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

Héctor Bahamonde

*PhD Candidate • Political Science Dpt. • Rutgers University

e:hector.bahamonde@rutgers.edu

w:www.hectorbahamonde.com

March 28, 2017

Abstract

Building on the fiscal sociology paradigm, and the importance of the income tax for state-building, this paper outlines the conditions under which endogenous investments in fiscal institutions were most likely to occur in Chile and more generally in Latin America, starting in 1900. The paper contributes to the literature on state and fiscal development by presenting a historical comparative macro-structural argument centered on inter-elite conflicts. I use the case of Chile to sketch the theory, and several analyses of panel-data to suggest a possible generalization of the argument. My analyses and case study strongly suggest that strong states saw the emergence of a strong industrial sector with enough economic and political leverage to interrupt the political monopoly held by the landed elite which had inherited its privileges since colonial times, leading to subsequent sectoral compromises.

Please consider downloading the last version of the paper here.

*I thank Bob Kaufman, Dan Kelemen, Doug Blair, Christopher Zorn, Paul Poast, Matthias vom Hau, Dídac Queralt, Florian Hollenbach, William Young, Jose Pablo Silva and participants of the 50th LASA Congress for all the useful comments. I also thank the School of Arts and Sciences at Rutgers for a pre-doctoral research grant and the Department of Political Science at Rutgers University for conference travel funds. All errors are my own.

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 state-building. With a few exceptions, much effort has been devoted to understanding the relationship between the politics of taxation and state capacities in a number of European cases. While the bulk of research on Latin America has mostly focused on recent tax reforms, the *origins* of the fiscal Latin American state remain relatively unclear. Since wars in Latin America have been rare, it is difficult to extend models based on external threats originally developed to understand the medieval European case. Building on the fiscal sociology paradigm, in this paper I propose that the development of the modern fiscal apparatus in Chile was product of sectoral conflicts and compromises between the industrial and agricultural political elites. The paper also presents several panel-data analyses to suggest that this theory could be potentially generalizable to other countries in the region.

Much effort has been devoted to the study of *tax reforms* in the continent. Fairfield [2013] studies different strategies policymakers pursue to tax elites starting in 1990. Mahon [2004] and Focanti et al. [2013] study the causes of tax reform starting in the 1980s and 1990s, 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. This paper contributes to the literature on state and fiscal development by presenting a historical comparative macro-structural argument centered on inter-elite conflicts. The argument outlines the conditions under which endogenous incentives to investment in fiscal institutions were most likely to happen in Latin America starting in 1900.[1] While some scholars situate the relevant state-building critical juncture at the end of the colonial period, before the class compromises I identify in this paper. Kurtz [2013] explains that the first critical juncture corresponds to the post independence political economy, stressing whether local rural elites recruited their workers through servile means, while Soifer [2015, 6] argues that the critical tipping point was whether "local administrators were outsiders in the communities in which they served." Both

[1] I share Di John [2006, 5]'s diagnosis that there has been no attempt in the literature to explain *why* and *how* state and fiscal capacities emerged.

critical junctures happened *before* 1900. While the process of state-building had started before 1900, the paper identifies the income tax as an important *additional* building block in that process. The connection between state-building, fiscal development and sectoral conflicts is hardly new. For example, Gallo [1991, 7-8] studies the Bolivian case and the origins of the fiscal apparatus from a sectoral perspective as well. Waldner [1999, 3] and Saylor [2014, 8] also consider elite conflicts to study state-making.[2] Building on this literature, the contribution of this paper is twofolds: (1) to present an argument stressing the sectoral divide between the agricultural and industrial sectors, arguing that such divide captures the rupture of institutions that protected the landowning class, and (2) to provide quantitative evidence in support of the idea that the income tax was an important additional building block in the development of the fiscal apparatus.

I argue that the implementation of the income tax in Latin America was product of an inter-sectoral conflict that took place around in early 1900's between the agricultural and industrial sectors. Before the income tax law was implemented, political institutions and social norms, largely inherited from the colonial period, were designed to promote biased agricultural development. The emergence of a new industrial sector rose a new politically-disenfranchised elite who demanded political and economic reforms. Industrial elites accepted to be income taxed in exchange of having a more competitive political system and being their industries protected. Critically, the tax was not important because of the new revenue it collected, but because its implementation required a series of sectoral compromises, triggering a series of other institutional investments, such as the implementation of checks-and-balances (to monitor tax spending) and the development of skilled bureaucracies. This argument is situated within the broader literature on political development. However, it differs from past accounts in that industrialization altered the political and economic status quo not by rising incomes (*á la* modernization theory) but by nurturing a political challenger. Particularly, the argument is situated within the broader fiscal sociology paradigm, putting emphasis on how fiscal development was important for state-making.

II. Taxation and State Formation

The *fiscal sociology* 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 individual economies.[3] Given this high degree of state penetration, taxation offers the key for a theory of the state.[4] Borrowing from this literature, this paper argues that the origins of the fiscal apparatus are rooted in sectoral and class conflicts. In fact, some have even argued that "tax struggles are among the oldest forms of class struggle."[5]

[2] Wheeler [2011] studies how inter-elite cooperation and agreements positively impacted state-making in Europe.
[3] Moore [2004b, 298]. This view is also shared by Schumpeter [1991, 100] and Lewis [1965, 42] - See epigraphs.
[4] Musgrave [1992, 99].
[5] Goldscheid (1925), in Campbell [1993, 168].

