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# WASHINGTON UNIVERSITY IN ST. LOUIS

Department of Political Science

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Andrew C. Sobel

## Partisan Politics and Corporate Tax Policy Transparency

by

Mi Jeong Shin

A dissertation presented to the  
Graduate School of Arts and Sciences  
of Washington University in  
partial fulfillment of the  
requirements for the degree  
of Doctor of Philosophy

August 2016  
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Dedicated to my mom, Kisun Kim

Abstract of the Dissertation

**Partisan Politics and Corporate Tax Policy Transparency**

by

Shin, Mi Jeong

Doctor of Philosophy in Political Science,

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Professors Nathan Jensen and Guillermo Rosas, Co-chairs

This dissertation examines the effect of partisan politics on corporate tax policy in the developed world. In particular, I examine why and how left-wing governments give firms an effective tax rate that is lower than the national tax rate. My central argument is that left-wing governments keep corporate taxes high in order to please their voters and avoid high constituency costs, but compensate firms by providing non-transparent policy instruments such as tax incentives or lax regulation having low constituency costs to promote economic growth. These opaque policy instruments allow firms to effectively evade the higher corporate tax rates. My findings provide support for my argument and indicate that left-wing governments adopt higher corporate tax rates than right-wing governments, but offer generous tax incentives and lax regulations to firms in return.



# Chapter 1

## Introduction

Increased economic globalization challenges governments to balance the need for maximizing tax revenues and maintaining a favorable environment for business activities. To promote economic growth and raise tax revenues, many of the Organization for Economic Co-operation and Development (OECD) countries have conducted significant tax reforms since the mid -1980s, which are tax-cut and base-broadening reforms that reduce the statutory tax rate and tax incentives. Despite these tax reforms, wide variation in the tax rates among firms within countries persists. What accounts for such variation?

A large body of literature in political science has paid much attention to the effects of domestic politics on the corporate tax setting, overlooking such wide variation in the effective tax rates paid by firms within countries. Among them, the impact of partisan politics on corporate tax policy has received much attention. Yet the theoretical claims and results of the existing studies on the effect of

partisanship on corporate tax policy are often contradictory, providing a limited explanation for the relationship by focusing on the corporate tax rates.

I argue, however, that partisan politics affects corporate tax policy transparency. By focusing on a wide range of policy instruments that politicians use in determining corporate tax policy, I demonstrate that constituency costs affect political parties' incentives to employ opaque policy instruments. By constituency cost, I refer here to the probability of being punished by voters in elections when political parties deviate from their ideological positions. This constituency cost is varied by the level of policy complexity. Some instruments have more complex effects on voters than others. Although voters can easily evaluate the effects of national corporate tax rates on their well-being, they have difficulty assessing the impact of tax incentives (favorable tax benefits to firms) on their personal welfare. Given this, transparent policy instruments will have higher constituency costs than non-transparent policy instruments.

In turn, political parties have incentive to choose more opaque policy instruments, like tax incentives, to minimize constituency costs and maximize their electoral benefits. This effect is much stronger for left-wing governments because they must balance the need for attracting campaign donations from firms and promoting economic growth (achieved by providing companies with tax incentives) with the need for garnering voter support (ensured by lowering constituency costs through possibly increasing corporate taxes). Right-wing governments, however, will face low constituency costs in both tax rates and tax incentives because of



their ideological aversion to “big government” resulting in a lower tax burden. Thus, I hypothesize that left-oriented politicians tend to keep all tax rates high, but provide generous tax incentives to offset high corporate tax rates.

To test my theory, I conduct three empirical analyses: (a) a firm-level taxation analysis of US Fortune 1000; (b) an evaluation of US legislators’ voting behavior on corporate tax legislation; and (c) a cross-national analysis of regulations of transfer pricing by multinational corporations. The findings show that left-wing governments maintain higher corporate tax rates, but provide generous tax incentives and lax regulations, as compared to right-wing governments.

### **1.0.1 Contributions**

This dissertation contributes to the previous literature in several ways. First, it contributes to the existing studies of corporate tax policy by providing a more nuanced explanation of how constituency costs affect political parties’ incentives to employ opaque policies. Similar arguments have been made in the existing literature that constituency costs prevent governments from carrying out tax reforms in response to tax competition. Contrary to previous studies, this dissertation provides support for the argument that political parties tend to choose policy instruments with low constituency costs when voters differ in evaluating the effect of policy instruments depending on the level of policy complexity. Thus, this dissertation broadens our understanding of varieties of corporate tax policy.

Second, this dissertation enhances the generality of the policy transparency argument by extending it beyond the trade policy literature. While this dissertation clearly demonstrates the importance of policy transparency in corporate tax policy, it is more broadly applicable to other policies, such as foreign direct investment and capital market liberalization.

Finally, this dissertation contributes to the existing literature by employing a broad range of data and methods to test the argument. For example, I conduct three empirical analyses: a firm-level taxation analysis; a corporate tax legislation analysis; and an evaluation of regulations of transfer pricing by multinational corporations. To this end, I collect financial statements of firms and analyze them through multilevel modeling strategies for panel data. Additionally, I use various measurement models such as a Bayesian Item Response Theory (IRT) model and a factor analysis to measure ideal points of legislators on corporate tax bills and regulations of transfer pricing by multinational corporations respectively. Thus, this dissertation provides rich evidence for the argument through various data and methods.

## **1.0.2 Outline of Dissertation**

This dissertation consists of six chapters. In Chapter 2, I review the existing literature and develop a theory that accounts for variation in tax rates. Drawing upon the constituency cost literature and the policy transparency literature, I argue that constituency costs affect a political party's incentive to employ opaque

policy. Since voters easily evaluate the effect of tax rates on their welfare in contrast to tax incentives, political parties have more incentives to use opaque policy instruments like tax incentives to maximize electoral benefits. Yet such an effect is stronger for left-wing governments because they must balance the need for promoting economic growth by reducing their tax burden of firms through tax incentives and the need for voter support by avoiding tax cuts.

Chapter 3 provides empirical analyses to test the argument. I conduct a single case study of the United States while exploring how firms pay taxes in response to political changes as indirect evidence. Employing a multilevel model for panel data on financial information from Fortune 1,000 firms between 1986 and 2010, I find that the results are partially consistent with the theoretical expectation. When the Democratic Party dominates Congress, firms pay more in taxes than under a Republican-controlled Congress. In addition, firms in the manufacturing industry pay less in taxes under the Democratic Party than under the Republican Party. The results imply that left-wing governments tend to have high tax rates, but provide tax incentives to selective firms to compensate for high tax rates.

