional Order: Reconsidering War and the "Resource Curse" in Third World State Building. *Politics & Society*, 37(4):479–520, 2009. ISSN 0032-3292. doi: 10.1177/0032329209349223. URL http://pas.sagepub.com/cgi/doi/10.1177/0032329209349223.

Marcus Kurtz. *Latin American State Building in Comparative Perspective: Social Foundations of Institutional Order.* Cambridge University Press, 2013.

Matthew Lange, James Mahoney, and Matthias vom Hau. Colonialism and Development: A Comparative Analysis of Spanish and British Colonies. *American Journal of Sociology*, 111 (5):1412–1462, mar 2006. ISSN 0002-9602. doi: 10.1086/499510. URL http://www.journals.uchicago.edu/doi/10.1086/499510.

Daniel Lederman. *The Political Economy of Protection: Theory and the Chilean Experience.* Stanford University Press, Stanford, CA, 2005. ISBN 9780804749176.

Philip Leifeld. texreg: Conversion of statistical model output in r to LaTeX and html tables. *Journal of Statistical Software*, 55(8):1–24, 2013. URL http://www.jstatsoft.org/v55/i08/.

Margaret Levi. *Of Rule and Revenue.* University of California Press, 1989.

Kung-Yee Liang and Scott Zeger. Longitudinal Data Analysis Using Generalized Linear Models. *Biometrika*, 73(1):13–22, 1986.

Amanda Licht. Change Comes with Time: Substantive Interpretation of Nonproportional Hazards in Event History Analysis. *Political Analysis*, 19(2):227–243, apr 2011. ISSN 1047-1987. doi: 10.1093/pan/mpq039. URL http://pan.oxfordjournals.org/cgi/doi/10.1093/pan/mpq039.

James Mahon. Causes of Tax Reform in Latin America, 1977-95. *Latin American Research Review*, 39(1):3–30, 2004. ISSN 1542-4278. doi: 10.1353/lar.2004.0014. URL http://muse.jhu.edu/content/crossref/journals/latin{_}american{_}research{_}review/v039/39.1mahon.html.

James Mahon, Marcelo Bergman, and Cynthia Arnson. *Progressive Tax Reform and Equality in Latin America*. 2014. ISBN 9781938027437. URL http://www.wilsoncenter.org/publication/ProgressiveTaxLATAM?mkt{_}tok=3RkMMJWWfF9wsRonua/IcO/hmjTEU5z17uQkWaOg38431UFwdcjKPmjr1YIETMpkI+SLDwEYGJlv6SgFSLHMMa12z7gLXxI=.

James Mahoney. *Colonialism and Postcolonial Development: Spanish America in Comparative Perspective*. Cambridge University Press, 2010.

Markos Mamalakis. The Theory of Sectoral Clashes. *Latin American Research Review*, 4(3):9–46, 1969. URL http://www.jstor.org/stable/2502284.

Markos Mamalakis. The Theory of Sectoral Clashes and Coalitions Revisited. *Latin American Research Review*, 6(3):89–126, 1971. URL http://www.jstor.org/stable/2502271.

Markos Mamalakis. *Growth and Structure of the Chilean Economy: From Independence to Allende*. Yale University Press, 1976.

Isabela Mares and Didac Queralt. The Non-Democratic Origins of Income Taxation. *Comparative Political Studies*, 48(14):1974–2009, dec 2015. ISSN 0010-4140. doi: 10.1177/0010414015592646. URL http://cps.sagepub.com/cgi/doi/10.1177/0010414015592646.

Carlos Marichal. *A Century of Debt Crises in Latin America: From Independence to the Great Depression, 1820-1930*. Princeton University Press, 1989.

George McCutchen McBride. *Chile: Land and Society*. Octagon Books, 1936.

Andrew Monson and Walter Scheidel, editors. *Fiscal Regimes and the Political Economy of Premodern States*. Cambridge University Press, 2015. ISBN 978-1-107-08920-4. doi: 10.1017/CBO9781107415324.004. URL https://books.google.co.uk/books?id=YQ3UBwAAQBAJ.

Mick Moore. Taxation and the Political Agenda, North and South. *Forum for Development Studies*, 1:7–32, 2004a. ISSN 0803-9410. doi: 10.1080/08039410.2004.9666262.

Mick Moore. Revenues, State Formation, and The Quality of Governance in Developing Countries. *International Political Science Review*, 25(3):297–319, 2004b. ISSN 01925121. doi: 10.1177/0192512104043018.

Richard Musgrave. Schumpeter's Crisis of The Tax State: An Essay in Fiscal Sociology. *Journal of Evolutionary Economics*, 2(2):89–113, jun 1992. ISSN 0936-9937. doi: 10.1007/BF01193535. URL http://link.springer.com/10.1007/BF01193535.

Carola Pessino and Ricardo Fenochietto. Determining Countries' Tax Effort. *Hacienda Publica Espanola / Revista de Economía Pública*, 195(4):65–87, 2010. ISSN 02101173.