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 the purposes of this paper, taxes that are collected by a third party, i.e. not the state. Indirect taxes do not need the development of a strong fiscal apparatus. According to Best [1976, 53], "indirect taxes are but substitutes for direct taxes," and hence they are typically administered by weak states.[6] Since indirect taxes are easier to levy, this kind of revenue is generally considered "unearned income"[7] or "easy-to-collect source of revenues."[8] 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 bureaucratic development. In fact, when early Latin American states depended heavily on the taxation of international trade, the state apparatus tended to be less developed.[9] 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.[10]

What played a formative role was the implementation of income taxation, which I argue is a "state-building" institution. Since direct taxation involves a compulsory transfer from private hands to the government sector for public purposes,[11] it is harder to collect,[12] requiring stronger domestic alliances to sustain these kinds of policies. Of all types of direct taxation, the most invasive one is the *income tax*. This type of tax demands the development of stronger institutions, as it classifies and transfers private income into public property.[13] 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."[14] 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[15] 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,[16] class conflicts are more likely to resolve in favor of direct taxation where income inequality *among the elite* is low.[17] Here I argue that the rise of an economically strong industrial elite put pressures on these polities for a series of inter-elite compromises, endogenously creating the incentives to overcome the initial lack of administrative skills necessary to collect direct taxes. As others have also explained,[18]

[6] This view is also supported by Moore [2004a, 14].
[7] Moore [2004b, 304].
[8] Coatsworth and Williamson [2002, 10].
[9] Campbell [1993, 177].
[10] Bertola and Ocampo [2012, 132].
[11] *Cfr.* Raja Chellia, "Trends in Taxation in Developing Countries," in Migdal [1988, 282].
[12] Kurtz [2013, 62].
[13] Musgrave [1992, 98].
[14] Aidt and Jensen [2009, 171].
[15] 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."
[16] Best [1976, 50].
[17] Tani [1966, 157] explains that the absence of "wealth groups" makes passing an income tax law easier.
[18] Lieberman [2002, 99].

since income taxes require extensive monitoring and enforcement, "administrative constraints are identified as the main constraint to the ability of states to collect [an] income tax."[19] When the income tax was imposed late in history, after the formative period, they did not reflect early sectoral conflicts and eventual elite compromises. Thus, cases in which the income tax law was imposed very late developed incompetent bureaucracies and low levels of state development. 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.[20]

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.[21] They argue that there was a blurry class division between the mining, banking and agricultural sectors.[22] For example, landowners were also invested in industry.[23] However, others have pointed out that it was common practice that industrialists had to invest in real state *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."[24] There were also instances where miners were invested in banking. However, Segall [1953] argues that Chilean bankers, after the crisis of the mining sector around the 1870s, acquired a number of mineral deposits given as collateral years before. All in all, the lack of dualism seems confounded by the very demands and practices of how these predominately agricultural societies were structured.

Here I argue that initially the political economy was dominated by agricultural political interests. Keller [1931, 13] argues that in all Latin American economies during and right after the colonial period, agriculture was the most important sector, while Wright [1975, 45-46] points out that the economic interests of the agricultural elite were the only economic interests represented in politics, and Chile was not the exception. In the same vein, Collier and Collier [2002, 106] argued that initially the "national government was dominated by the central part of the country, with owners of large agricultural holdings playing a predominant role." Similarly, McBride [1936, 15] explains

[19] Di John [2006, 5].
[20] Di John [2006, 5].
[21] See for example Mamalakis [1976, 125].
[22] Bauer [2008, 30, 44, 94, 108].
[23] 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."
[24] Emphases are mine.

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."[25] Finally, I have shown elsewhere that 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.[26]

There existed an important asymmetry. While the industrial sector was growing, they were kept from participating in politics with the same privileges and conditions landowners had. Being the industrial elite blocked, it was easy for the agricultural elite to produce policies that were designed to enhance only their sector, even at the expenses of the industrial sector. 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,[27] 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 independence in 1823, the secretary of the treasury, Diego José Benavente, addressed a predominately *agricultural* congress to propose an agricultural income tax. The congress rejected his idea, especially due to pressure from the landowning class.[28] Indeed, fiscal pressures in favor of agricultural taxes were minimal compared to mining taxes,[29] leaving the agricultural sector systematically - and substantially - undertaxed relative to other sectors.[30] Though eventually an agricultural income tax was imposed, it was weak and was abolished after the civil war of 1891. This bias was consistent with other state practices. 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."[31] For example, the little public infrastructure that existed benefited 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.[32] Presidents were not the exception. For example, "the Montt regime did invest in the construction of Chile's railways but only in the Central Valley and south-central zones

[25] Emphases are mine.
[26] Bahamonde [2017].
[27] Bauer [2008, 45].
[28] 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 because of their technocratic skills.
[29] As explained, mining was one of the first manifestations of industrial activity.
[30] 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."
[31] Bauer [2008, 118].
[32] Rippy [1971], Marichal [1989], Zeitlin [1984], Bauer [2008].