Although the firm-level analysis partially supports this argument, it still lacks direct evidence linking partisan governments to corporate tax policy transparency. I examine legislators' behavior on corporate tax bills in the United States for the period 1986-2011 in Chapter 4. I first measure ideal points of legislators on both tax rate and tax incentive bills by employing a Bayesian Item Response Theory model. Utilizing these ideal points of legislators, I find that Democrats are more

likely to oppose the reductions in tax rates, but favor generous tax incentives aimed at promoting the manufacturing industry. This finding also shows that legislators representing the interests of labor are more likely to oppose reductions in tax rates but favor generous tax incentives for the manufacturing industry.

While the legislation still matters, as discussed in Chapter 4, regulations are equally important in shaping corporate tax policy outcomes. Thus, I assess the effect of partisan governments on regulations of transfer pricing by multinational corporations in Chapter 5. I first measure regulations of transfer pricing of multinational corporations by employing a Bayesian factor analysis based on three previous measures of regulations. Utilizing the factor scores of regulations for nineteen democracies between 2006 and 2009, I find that right-leaning governments are more likely to have tight regulations on the transfer pricing of multinational corporations.

Finally, Chapter 6 concludes the dissertation by summarizing findings and discussing future research.

# Chapter 2

## Literature Review and Theory

### 2.1 Literature Review

This section will provide a review of the literature on firm-level taxation and the impact of domestic institutions on corporate tax policy, both of which lack an explanation for variation in the tax rates companies pay within countries. I first describe the trends in tax rates paid by firms in the Organization for Economic Cooperation and Development (OECD) countries and discuss the firm-level taxation literature and the issues that the literature overlooks. Then, I review the impact of political institutions on corporate tax policy. Finally, I briefly discuss the question of what accounts for variation in tax rates paid by firms within countries.

### 2.1.1 The Puzzle

Before turning to the patterns in tax rates firms pay, I first define effective tax rates (ETR) as the rate that a corporation pays as a percentage of its economic profit; ETR captures how much a company actually pays in taxes. An ETR may be significantly lower than the Statutory Tax Rates (STR), which is the transparent rate codified in law, due to tax incentives (Martin 1991; Steinmo 1993).<sup>1</sup> For example, large corporations in the United States paid an average effective tax rate of 12.6 percent in 2012 even as the country had a 35 percent corporate statutory tax rate.<sup>2</sup> A wide variation in ETRs reflects policy measures that provide implicit subsidies that distort the allocation of resources in the economy. Governments employ tax incentives to reduce the effective tax burden of particular groups, classes, or individual taxpayers (OECD 2010*b*).

Figure 2.1 displays the variation in the average ETRs of the 200 or 300 largest firms in OECD countries.<sup>3</sup> As it shows, most countries have wide variation in the tax rates firms pay, even though STR generally remains constant - a potentially puzzling finding. The fact that corporate tax reforms since the mid-1980s in these countries have combined a reduction in tax rates with a broadening of the tax base, with the stated goal of promoting economic growth and increasing tax rev-

---

<sup>1</sup>See Gruber and Rauh (2007) and Gordon, Kalambokidis and Slemrod (2003) for more details on ETRs.

<sup>2</sup>Schwartz, Nelson, "Big Companies Paid a Fraction of Corporate Tax Rate, *The New York Times*, July 1, 2013. Available at <http://www.nytimes.com/2013/07/02/business/big-companies-paid-a-fraction-of-corporate-tax-rate.html>. (Accessed on May 27, 2016).

<sup>3</sup>Since they lack access to detailed data from tax returns, most researchers have estimated ETRs based on data from the financial statements of firms (Government Accountability Office 2013). Here I collected financial statements of firms from the Compustat Global and North America Databases and computed their ETRs.

enues, compounds the puzzle (OECD 2008; OECD 2010*b*). The pattern suggests that targeted tax incentives persist in many countries.

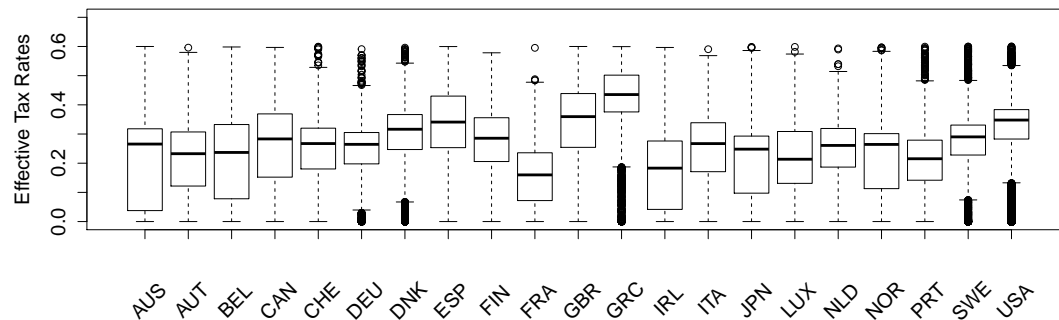


Figure 2.1.: Distribution of ETRs by Country

Note: Firms that used to compute the average ETRs between 1988 and 2011 are selected from the 200 or 300 largest firms in 2014 in each country.

## 2.1.2 Firm-level Taxation

A large body of literature in economics and business has explained differences in ETRs among firms by focusing on firm characteristics. These features include the size of firms, type of assets, capital intensity, and foreign ownership levels.<sup>4</sup> However, others have pointed to lobbying activities that firms engage in as a main determinant of the ETRs among firms (Richter, Samphantharak and Timmons 2009).

<sup>4</sup>See Ahmed (2004); Auriol and Warlters (2005); Gupta and Newberry (1997); Vandenbussche, Crabb and Janssen (2005); Zimmerman (1983).