James Rippy. *Latin America and the Industrial Age.* Greenwood Press, 1971.

James Robinson. Economic Development and Democracy. *Annual Review of Political Science*, 9(1):503–527, jun 2006. ISSN 1094-2939. doi: 10.1146/annurev.polisci.9.092704.171256. URL http://www.annualreviews.org/doi/abs/10.1146/annurev.polisci.9.092704.171256.

Michael Ross. Does Taxation Lead to Representation? *British Journal of Political Science*, 34 (2):229–249, apr 2004. ISSN 0007-1234. doi: 10.1017/S0007123404000031. URL http://www.journals.cambridge.org/abstract{_}S0007123404000031.

Omar Sanchez. *Mobilizing Resources in Latin America: The Political Economy of Tax Reform in Chile and Argentina.* Palgrave Macmillan, New York, NY, 2011. URL http://link.springer.com/10.1057/9780230119659.

Aaron Schneider. *State-Building and Tax Regimes in Central America.* Cambridge University Press, 2012.

Marcelo Segall. *Desarrollo del Capitalismo en Chile: Cinco Ensayos Dialécticos.* Santiago, Chile, del pacífi edition, 1953.

Hillel Soifer. *State Building in Latin America.* 2015. ISBN 9781316257289.

Kenneth Sokoloff and Eric Zolt. *Inequality and the Evolution of Institutions of Taxation: Evidence from the Economic History of the Americas.* Number July. 2007. ISBN 0226185001. URL http://www.nber.org/chapters/c10654.

Terry Therneau. *survival: Package for Survival Analysis*, 2015. URL https://cran.r-project.org/web/packages/survival/. R package version 2.38-3.

Cameron Thies. War, Rivalry, and State Building in Latin America. *American Journal of Political Science*, 49(3):451–465, jul 2005. ISSN 0092-5853. doi: 10.1111/j.1540-5907.2005.00134.x. URL http://doi.wiley.com/10.1111/j.1540-5907.2005.00134.x.

Cameron Thies, Olga Chyzh, and Mark Nieman. The Spatial Dimensions of State Fiscal Capacity The Mechanisms of International Influence on Domestic Extractive Efforts. *Political Science Research and Methods*, 4(01):5–26, jan 2016. ISSN 2049-8470. doi: 10.1017/psrm.2015.27. URL http://journals.cambridge.org/article{_}S2049847015000278{%}5Cnhttp: //journals.cambridge.org/action/displayAbstract?fromPage=online{&}aid= 10064145{&}fileId=S2049847015000278{&}utm{_}source=Issue{_}Alert{&}utm{_}medium= Email{&}utm{_}campaign=RAM{%}5Cnhttp://journals.cambridge.org.

Mónica Unda. A Tale of Two Taxes: The Diverging Fates of the Federal Property and Income Tax Decrees in Post-Revolutionary Mexico. *Investigaciones de Historia Económica - Economic History Research*, 13(2):107–116, jun 2017. ISSN 16986989. doi: 10.1016/j.ihe.2016.02.002. URL http://linkinghub.elsevier.com/retrieve/pii/S1698698916000102.

Victor Uribe-Uran. *State and Society in Spanish America during the Age of Revolution*. Rowman & Littlefield Publishers, 2001.

Juan Ventura and María Elena Armas. Beneficios Tributarios en la Ley del Impuesto Sobre la Renta. *Comercium et Tributum*, 10:25–44, 2013.

Gregory Wawro. Estimating Dynamic Panel Data Models in Political Science. *Political Analysis*, 10 (1):25–48, feb 2002. ISSN 10471987. doi: 10.1093/pan/10.1.25. URL http://pan.oupjournals. org/cgi/doi/10.1093/pan/10.1.25.

Andreas Wimmer. Is Diversity Detrimental? Ethnic Fractionalization, Public Goods Provision, and the Historical Legacies of Stateness. *Comparative Political Studies*, pages 0010414015592645–, jul 2015. ISSN 0010-4140. doi: 10.1177/0010414015592645. URL http://cps.sagepub.com/content/early/2015/07/27/0010414015592645.abstracthttp: //cps.sagepub.com/cgi/doi/10.1177/0010414015592645.

Thomas Wright. Agriculture and Protectionism in Chile, 1880-1930. *Journal of Latin American Studies*, 7(1):45–58, 1975. ISSN 1469767X. doi: 10.1017/S0022216X00016655.

Bartolomé Yun-Casalilla, Patrick O'Brien, and Francisco Comín Comín, editors. *The Rise of Fiscal States: A Global History, 1500-1914*. Cambridge University Press, 2015.

Maurice Zeitlin. *The Civil Wars in Chile: (or The Bourgeois Revolutions that Never Were)*. Maurice Zeitlin, 1984.

Christopher Zorn. Comparing GEE and Robust Standard Errors for Conditionally Dependent Data. *Political Research Quarterly*, 59(3):329–341, sep 2006. ISSN 1065-9129. doi: 10.1177/106591290605900301. URL http://prq.sagepub.com/cgi/doi/10.1177/106591290605900301.