[b]ut there was no public investment [...] in railroads built in the Norte Chico mining provinces."[33] Critically, agriculturalists engaged in several predatory practices as well. Agricultural exports in Chile, such as wheat production, had a boom between 1865 and 1880.[34] However, "[t]he importance of trade taxes as sources of public revenues began a steady decline in 1918, which lasted until 1925."[35] As some historians have argued, agricultural incumbents engaged in "nationalization by means of naturalization, government intervention, and government participation."[36] For example, Chile, Perú and Uruguay, among others, went through a clear process of nationalization of non-agricultural assets during the 1920s.[37]

For nearly 400 years, mining was the most important activity outside of agriculture. Minerals had to be processed near 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 of the early industrialization processes.[38] While mining elites made their fortunes during the 1840s and 1850s during the mining boom,[39] "Latin American's consumption of industrial metals continued to be very small until toward the end of the nineteenth century." Moreover, mining was also rudimentary, with little or no technological refinement.[40] Eventually, the mining sector failed to catch up with more efficient technologies better suited to exploit low-grade ores,[41] and collapsed.

After the mining boom, mining elites shifted their focus to what is considered the first *true* industrial work which, unexpectedly, began under agricultural auspices: the cotton mills.[42] The first industries were called *obrajes*. Though servile labor and slave labor were used at the end of the colonial period, all labor was free and wage-earning starting the independence. "Large-scale *obrajes* existed alongside smaller units of production - modest workshops and prosperous artisan-dominated enterprises - in virtually all urban centres."[43] Beyond textiles, early industrialists processed other

[33] Zeitlin [1984, 41].

[34] Bauer [2008, 68-69-70]. See also Lederman [2005, 55]. Custom duties declined also in several other Latin American countries. For the Bolivian case, see Gallo [1991, 95]. For a general overview, see Bulmer-Thomas [2003, 245].

[35] Lederman [2005, 54-55]. He continues: "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," while Gallo [1991, 148] adds, "the economic crisis of the 1930s forced most Latin American states to shift their sources of revenue from export-based to domestic economic activities."

[36] Rippy [1971, 238].

[37] Chua [2010]. Bulmer-Thomas [2003, 255, 342-343] explains that it was very common to nationalize assets such as transport companies, financial institutions, and mining industries.

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

[39] Most, if not all of the mineral-related industry was foreign-owned, except in Chile (Stephens et al. [1992, 165, 176, footnote 5, 324]).

[40] Rippy [1971, 230].

[41] Kirsch [1977, 53].

[42] See Rippy [1971, 231]. 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 the 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."

[43] Bethell [1986, 271]. Emphasis in original. Flour mills were very important too, and they experienced a number of technological improvements. "The flour mills were probably the first of the Chilean industrial plants to utilize steam power" (Rippy and Pfeiffer [1948, 300]). Eventually, around 1900, the steam-powered stone mills were replaced by a "roller process of milling which employed a mechanized metal cylinder system often run by electric power" (Kirsch

agricultural goods such as animal grease and tallow (for soap and candles), dried and cured meats, flour, bread, beer, wines and spirits, being most of them for domestic consumption.[44] Later, around 1900, other industries for domestic consumption such as tobacco, pottery, felt hats, matches and footwear also developed.[45] The industrial sector was boosted by favorable international conditions as well, many times stimulating a positive complementarity between two industries. For example, "[m]eat exports required the development of cold-storage technologies."[46] 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." In sum, industrial activities started very small,[47] progressing "from the shop to the factory during the latter half of the nineteenth century."[48] Importantly, modern industrialization did *not* begin with ISI, but around 1900. In fact, Haber [2005, 2] finds that the "development of large-scale, mechanized (and even "heavy") industry can be dated back to the 1890s."[49]

In Chile, the industrial elite was composed by an incipient, yet strong and cohesive group of individuals. As historian Francisco Encina explains, "[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 the same individuals)."[50] In the process of going from mineowners to proto-industrialists, this incipient elite developed a strong sense of social *class* that led them to consistently seek political representation and influence. Sectoral interests were organized as follows. The *Sociedad de Fomento Fabril* (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), founded 45 years earlier in 1838. The SNA "was the most powerful associational interest group in nineteenth-century Chile,"[51] and according to Wright [1975, 51], it clearly thought of itself as a social class. Both sectors had

[1977, 38]).

[44] Bethell [1986, 272]. Other food industries, such as sugar were used in the production of chocolate, candies, biscuits (Bertola and Ocampo [2012, 129]). Vegetable oils were also very important.

[45] Specially in Argentina, Brazil, Chile, Uruguay and Perú (Rippy [1971, 235]).

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

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

[48] Rippy [1971, 235].

[49] Similarly, Rippy and Pfeiffer [1948] and Pfeiffer [1952] explain that by the 1870's the carriage industry was on a firm basis. Bertola and Ocampo [2012, 129] finds that the "fact that manufacturing was alive and thriving in Latin America before the 1929 crash is now beyond question."