While firm characteristics still matter to firm-level taxation, these explanations see a government as a passive actor. By treating governments as passive actors, it does not fully explain the firm-level taxation in that the wide variation in ETRs is generally introduced by policy measures, such as tax credits for investment and R & D expenditures, preferential tax rates, and favorable depreciation rules. In this sense, optimal taxation theory views government as a main actor in firm-level taxation. According to the optimal taxation literature, governments impose differential taxation of multinational enterprises (MNEs) and domestic firms to maximize revenues. It states that a government subtly distinguishes between more mobile and less mobile capital, allowing the former to have a lower tax rate than the latter in order to maximize tax revenue. The underlying mechanism is that internationally mobile firms can threaten to relocate operations to another country.<sup>5</sup> These firms may not remain in the country unless they are offered lenient taxation. In doing so, they are in a better position to influence tax policy in their direction. Conversely, immobile firms are unable to avoid high rates of taxes by leaving the country and thus face higher tax rates. Given the differential status between firms, a government can maximize their tax revenues from immobile firms and provide more generous tax rates to more mobile firms (Keen 2001; Gugl and George 2006; Devereux, Griffith and Klemm 2002; Genschel and Schwarz 2011; Kemmerling and Seils 2009). This differential taxation across firms has also been found in the foreign direct investment (FDI) literature. Governments have

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<sup>5</sup>See Azemar (2013); Becker and Fuest (2011); Cowling and Tomlinson (2005); Devereux, Griffith and Klemm (2002); Zodrow (2010).



incentives to set different tax rates based on the investment elasticity of different sectors since the tax sensitivity of FDI differs across sectors. Stwhase (2005) finds that investment in the financial and communication sector is very sensitive to tax rate changes, while investment in agriculture and mining is less sensitive to tax rate changes.<sup>6</sup>

Empirical findings support this argument. Multinational corporations pay less in taxes than nationally operating firms (Azemar 2013; Bartelsman and Beetsma 2003; Egger, Eggert and Winner 2010). Yet, the underlying mechanisms behind these findings differ from each other. One is that multinational firms reduce their tax burden through transfer pricing and other profit shifting strategies in the OECD countries (Hines 1999; Bartelsman and Beetsma 2003). Transfer pricing originally refers to establishing prices for transactions within an MNC. However, MNCs manipulate this transfer pricing to reduce their reported profits to be taxed. Thus, the weak enforcement of transfer pricing rules can give tax advantages to internationally mobile firms. The other is that governments provide generous tax treatment to multinational firms that are not extended to domestic firms in European countries (Azemar 2013). Despite the different underlying mechanisms, scholars in economics and business reach the same conclusion: multinational firms pay less in taxes than domestic firms because of discrimina-

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<sup>6</sup>There is another reason for the differences in the tax rates between internationally mobile firms and immobile firms. In practice, tax rates are lower for MNEs mainly due to tax-motivated profit shifting behaviors. MNEs have opportunities and the ability to shift profits easily from higher-tax jurisdictions to lower-tax jurisdictions relative to immobile firms. In order to avoid taxes, internationally mobile firms can use tax haven operations, corporate tax shelters (Graham and Tucker 2006) to exploit international tax differences (Desai and Dharmapala 2006; Cowling and Tomlinson 2005), transfer pricing and other profit shifting strategies (Hines 1996).

tory tax reductions in favor of mobile, multinational firms. On the other hand, there is also evidence that differences in ETRs between multinational firms and domestic firms are small (Markle and Shackelford 2012).

While the optimal taxation literature is extensive and well developed, it treats government as being relatively autonomous in that it only cares about maximizing revenues. Governments also reflect the interests of social groups that they represent and thus differ in the types of policies they implement. Exceptionally, Pinto (2013) extends the optimal taxation theory into foreign direct investment flows by focusing on partisan governments. He suggests that the left-wing governments provide lower tax rates to multinational corporations as a main mechanism for attracting FDI inflows and that the right-wing governments provide higher tax rates to internationally mobile firms to protect the domestic firms. Thus, it implies that left-wing governments allow for lower tax rates to internationally mobile firms while imposing high tax rates on immobile firms (domestic firms).

Although Pinto (2013) suggests the possibility of differences in tax rates among firms based on an explanation that emphasizes partisanship, my work differs from his in several ways. I argue that constituency costs make left-wing governments employ a more opaque policy than right-wing governments. First, I mainly focus on the effect of partisan government on policy transparency, placing such effects within corporate tax policy. However, his main concern is about the impact of partisan government on FDI flows, and preferential tax rates for multinational corporations are one of the various measures to provide benefits to them. Second,

the primary causal mechanism is tested indirectly because it utilizes aggregate-level data such as the amount of FDI inflows and regulation at both national and sector levels, not the actual tax rates at the firm-level. I employ more direct evidence by utilizing firm-level taxation data. Finally, his argument downplays the role of immobile firms relative to internationally mobile firms in the policymaking process. However, as the trade protection literature and collective action problem literature point out, a small and concentrated group is more likely to engage in lobbying activities to benefit from subsidies or trade protection. Immobile firms are concentrated while internationally mobile firms are dispersed in the form of organizations. As Alt et al. (1999) point out, immobile and asset specific firms are more likely to engage in lobbying activities and thus impact the policy outcomes. Thus, it is reasonable that both internationally mobile firms and immobile firms are influential in the policymaking process.

### **2.1.3 Political Institutions and Corporate Tax Policy**

The previous subsection reviews the firm-level taxation literature and finds that firm-level taxation does not fully explain the cause of variation in ETRs within countries. This section will review the role of domestic institutions in corporate tax policy and finds that the variation in tax rates by firms within a country needs to be explained further.

In the political science literature, linking domestic political institutions to corporate tax policy has been extensive, but scholars have reached little agreement

about the direction of any effect. One of these studies focuses on differences between democracies and autocracies. Some argue that democratic institutions are associated with a higher level of corporate tax rate by increasing taxes on capital (Quinn and Shapiro 1991*b*; Slemrod 2004) or multinational corporations (Jensen 2013). In democracies, median voters tend to be decisive in setting tax rates since office-seeking politicians appeal to median voters' preferences that favor higher tax rates on capital gains. Democracies also provide lower levels of tax incentives to attract foreign investment because democratic governments grant a high level of property rights protection and credibility over policy in developing countries (Li 2006). Others claim that democratic institutions are associated with a lower level of tax rates. The reason is that democracies can offer a high level of tax incentives by means of claiming credit for new investment (Jensen et al. 2014) or by allowing firms to influence policy and lower their tax burden (Jensen 2003) through campaign contributions (Quinn and Shapiro 1991*a*) or lobbying (Richter, Samphantharak and Timmons 2009). Thus, the impact of regime type on the use of selective tax incentives and tax rates is theoretically controversial. Despite this theoretical debate, these studies rarely explain variation in the national tax rate in democracies.

The other explanation that pays attention to democratic institutions is government partisanship. Some claim that left-wing governments are positively associated with higher corporate tax rates because of redistributive mechanisms and growth strategies (Garrett 1998, Osterloh and Debus 2012, and Quinn 1997).