[50] In Zeitlin [1984, 30], emphasis in original. 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 nitrate development led to the development of an "incipient industrial establishment."

[51] Wright [1973, 244].

class consciousness. Kirsch [1977, 41] explains that the founding of the SOFOFA clearly reflected a "tension created by the *awareness* of the incongruence between the actual exploitation of economic forces and the potential that could be extracted from them through industrialization."[52] And the party system was a reflection these sectoral-economic tensions. In fact, 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." And by the 1920s, industrialists started to "form trade associations to engage in lobbying and propaganda as more coherent interest groups."[53]

While both economic sectors were *similarly developed*, only the agricultural elites had access to fair political representation, leaving industrial interests too exposed, putting pressures for these two 'antagonistic elites'[54] to confront each other in two bloody civil wars. Zeitlin [1984, 23] argues that the civil wars challenged a "large landed property [elite against a] productive capital [elite]." However, war was not sustainable over time. Given their relative similar degrees of economic development, both elites could mobilize armies with relatively *similar capabilities*.[55] War was then more likely to exhaust all existent assets without producing positive outcomes for either sector.[56] Consequently, Chilean agricultural and industrial elites opted for a political compromise. Three institutional components were incorporated in the compromise: an income tax, industrial protectionism, and equal access to the state. The faster the industrial growth, the higher the pressures to impose a tax to capture increasing industrial incomes. This is in line with Besley and Persson [2011, 59] who argue that "investing in fiscal capacity becomes more attractive [...] when wages or incomes [...] are higher."[57] 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*."[58] The SOFOFA pursued an agenda in favor of protective industrial tariffs. This goes in line with Lederman [2005, 53] who argues that the timing of protectionist and income taxation cycles matches, and with Sokoloff and Zolt [2007, 122] who explain that the expansion of "manufacturing production [...] helped to nurture the development of a powerful constituency for higher tariffs."[59] In particular, "by the early 1920s Chile's manufacturers were no longer just demanding (and obtaining) protective tariffs, they actively

[52] Emphases are mine.
[53] Weaver [1980, 107].
[54] Keller [1931, 37-38]. Geddes [1991] argues that competition between two rival parties of about the same size creates clearer incentives to invest in political institutions.
[55] Boix [2015].
[56] Richard Salvucci in Uribe-Uran [2001, 48].
[57] Similarly, see Campbell and Allen [1994, 647] who explain that "economic development should be directly related to individual and corporate income tax rates."
[58] Carmenza Gallo, in Brautigam et al. [2008, 165]. Emphases are mine. She refers specifically to nitrate producers.
[59] See for a similar view Haber [2005, 18].

lobbied for government subsidies to establish a range of new industries."[60] Eventually, the Aguirre Cerda government in 1939 created the CORFO, an agency that planned, directed and supported emergent industries by providing "various sorts of credits, subsidies [and] government investments."[61] This was of the greatest importance since the money market was primarily established to "meet the credit needs of landowners."[62]

These political compromises triggered a series of other investments in state institutions and infrastructure. The early Chilean government "was able to impose a substantial tax [...] and pay the salaries of government and military employees."[63] Importantly, the income tax law was influential beyond the capital city of Santiago, reaching the whole territory. *Artículo 104* and *Artículo 105* of the income tax law[64] empowered all municipalities to collect the tax. In fact, municipalities had to send to the central government a detailed list of taxpayers *twice* a year, forcing the implementation of local bureaucracies able to count and classify the population not only according to their personal incomes, but also to the sources of this income. In turn, protectionist tariffs helped to develop an even stronger industrial sector, which in turn was the basis for the new middle class, the most important ingredient in the development of the modern bureaucracy.[65] The aperture of the political system, while breaking the agricultural-led political monopoly, also helped the industrial class gain influence over how the income tax was spent. Critically, both elites channeled their sectoral demands through political institutions. The connection between political aperture and the emergence of the industrial sector in Chile has been mentioned before. Collier [1977, 683] points out that "the real story of Chilean industrialization belongs to the Parliamentary period," which goes from 1891 to 1925. In a similar vein, Kurtz [2013, 36] explains that the incorporation of *all* major upper-class actors into the national political system was crucial to enabling substantial taxation, public goods provision and essentially, state building.[66]

IV. Econometric Analyses

This paper argues that the origins of the modern fiscal apparatus are explained by the rise of a new elite who challenged the political economy of the early 20th century Latin American countries designed to benefit the landowning class. Last section presented the case of Chile. Now I test this argument statistically using a middle-sized N panel-data design in an effort to suggest that this hypothesis could be generalized to other countries in Latin America. Following the economic

[60] Haber [2005, 18].
[61] Collier and Collier [2002, 393].
[62] Kirsch [1977, 59].
[63] Bauer [2008, 80]. He refers particularly to taxes on "nitrate exports."
[64] *Decreto* number 1269. See Table 1.
[65] Stephens et al. [1992, 185].
[66] Similarly, Kurtz [2009, 481] argues that where "no faction can easily become permanently dominant," state capacities should be stronger. 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."

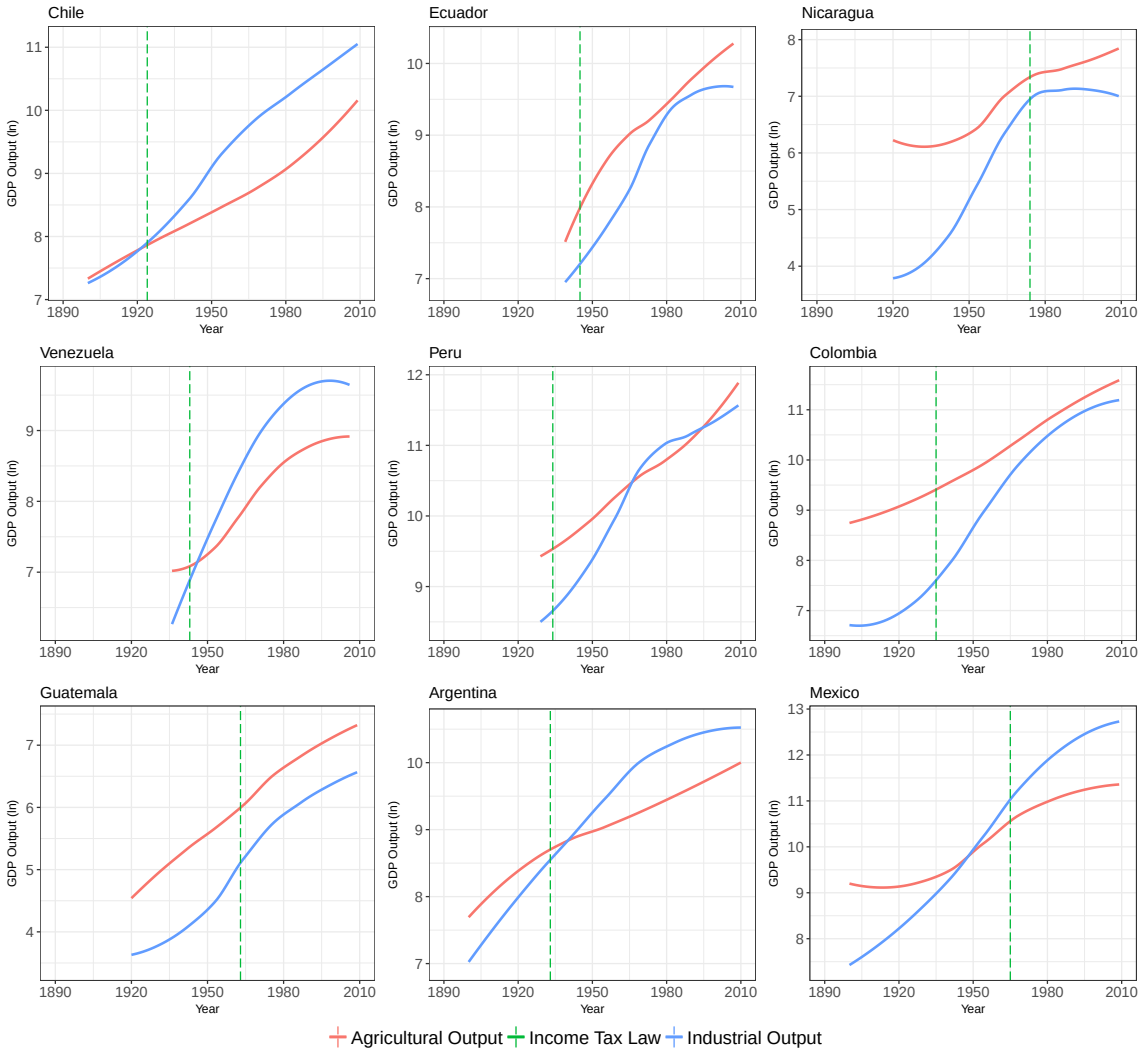

Figure 1: *Industrial and Agricultural Outputs, and The Passage of the Income Tax Law*

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 leverage and specifically, the degree in which the industrial elites could challenge incumbent landowners, using industrial and agricultural sectoral growth rates. Specifically, I use the MOxLAD data.[67] The dataset spans from 1900 to (potentially) 2010.[68] According to Astorga et al. [2005, 790], these data provide extended *comparable* sectoral value-added series in constant purchasing power parity prices.[69] Using secondary information, Table 1 states *when* the income tax was implemented, what specific law it was, and its corresponding source(s). Figure 1 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,[70] and consequently the tax base, I include total population as a control variable.

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	1965	*Ley de Impuesto sobre la Renta*	Díaz González [2013, 130-133] and Diario Oficial (official)
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*

Before start estimating models, it is important to rule out the possibility that income taxation and sectoral development are not linked through a spurious, time-dependent relationship. The occurrence of the outcome of interest (taxation) should not be directly related to time itself, but to the rise of the industrial elite proxied by industrial growth. Within the framework of survival analyses, Figure 2 shows the failure rate of the sample average country of implementing the income tax if industrial development had increased by half ('rapid') or not ('slow').[71] The figure strongly suggests 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.