Left-wing governments redistribute the wealth and provide a high level of public spending to their core constituents, the low-skilled workers, as a redistributive mechanism (Benoit and Laver 2006; Osterloh and Debus 2012; Quinn and Shapiro 1991a). Leftist governments are also more likely to pursue a consumption-driven model of economic growth strategies associated with a high capital tax rate and lower rates of interest while right-wing governments tend to undertake investment-driven economic growth strategies accompanied by high rates of saving and lower rates of capital taxation (Garrett 1998; Boix 1998; Quinn and Shapiro 1991a; Inclan, Quinn and Shapiro 2001).

While both models assume that capital investment, technological innovation and the productivity of human capital mainly contribute to economic growth, the two models see the impact of tax rates on investments by firms differently. The investment-driven model expects that lower tax rates lead to an increase in investment and saving while the consumption-driven model pursues low interest rates and high corporate taxes on profits and capital gains and thus raises government tax revenues to address government debt.

Others, however, claim that the partisan effect on corporate taxation goes in the opposite direction. Hays (2003) argues that corporate tax rates are higher under a majoritarian electoral system than under a consensus democracy (proportional electoral system). A consensus democracy is empirically correlated with left-wing government and stronger labor unions. The main logic behind the argument is that the number of votes from labor is always larger than the votes from capi-

tal. In a majoritarian electoral system, therefore, the preference of the median voter always represents the preference of labor, which favors a higher corporate tax rate for redistribution. Conversely, consensus democracies represent both the preferences of capital and labor, which no one dominates. As a result, a consensus democracy tends to have a lower capital tax rate than a country with a majoritarian electoral system.

In line with the mixed views on the role of partisan government on corporate tax policy, empirical studies have yielded mixed results. Some find that left-wing governments are positively associated with a higher corporate tax rate (Garrett 1998; Osterloh and Debus 2012; Quinn 1997). Others show that left-wing governments are negatively associated with a corporate tax rate (Hays 2003).

Despite the well-developed theory about the effects of domestic institutions on corporate tax policy, the literature reveals two concerns. First, there is extensive research on the effects of political institutions on the setting of national tax rates, but little is known about why countries have variation in the tax rates among firms. As seen in Figure 1, most of the countries have wide variation in the tax rates among firms. Moreover, recent empirical research reveals that the corporate-ETR link is complex, varying across nations, time, and sectors. For example, retailers face an ETR of 31 percent on average; manufacturers pay 26 percent on average; and financial service companies pay an average of 20 percent in the US (Gravelle 1994; Gravelle 2001; Gruber and Rauh 2007; Liu and Altshuler 2013). Much like the US, firms in finance and technology industries compared to firms

in manufacturing industries pay little tax in the OECD countries (Markle and Shackelford 2011; Palan, Murphy and Chavagneux 2010; Papke 1991; Stwhase 2005). This variation in ETRs by firms is mainly due to the tax incentives that governments provide (Martin 1991). Political scientists have missed a variety of policy instruments such as tax incentive and lax regulation in corporate tax policy, obscuring important differences among policy instruments. As a consequence, although we know that domestic institutions matter to the national tax rate, we do not know why there is wide variation in the ETRs among firms within countries.

Second, the existing literature provides no direct empirical evidence for the impact of partisan politics on tax incentive that countries have widely used. Using direct data on firm-level financial statements and tax legislation helps partially overcome the contradictory evidence on the impact of partisan government on corporate tax policy. Thus, this paper complements the current literature on the effect of partisan governments on corporate tax policy by offering a more nuanced explanation and direct evidence of firm-level taxation.

#### **2.1.4 Conclusion**

In sum, on the one hand, the optimal taxation literature has paid little attention to the incentives that the political institutions within which governments operate generate by treating governments as autonomous actors. On the other hand, the domestic institutional approach in corporate tax policy has overlooked the variation in tax rates within countries, ignoring a broad range of policy instruments

available to politicians in the decision over corporate tax policy. In this dissertation, I propose a more complex relationship between partisanship and corporate tax policy. Instead of looking at the impact of partisan government on corporate tax rates, I turn to how constituency costs affect the incentive for political parties to choose various policy tools. Building on the constituency cost literature and policy transparency literature, I seek to explain what accounts for such variation in ETRs.

## **2.2 Theory: Partisan Politics and Corporate Tax Policy**

### **Transparency**

To develop my argument, I draw on the literature regarding constituency costs in corporate tax policy and on the literature related to transparency in trade policy for insights into how constituency costs affect corporate tax policy transparency under different political parties. Prior to turning to the main argument, I first define constituency costs as a probability of being punished by voters in elections when political parties deviate from their ideological positions. Previous studies explain how constituency costs constrain corporate tax reforms in response to intense tax competition. For example, Swank (2002) presents the concept of a constituency cost as “governing parties’ potential opposition to tax reform or its policy repercussions.” In a related argument, Basinger and Hallerberg (2004) show that constituency costs, defined as “the costs of ideological opposition to



tax cuts or particular tax reforms by pivotal actors within the legislative process” restrain corporate tax reforms.<sup>7</sup> In the face of tax competition, left-wing governments are reluctant to implement corporate tax reforms because of constituency costs arising from the tax cut.

The constituency costs discussed in corporate tax policy are based on the assumption that voters are fully informed about the effect of policy changes on their well-being. However, I challenge this traditional assumption by arguing that voters have limited information about policy changes depending on the level of policy complexity. This assumption comes from the trade policy literature (Guisinger 2009; Kono 2006; Magee, Brock and Young 1989). These studies highlight that voters have limited information about the effects of complex policy creating room for politicians to disguise the process. For example, optimal obfuscation theory posits that a party will choose more indirect policies for redistribution if the electoral gains in voter obfuscation exceed the electoral costs of receiving fewer resources from special interest groups (Magee, Brock and Young 1989). In a related argument, Kono (2006) argues that democracies increase non-transparent policy tools to optimize their support from voters and interest groups. Some trade barriers have more transparent effects than others. For instance, tariffs are simply import taxes that are easy to explain to voters, but non-tariff barriers and their effects are

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<sup>7</sup>Basinger and Hallerberg (2004) separate domestic political costs into transaction costs and constituency costs. The former refers to the costs of moving any piece of legislation through the legislative process, whereas the latter refers to the costs of potential opposition to tax cuts or particular tax reforms by pivotal actors within the legislative process. Here I focus on the constituency cost. The reason is that electorally motivated politicians are more concerned about the result of voters’ punishment in elections on their performance.

more complex to explain. These differences in policy complexity have political consequences because politicians must weigh the costs and benefits of attacking status quo government policies. Thus, optimal obfuscation theory has clear implications for corporate tax policy transparency in that constituency costs can vary depending on the level of policy complexity. In turn, politicians may choose corporate tax policy instruments to minimize constituency costs and maximize their electoral benefits.