Table 2 shows 5 models.[72] Following Aidt and Jensen [2009], Model 1 computes the lagged

[67] "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.

[68] 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.

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

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

[71] 'Failure' in this case means 'implementing' the income tax law.

[72] 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. The simulations were performed using the `simPH R` package (Gandrud [2015]).

conditional hazard ratio of 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.[73] Countries drop out of the sample when they adopt the income tax. Model 2 is also 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)[74] or "the use of the natural log transformation [to capture] different forms (or "shapes") of the baseline hazard,"[75] Models 1 and 2 are specially well-equipped to account for possible time dependency. Model 3 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.[76] This method is especially well suited when the data are binary.[77] 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,"[78] 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 corrects for small-sized panel designs.[79] From a substantive standpoint, GEE models provide an estimated marginal mean, or the *weighted average* of all cluster-specific effects (or conditional means). Model 4 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.[80] A number of scholars rightly argue that post-colonial state capacities are in part a function of pre-colonial state-capacities.[81] Fixed-effects should be able to account for this and other unobserved or hard-to-measure covariates, which if left unaccounted for, would introduce omitted variable biases.[82] Model 5 accounts for possible spatial-temporal dependence.[83] Given that most of the countries I am modeling are contiguous neighbors, it is reasonable to expect a "domino" effect. Theoretically, being the first country to

[73] 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 by separate is a better strategy. See Figure 3.

[74] Wawro [2002].

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

[76] Zorn [2006, 322].

[77] Hanley et al. [2003].

[78] 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." Westgate and Burchett [2016] and Gardiner et al. [2009, 227] make the same point.

[79] 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.

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

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

[82] Angrist and Pischke [2008].

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

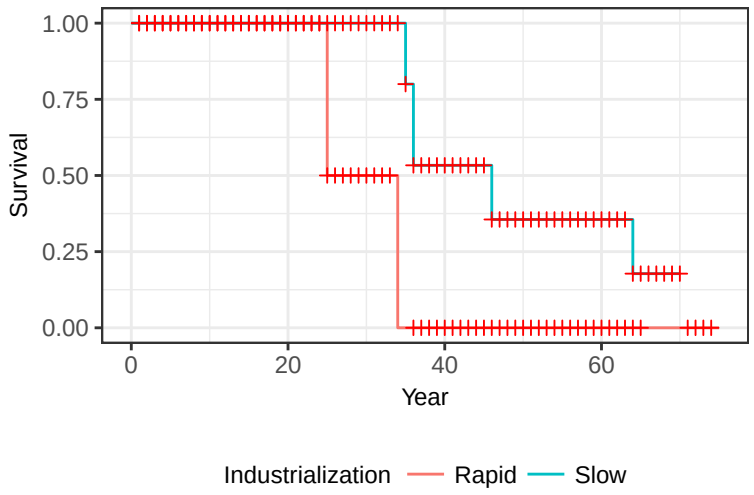

Figure 2: *Kaplan-Meier Curves: Size of the Industrial Sector and the Accelerated Rate of the Imposition of Income Tax Law*

implement the income tax does not require the same level of domestic effort than being the last one. Early-implementers have no prior experience and hence, it should be 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.[84] All in all, the 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 (models 1, 3 and 4). Both pooled results in model 3 and model 4 give the same results. Importantly, model 4 accounts for country-specific non-measured sources of variation, such as country-specific prior levels of state and fiscal capacities, cultural and geographic differences, among others. I do not find that there was spatial-temporal dependence (model 5).

Using the estimations from Model 1 in Table 2, I follow Gandrud [2015] and King et al. [2000], and in Figure 3 simulate 1000 times the Hazard Rate of implementing the income tax law conditional on industrial and agricultural growth rates.[85] Even though the outcome of interest does *not* depend *directly* on time,[86] countries in time *do* experience an increase in their sectoral outputs.[87] Consequently, it will be necessary to account for the natural tendency of sectoral outputs to grow in time by allowing estimations to vary with time.[88] Since the Hazard Rate "is the probability that a

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

[85] Box-Steffensmeier and Jones [2004, 15] explain that the Hazard Rate is the most common quantity of interest analysts focus on. Figure 3 shows 90% confidence intervals.

[86] Please refer to Figure 2.

[87] Please refer to Figure 1.

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

	(1) Cox (1 lag)	(2) Cox (1 lag, ln)	(3) Logit GEE	(4) Conditional Logit (FE)	(5) Spatial Dependence
Manufacture Output$_{t-1}$	1.451*				
	(0.569)				
Agricultural Output$_{t-1}$	−0.859				
	(0.740)				
Total Population	−0.000***				
	(0.000)				
Manufacture Output$_{t-1}$ (ln)		1.279·			
		(0.710)			
Agricultural Output$_{t-1}$ (ln)		−0.819			
		(0.788)			
Total Population (ln)		−0.844	0.065	1.012*	−0.842
		(0.531)	(1.219)	(0.405)	(0.830)
Manufacture Output (ln)			1.543***	0.970***	1.277
			(0.333)	(0.161)	(1.036)
Agricultural Output (ln)			−1.107**	−1.185***	−0.818
			(0.369)	(0.292)	(1.071)
AIC	22.788	25.093		4135.812	25.091
R^2	0.021	0.013		0.392	0.013
Max. R^2	0.078	0.080		0.995	0.078
Num. events	9	9		570	9
Num. obs.	281	272	842	842	281
Missings	0	0		0	0
PH test	0.937	0.722			0.217
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*