There is a broad range of policy instruments that politicians use in their decision on corporate tax policy. Among them, I consider two main types of corporate tax policy: tax rates and tax incentives. The reason is that both policy instruments are mainly discussed in corporate tax reforms that are used to reduce the corporate tax rate and eliminate the tax incentives with the goal of promoting business activities and maintaining stable revenue (OECD 2008). These two policy instruments have distinctive characteristics. At one extreme, tax rates are simply national tax rates. A change in the tax rate and its effects on tax revenues and their welfare are easily conveyed to voters. At the other extreme, tax incentives have complex effects whose impact on the welfare of voters is hard to explain. Since tax incentives take various forms, such as credit, deferral, and tax rate relief, voters may find it hard to objectively evaluate how much taxes the firm is paying to taxable income and its effects on their welfare. As a result, these two policy instruments differ from each other since tax incentives are more opaque policy instruments than tax rates.

Given the characteristics of corporate tax policy instruments, some policy instruments may create more visible and salient constituency costs than others when political parties deviate from their ideological positions. In the case of the tax rate, voters can easily observe tax rate changes and assess the impact of such changes on their well-being. Then, voters see tax rate cuts as a deviation from left-wing governments' ideological positions. In turn, left-oriented politicians have a high probability of being punished for such policy deviations in elections. Economic voting literature similarly explains that voters tend to evaluate the economic performance of governing parties based on each party's traditional economic policies (Powell and Whitten 1993). Voters assess governing parties' performance based on the expectation that right-wing governments deal with inflation well and are less concerned about employment. In contrast, voters also tend to evaluate economic performance based on the expectation that left-wing governments are more likely to be concerned with unemployment and income redistribution. In this sense, the left will face greater punishment at the polls than the right if they cut taxes, since the left is believed to increase taxes to fund social expenditures (Hibbs 1977; Garrett 1998). Based on this logic, Basinger and Hallerberg (2004) show that the left is more reluctant to enact corporate tax reforms in countries with high domestic political costs. Conversely, since voters are unable to observe the tax incentive changes, the effect of these changes on voter welfare becomes more difficult to assess. Then, voters may find it hard to gauge whether tax incentives deviate from governing parties' ideological positions. In

turn, politicians have a low probability of being punished for such policy changes in elections.

Constituency costs and policy transparency raise important implications concerning political parties' reaction to tax competition. Some policy instruments may face higher constituency costs than others because of the policy complexity. Politicians in both parties may understand these differences and consider them in determining corporate tax policy. Although politicians in both parties could, in theory, use more opaque policy tools, I argue that the left has more incentive to provide opaque policy instruments than the right for two reasons. When the left deviates from expected policy positions, they will be punished during elections. Moreover, such an effect is stronger for transparent policy instrument than non-transparent ones. In turn, the left has more need for obfuscation to avoid backlash from voters.<sup>8</sup> Left-wing governments should be reluctant to reduce the tax rate, but should be more willing to adopt opaque policy tools to lower the tax burden of firms.

Why does the left provide tax incentives to firms that could result in a reduction in tax revenues? One of the reasons relates to the need for corporate campaign contributions. There is a large body of literature explaining a relationship between firms and political parties. On the one hand, firms make campaign contributions or they lobby parties and politicians in exchange for their preferred

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<sup>8</sup>I assume that political parties and politicians want to stay in power and to win elections. This assumption is well-established in the existing literature (Basinger and Hallerberg 2004; Kono 2006; Magee, Brock and Young 1989).

policies or firm-specific benefits. They influence public policy by different means. They gather the information that supports their positions to make it available to powerful politicians. They take their arguments to the public to win voter sympathy. Moreover, of course, they contribute to political parties and individual candidates' campaigns (Grossman and Helpman 1996). On the other hand, political parties need campaign donations from firms to win elections. In particular, politics has shifted from an activity supported by labor resources to one more dependent on technology and capital. For example, the amount spent on political campaigns has been dramatically increasing in the US. The Democrats and Republicans have distinctive sets of resources provided by their constituencies. The Republicans have had access to a larger constituency of wealthy donors. Democrats have also had the support of different constituencies (Raja 2014). Although both parties need to raise money from firms, the left is more likely to fear the consequence of constituency costs. The need for campaign contributions and the high constituency costs for tax rate changes make the left design more opaque policy tools to gain campaign donations from firms while avoiding a backlash from voters. Left-wing governments can avoid electoral criticism by keeping tax rate high while seeking interest group contributions in exchange for non-transparent tax incentives.

Another reason why the left would provide tax incentives relates to a dilemma that the left faces. Conventional wisdom holds that while right-wing governments reduce corporate tax rates to increase the savings and investment of firms, left-

wing governments increase tax rates but invest in human and physical capital and enhance the productivity of capital (Boix 1998; Garrett 1998; Quinn and Shapiro 1991a). Yet, the left is also believed to lower rates of unemployment (Hibbs 1977). Thus, the left has to address both low rates of unemployment and high capital gain taxes. A rise in corporate taxation, however, reduces future employment as business firms slow down the rate of new investment (Quinn and Shapiro 1991b). This contradiction in the left party's goals may lead to more opaque policy tools to increase taxes and employment. While the tax cut spurs backlash from voters and thus increases a probability of punishment in elections, tax incentives are unlikely to raise opposition from voters and are welcomed from firms to reduce their tax burden. Thus, as one of the solutions, left-wing governments are more likely to keep high tax rates but provide tax incentives to firms to address unemployment rates and tax revenues.

Compared to left-wing parties, right-wing parties receive considerable rewards in cutting tax rates. Voters see tax cuts as a signal of good performance consistent with their traditional economic roles and may give high rewards to them. Since tax cuts yield rewards from both voters and firms, they are more willing to appeal to voters by reducing tax rates rather than adopting a more opaque policy. For this reason, there is little incentive for right-wing parties to employ opaque policy.

Table 2.1 summarizes my argument. Each cell of Table 2.1 characterizes a different combination of partisan politics and policy transparency. My argument

suggests that left-wing governments will be more likely to keep high tax rates but to provide more opaque policy tools than right-wing governments because of constituency costs. Table 1 shows that left-wing parties increase tax rates (cell (a)) more than right-wing parties. If my argument is correct, a movement away from this condition should increase tax incentives (cell (b)). Similarly, a change to right wing parties should result in lower tax rates and tax incentives.