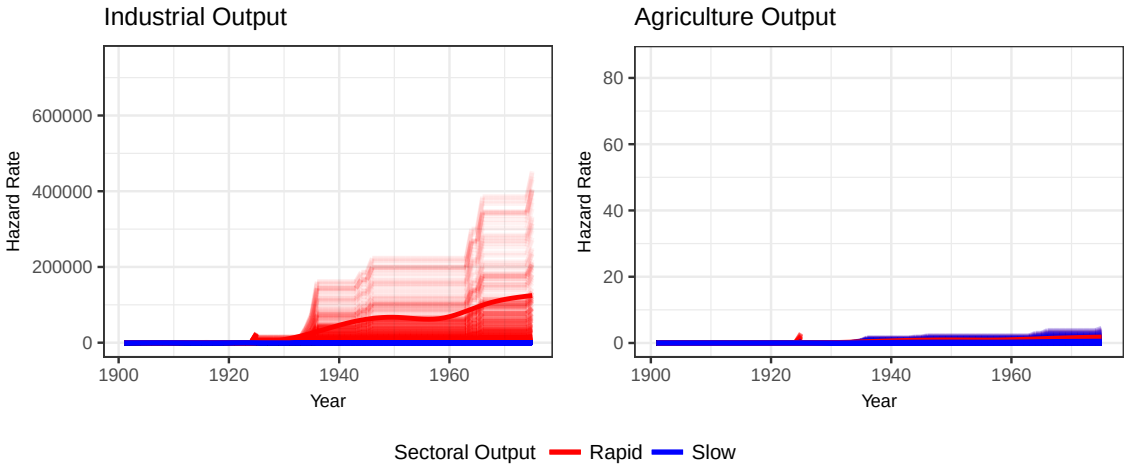

Figure 3: *First Differences of Industrial Output, Agricultural Output and Democratic Experience*

case will fail at time t,"[89] I take advantage of this quantity of interest which allows dependency on both time *and* the covariates.[90] Figure 3 strongly suggest that the faster the agricultural sector develops, the less likely the implementation of the income tax is. This relationship does *not* change at later stages of development, suggesting that polities with a strong elite of landowners (proxied by increasing levels of agricultural growth) are not associated with fiscal development. However, rapid industrial development is associated with the implementation of the income tax. The stronger the industrial sector, the faster the tax is implemented, suggesting that the rise of a new elite invested in sectors different than traditional agriculture (industry) contribute to state-building by accelerating the modernization of the fiscal apparatus (proxied by the income tax law). This relationship gets stronger as time progresses *and* industrial growth cumulates. All in all, Figure 3 suggests that the rise and eventual development of an elite with no ties to colonial institutions put pressures for the development of a modern fiscal apparatus.

V. Discussion: Slow Industrial Growth and Lack of Contestation

Historically, agriculturalists had been a hegemonic group protected by practices inherited from institutions originated in colonial times. Those norms had been survived due to institutional inertia, perpetuating their advantaged position. The emergence of a strong industrial elite invested in industry altered not only the structure of the economy but also the inter-sectoral balance of political power, making unsustainable the political monopoly run by the landed elites. All in all, the Chilean case suggested that the income tax was product of a series of inter-sectoral compromises that were possible due to the increased leverage this new elite accumulated. The income tax, as a state-building

[89] Licht [2011, 231].
[90] Box-Steffensmeier and Jones [2004, 15].

institution, led to further institutional investments. And the panel-data analyses strongly suggested that this argument could be extended to other cases.

The paper claimed that countries with fast industrial growth rates nurtured an industrial class strong-enough to challenge the traditional sector, forcing landowners to grant political concessions to industrialists. One of the most important concessions was the opening of the post-colonial political system, which granted access to industrial organized groups. Importantly, the industrial elite accepted the income tax in exchange for the ability to participate in equal terms in politics. In terms of economic compromises, the industrial sector managed to articulate its demands as a coherent class, including in the bargain protectionist industrial tariffs. And such, the mechanisms specified in the paper stress the idea that it is inter-elite *equality* what causes state formation and cooperation, not inter-elite inequality as other scholars have claimed.[91] Industrialization was important as a *contestation* device, not in the way modernization theorists have argued. That is, it was not faster *overall* economic growth what helped to form modern state institutions, but balanced *sectoral* growth that led to the emergence of a political challenger. Finally, the process of state-building had started earlier, way before the implementation of the income tax (as others have correctly observed), but the implementation of the income tax was an important building block in this process.

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

Word count: 8,822

References

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.

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. 2017. URL https://github.com/hbahamonde/Negative_Link_Paper/blob/master/Bahamonde_NegativeLink.pdf.

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.

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

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.

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.