Table 2.1: Partisan Politics and Policy Transparency

Partisanship	Policy Transparency	
	Tax Rate	Tax Incentive
Left	+ (a)	+ (b)
Right	- (c)	- (d)

Do partisan governments differ in collecting tax revenues from firms on absolute or relative terms? This question is important because left-wing governments could increase tax rates while providing generous tax incentives to firms, leading to a reduction in tax revenues in absolute terms. It might also be possible for the left to increase tax rates but offer limited tax incentives, leading to stable tax revenues for firms. Although this question is beyond the scope covered in this paper, existing research gives a clue to its answer. For example, Quinn and Shapiro (1991a) find that the Democratic administrations collect more taxes than the Republican administrations. This finding shows that although the left is more willing to adopt non-transparent tools, they still tend to collect more taxes than their counterpart.

Another question that arises is which firms or industries receive tax incentives under left-wing governments. As noted above, the left tends to maintain high tax rates but provides generous tax incentives to firms or industries. However, existing studies show that the left collects more taxes than the right. This implies that the left picks winners to receive benefits. Pinto and Pinto (2008) and Smith (2013) offer insight into which firms are winners under the left-wing governments. Pinto (2013), Pinto and Pinto (2008) and Smith (2013) show that left-wing governments favor those firms and industries that generate most employment for their core constituency, labor. Pinto and Pinto (2008) state that pro-labor governments encourage the inflow of the type of investment that complements labor in production, while pro-capital governments would promote the entry of investment that substitutes for labor. Smith (2013) also finds that left-wing governments are more likely to provide bailouts to firms in labor-intensive industries.

Anecdotal evidence from the US supports these claims. Politicians of the left oppose tax cuts in an attempt to minimize opposition from voters, not only in their districts, but also more broadly. Legislators who place the highest value on broadening the support from core supporters and business groups are more likely to use non-transparent policy tools. Surveys show that a majority of Americans favor an increase in taxes on upper income households and corporations although there were large differences between Obama and Romney supporters on most tax issues. 68.2 % of Obama supporters favored an increase in corporate taxes, whereas 30.9% of Romney supporters favored it (The American Panel Survey



(TAPS) 2012). Yet, the US has provided tax incentives to firms or industries over time (Martin 1991). Indeed, the single biggest corporate tax breaks in the United States are for depreciation and expenses of capital equipment and for production on US soil.<sup>9</sup> These breaks greatly benefit the manufacturers who have supported the Obama administration.<sup>10</sup>

To summarize, I propose that constituency costs affect political parties' incentive to employ opaque policy. Since voters easily evaluate the effect of tax rates on their welfare in contrast to tax incentives, political parties have more incentives to use opaque policy instruments like tax incentives to maximize electoral benefits. Yet such an effect is stronger for left-wing governments because they must balance the need for campaign donations from firms by reducing their tax burden through tax incentives with low constituency costs and the need for voter support by avoiding policy instruments with high constituency costs. This discussion leads to the following hypothesis.

**Hypothesis:** Left-wing governments will be more likely to maintain high tax rates but provide more opaque policy tools than right-wing governments to compensate for the high tax rates.

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<sup>9</sup>Dixon, Kim, "Corporate Tax Breaks Cost U.S. Government \$180 Billion Per Year: GAO Report", *Reuters*, April 15, 2013.

<sup>10</sup>The Economist, "Corporate Tax Rates: A Useful Trim", February 25, 2012, print edition. <http://www.economist.com/node/21548245> (accessed May 23, 2015).



## Chapter 3

# Empirical Analyses: Firm-Level Taxation Analysis in the United States

Given the logic laid out in Chapter 2, I believe that the partisan orientation of parties affects corporate tax policy transparency. In this chapter, I empirically test the hypotheses discussed in Chapter 2 by doing a case study of the United States. A single case study will demonstrate the extent to which partisan politics affects corporate tax policy transparency with a within-subject research design that tracks firms under a constant nominal tax rate. Utilizing the rich longitudinal data for the United States Fortune 1000 firms covering two decades, I estimate how corporations pay taxes in response to political changes. To do this, I first describe the case selection, data, and statistical models, and then present the results of the empirical analysis.

## 3.1 Research Design

This section presents a research design that will test the hypothesis. I discuss the case selection, data, variables, and the statistical model.

### 3.1.1 Case Selection

I choose the United States as a single case study for several reasons. First, the United States has played a central role in the world economy. It accounts for 40 percent of all foreign direct investment inflows and 50 percent of all portfolio capital investment inflows in developed countries (Swank 2013). Due to its economic power in the world economy, economic policies of the United States can strongly affect other countries' economic policies, including corporate tax policy. For this reason, the United States case can give a sense of how other countries decide corporate tax policy.

Second, since the Tax Reform Act of 1986, the United States has rarely changed the nominal corporate tax rate.<sup>1</sup> In other words, differences in effective tax rates among firms and over time can be readily attributed to the degree of tax incentives or tax enforcement, rather than to changes in the nominal corporate tax rate. For instance, consider that a country has a national tax rate at 35 % and the Democratic-controlled Congress decides to provide tax incentives to firms in the manufacturing industry. Firms in the manufacturing industry will pay in taxes less than 35 %, leading to the actual tax rate paid by those firms at around 30 %.

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<sup>1</sup>Exceptionally, the United States increased a tax rate up to 38 percent in 1993.

Moreover, the standard view of the United States corporate tax system is that policymakers have intended to stimulate investment and growth through tax incentives (Martin 1991). According to this view, there is little room for political parties to reflect their partisan preferences in tax incentives, because corporate tax policy is a strategy to promote investment and growth regardless of partisanship. Thus, the United States is a hard case for testing the argument that partisan orientation of political parties affects tax discrimination.

Finally, data on ETRs for individual firms is available on a comprehensive basis for the United States. Specifically, I use financial statement data from the Standard & Poor's Compustat North America database. The database provides the broadest source of annual data on publicly traded companies.

### **3.1.2 Data and Variables**

The sample is Fortune 1,000 firms, according to 2010 rankings. The longitudinal data is useful to assess how firms pay taxes in response to political changes. I eliminated firms that were not listed on Compustat, with missing data, no activity, an ETR above one, or negative pretax income and asset values, all of which would lead to incorrect results.<sup>2</sup> The final sample yields 16,000 firm-year observations of 897 firms.