Leslie Bethell. *The Cambridge History of Latin America, Volume 4: c. 1870-1930*, volume IV. Cambridge University Press, 1986. ISBN 978-0521232258.

Carles Boix. *Political Order and Inequality: Their Foundations and their Consequences for Human Welfare*. Cambridge Studies in Comparative Politics, 2015.

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.

Victor Bulmer-Thomas. *The Economic History of Latin America since Independence*. Cambridge University Press, 2003. ISBN 9780521532747.

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 Campbell and Michael Allen. The Political Economy of Revenue Extraction in the Modern State: A Time-Series Analysis of U.S. Income Taxes, 1916-1986. *Social Forces*, 72(3):643, mar 1994. ISSN 00377732. doi: 10.2307/2579775. URL http://links.jstor.org/sici?sici=0037-7732{%}28199403{%}2972{%}3A3{%}3C643{%}3ATPEORE{%}3E2.0.CO{%}3B2-9http://www.jstor.org/stable/2579775?origin=crossref.

Mauricio Cárdenas. State Capacity in Latin America. *Economía*, 10(2):1–45, 2010. ISSN 1533-6239. doi: 10.1353/eco.2010.0003. URL http://muse.jhu.edu/content/crossref/journals/economia/v010/10.2.cardenas.html.

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.

Amy Chua. The Privatization-Nationalization Cycle: The Link between markets and Ethinicity in Developing Countries. *Columbia Law Review*, 95(2):223–303, 2010. ISSN 00101958. doi: 10.2307/1123231.

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

Simon Collier. The Historiography of the "Portalian" Period (1830-1891) in Chile. *The Hispanic American Historical Review*, 57(4):660–690, 1977. URL http://www.jstor.org/stable/2513483.

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

Eliseo Díaz González. La Reforma Del Impuesto Sobre La Renta Aplicado a Salarios. *Argumentos*, 26(71):127–148, 2013.

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.

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

Carmenza Gallo. *Taxes and state power: Political instability in Bolivia, 1900-1950*. Temple University Press, 1991.

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.

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.

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

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

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.

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/.

Arthur Lewis. *The Theory of Economic Growth*. Harper and Row, 1965.

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.

Evan Lieberman. Taxation Data as Indicators of State-Society Relations: Possibilities and Pitfalls in Cross-National Research. *Studies in Comparative International Development*, 36(4):89–115, dec 2002. ISSN 0039-3606. doi: 10.1007/BF02686334. URL http://link.springer.com/10.1007/BF02686334.

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

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

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.

Joel Migdal. *Strong Societies and Weak States*. Princeton University Press, 1988.

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.

Jack Pfeiffer. Notes on the Heavy Equipment Industry in Chile, 1800-1910. *The Hispanic American Historical Review*, 32(1):139–144, 1952. URL http://www.jstor.org/stable/2508942.

Fred Rippy and Jack Pfeiffer. Notes on the Dawn of Manufacturing in Chile. *The Hispanic American Historical Review*, 28(2):292–303, 1948. URL http://www.jstor.org/stable/2507747.

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

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.

Rafael Sagredo. Chile: 1823-1831: El Desafio de la Administracion y la Organizacion de la Hacienda Publica. *Historia*, 30:287–312, 1997.

Ryan Saylor. *State Building in Boom Times: Commodities and Coalitions in Latin America and Africa*. Oxford University Press, 2014.

Joseph Schumpeter. *Joseph A. Schumpeter: The Economics and Sociology of Capitalism*. Princeton University Press, 1991.

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.

John Stephens, Dietrich Rueschemeyer, and Evelyne Huber Stephens. *Capitalist Development and Democracy*. University of Chicago Press, 1992.

Vito Tani. Personal Income Taxation in Latin America: Obstacles and Possibilities. *National Tax Journal*, 19(2):156–162, 1966.

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.

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.

David Waldner. *State Building and Late Development*. Cornell University Press, 1999.

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.

Frederic Weaver. *Class, State, and Industrial Structure: The Historical Process of South American Industrial Growth*. Praeger, 1980.

Philip Westgate and Woodrow Burchett. A Comparison of Correlation Structure Selection Penalties for Generalized Estimating Equations. *The American Statistician*, 1305(June):0–00, jun 2016. ISSN 0003-1305. doi: 10.1080/00031305.2016.1200490. URL http://www.tandfonline.com/doi/full/10.1080/00031305.2016.1200490.

Nicholas Wheeler. The Noble Enterprise of State Building: Reconsidering the Rise and Fall of the Modern State in Prussia and Poland. *Comparative Politics*, 44(1):21–38, oct 2011. ISSN 00104159. doi: 10.5129/001041510X13815229366480. URL http://openurl.ingenta.com/content/xref?genre=article{&}issn=0010-4159{&}volume=44{&}issue=1{&}spage=21.

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. Origins of the Politics of Inflation in Chile, 1888-1918. *The Hispanic American Historical Review*, 53(2):239–259, 1973.

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.

Yihui Xie. *knitr: A General-Purpose Package for Dynamic Report Generation in R*, 2016. URL http://yihui.name/knitr/. R package version 1.12.3.

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.