The unit of analysis is the individual firm-year. The dependent variable is the effective tax rate (ETR) paid by each firm in each year. I use the common defi-

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<sup>2</sup>These exclusions are consistent with previous studies (Gupta and Newberry 1997; Richter, Samphantharak and Timmons 2009; Richardson and Lanis 2007).

nition of ETR, namely the ratio of current income tax expense divided by pretax income (Azemar 2013; Gupta and Newberry 1997; Richter, Samphantharak and Timmons 2009). The ETR captures the national corporate tax rate and the tax incentives, such as depreciation allowances and investment tax credits.<sup>3</sup> Data are available from Compustat North America Database through Wharton Research Data Services (WRDS). Figure 3.1 shows the distribution of ETR and Statutory Tax Rate (STR) in the United States over time. While the statutory tax rates (STR) have rarely changed over time, average ETRs of all firms in the sample have decreased steadily over time. Moreover, Figure 3.1 indicates the distribution of ETRs of all firms in the sample over time, showing a large standard deviation in ETRs.

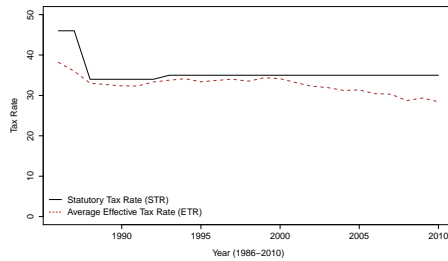
Testing the first component of the argument is straightforward. I use ETRs as a main dependent variable. Since Democrats tend to increase corporate tax rates, average effective tax rates of all firms will be higher under the Democratic Party than under the Republican Party. However, testing the second component of the argument, policy transparency, is more difficult and indirect to some extent. ETRs reflect policy measures such as tax incentives or regulations as well as the statutory tax rates. For this reason, ETRs can be an indirect indicator for how much firms receive policy benefits that partisan governments provide. To test policy transparency, I take two strategies. First, I use ETRs of firms in the manufacturing industry since the three largest tax breaks for domestic profits include accel-

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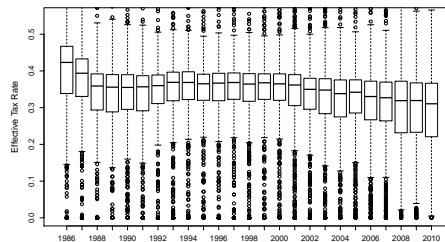
<sup>3</sup>For measures of ETRs, see Gruber and Rauh (2007) and Gordon, Kalambokidis and Slemrod (2003).

Figure 3.1.: Distribution of Statutory Tax Rate and Effective Tax Rate Over Time in the US

[Statutory Tax Rate and Average Effective Tax Rate Over Time]



[Distribution of Effective Tax Rate Over Time]



ated depreciation, the research credit, and the deduction for domestic production activities. These breaks disproportionately benefit manufacturing and technology sectors (Sullivan 2013). Compared to other industries, the Democratic Party gains support from the manufacturing industry that creates jobs for labor that the Democratic Party represents. For this reason, I include the ETR of firms in the manufacturing industry as the dependent variable.

Second, I employ capital intensity of a firm as a dependent variable. The FDI literature shows that left-leaning governments are expected to support the domestic labor-intensive firms, while right-leaning governments support more capital-intensive firms (Pinto and Pinto 2008; Smith 2011). In line with these

studies, I expect that capital intensive firms should pay higher tax rates than labor-intensive firms under the Democratic Party than the Republican Party.

The other independent variable is government partisanship. I employ two main measures capturing government partisanship. The first measure of government partisanship is the percentage of seats the Democratic party controls in the United States, where 100 represents full government controlled by the Democratic Party. The dataset is available from the Comparative Political Data Set (CPDS), which offers annual data on political variables for 23 advanced countries for the period 1966-2010 (Armingeon et al. 2011). This measure is useful because it provides a comparable indicator of government partisanship across countries. The second measure of government partisanship, following Inclan, Quinn and Shapiro (2001), relates to the president's party. They indicate that the president plays a greater role in enacting corporate tax policy than legislators in the United States. I code 1 if the party of the president is the Republican Party and 0 otherwise (Inclan, Quinn and Shapiro 2001).

The last measure relates to a combination of partisan control of the executive and legislative branches. Inclan, Quinn and Shapiro (2001) capture this through a percentage of seats as the indicator of partisan control of Congress and add it to an indicator for the party of the president (1=Democrat, -1 =Republican). The indicator has a positive sign if Democrats are a majority and a negative sign if Republicans are a majority. For example, the partisanship score of the 106th



Congress is  $-.05$  and its value adds to the indicator for the Democrat president, leading to  $0.095$  scores (Inclan, Quinn and Shapiro 2001).

I include several control variables such as firm characteristics and macroeconomic conditions that might affect both independent and dependent variables. Firm-level variables include a firm's size, capital intensity, and firm performance (ROA), multinationality of a firm (Azemar 2013; Gupta and Newberry 1997; Richter, Samphantharak and Timmons 2009). All these variables come from the Compustat database.

First, the size of a firm plays a significant role in tax rates. The relationship between ETRs and firm size is mixed in light of theoretical claims and empirical findings (Gupta and Newberry 1997; Zimmerman 1983). On the one hand, political cost theory claims that larger firms pay higher ETRs because governments tend to be more regulatory to the larger firms. On the other hand, political power theory contends that larger firms pay lower ETRs since they have a powerful resource to influence the political policy making process to gain tax benefits. Hence, the existing literature predicts that large firms can pay either high or low tax rates. The size of firm is measured as a logarithm of total assets.

Capital intensity of a firm might affect tax rates. Tax policy allows taxpayers to reduce the cost of depreciable assets over specific periods. Gupta and Newberry (1997) provide evidence that firms with a larger proportion of fixed assets have lower ETRs due to tax incentives. Since firms with a greater proportion of fixed assets are less likely to move production abroad and more likely to generate

employment mostly in the home country, they put pressure on governments to lower their tax burden. Thus, I expect that more capital intensive firms are likely to have lower ETRs. The capital intensity of the firm is measured as a logarithm of the fixed assets as a share of total assets (measured as fixed assets' net property, plant, and equipment divided by total assets).

Firm performance is also included in the model. Firm performance is positively associated with ETRs since more profitable firms face higher taxes (Richter, Samphantharak and Timmons 2009). Thus, firms with higher levels of return on assets are more likely to pay higher tax rates. Firm performance is measured as the ratio of a firm's pretax income to its total assets. A firms' multinationality is also included as a control variable since multinationals move production abroad and are better able to move profits across their international transactions. Thus, as a firm becomes more multinational, it will face lower tax rates compared to domestic ones.

In addition to firm-level variables, I include economic globalization and domestic economic changes as control variables. These economic variables are commonly treated as control variables in the corporate tax policy literature (Swank and Steinmo 2002). Economic globalization influences partisan governments and firms' tax rates. Tax competition arising from economic globalization makes governments reduce tax rates to attract FDI. Besides, economic globalization generates negative consequences such as unemployment and reductions in the safety net. If voters prefer social safety nets to market-oriented policies, they are more

likely to vote for left-oriented parties as a way to promote welfare spending. For these reasons, economic globalization can affect both tax rates and partisan governments, and I expect it to be negatively correlated with tax rates. Economic globalization covers capital mobility, trade openness, and FDI inward and outward flows. Among these, I include only FDI flows because of multicollinearity issues. FDI inward and outward flows are measured as a percentage share of the GDP. FDI data come from the United Nations Conference on Trade and Development (UNCTAD) database.

Along with economic globalization, domestic economic changes may also affect both partisan governments and the tax rates that firms pay. I include the unemployment rate (Swank and Steinmo 2002).<sup>4</sup> The corporate taxation literature shows that a high level of unemployment induces policymakers to cut tax rates to promote economic growth. The economic recession motivates governments to promote economic growth through low tax rates. Thus, the unemployment rate has a negative impact on tax rates. Unemployment rates are the percent of the labor force unemployed. Data are available from the US Department of Commerce. While domestic economic changes strongly affect tax rates, they can also influence partisan governments. Economic recession may increase voters' support for left-wing governments in the hope of job creation and economic recovery through expansionary fiscal and monetary policies that the leftist governments implement.

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<sup>4</sup>Because of multicollinearity issues, I dropped several variables such as spending, growth rate, and debt.

Despite this discussion about control variables, one might be concerned that including these control variables may generate post-treatment bias and thus, they should be dropped from the model (Gelman and Hill 2006). For example, economic globalization affects partisan governments' responses to external pressures while partisan governments also influence economic globalization. Similarly, domestic economic changes like unemployment rates affect partisan governments, and the reverse relationship is also possible. As one of the ways of addressing this concern, I estimate the partisan hypotheses with and without these control variables and report them in the result section.<sup>5</sup>

Summary statistics for all variables appear in Table 5.6 in the Appendix. The firm-level and country-level variables are one-year lagged to avoid bias produced by reverse causation.

### **3.1.3 Model Specification**

When fitting linear models to panel data, the literature usually employs fixed-effects models to account for firm-specific and time-specific effects.<sup>6</sup> However, when the explanatory variable of interest displays little variation over time, the fixed-effect model is not appropriate since it mainly looks at the variation within a given firm over time and thus eliminates the ability to analyze between-firm effects. Thus, a multilevel regression model is more appropriate in this case. Such

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<sup>5</sup>The main results remain unchanged after including all control variables in the models.

<sup>6</sup>Gupta and Newberry (1997) and Richer et al (2009) employ fixed-effects models for panel data obtained from the Compustat Database.

a model allows for varying intercepts across firms and years as a way to model unobserved heterogeneity.

Additionally, the data might have dynamic issues since the current level of the dependent variable is heavily determined by its previous level. In this case, not including the lagged dependent variable will lead to omitted variable bias and results might be unreliable. To address this issue, I include a lagged dependent variable on the right-hand side of the regression equation. Thus, the model appears as follows:

$$\begin{aligned}
 Y_{it} &= \alpha_i + \beta_0 Y_{it-1} + \beta_1 X_{it} + \delta C_{it-1} + \gamma_t + \epsilon_{it} \\
 \alpha_i &\sim N(\mu_\alpha + \lambda W_i, \sigma_\alpha^2) \\
 \gamma_t &\sim N(0, \sigma_\gamma^2)
 \end{aligned}$$

where  $y_{it}$  is the outcome variable, the average effective tax rate for firm (i) in year (t).  $X$  denotes partisanship.  $C$  denotes control variables lagged one year.  $\alpha_i$  captures unobserved firm-specific effects and  $\gamma_t$  captures unobserved year-specific effects.<sup>7</sup>

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<sup>7</sup>The estimation procedure that I use is maximum likelihood estimation for unbalanced panel data covering 897 firms from 1986 to 2010.

## 3.2 Results

Before turning to the main results, I discuss the result of the variance component model. The variance component model is useful to assess whether the structure of data requires multilevel models, and the one I use decomposes the total variance into four components: year, firm, industry, and state variance.<sup>8</sup>

Estimates of variance components are reported in Model 1 of Table 3.1. The firm-level variance explains 26 percent variance of the total variance in the data, whereas the year-level variance accounts for 2 percent variance. The fact that governments provide tax incentives to targeted industries to boost economic growth and state governments offer tax incentives to attract firms suggests that industry- and state-level variance may be present, but the variance component model shows minor variance in relation to both factor.<sup>9</sup> Based on the results of the variance components, I employ a random intercept model accounting for firm- and year-specific effects.

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<sup>8</sup>In the variance component model, the variance partition coefficient (VPC) is frequently used to evaluate whether or not the multiple levels are required. If its value is greater than 0.05 or more although the general threshold is hard to set up, the hierarchical data structure should be considered. In this data structure, between-firm level variance accounts for 26 percent of the total variance. This variance is calculated as:

$$\rho(\sigma_{\alpha}^2) = \frac{\sigma_{\alpha}^2}{\sigma_{\zeta}^2 + \sigma_{\alpha}^2 + \sigma_{\gamma}^2 + \sigma_{\epsilon}^2}$$

<sup>9</sup>I categorize firms into the industry based on the North American Industry Classification System (NAICS). The industry categories are agriculture, forestry, fishing and hunting (two-digit NAICS code 11), mining, quarrying, and oil and gas extraction (21), utilities (22), construction (23), manufacturing (31-33), wholesale trade (42), retail trade (44-45), transportation and warehousing(48-49), information (51), finance and insurance (52), real estate and rental leasing(53), professional, scientific, and technical services (54), management of companies and enterprises (55), administrative and support and waste management and services (56), educational services (61), health care and social assistance (62), arts, entertainment, and recreation (71), accommodation and food services (72), other services (except public administration 81), and public administration (92).

Table 3.1 presents results of the effect of government partisanship on average tax rates firm pay. As seen in Table 3.1, the sign of government partisanship corresponds to the theoretical expectation. The findings indicate that firms on average pay higher tax rates under the Democratic Party than under the Republican Party. These results are robust to alternative measures of government partisanship, party of the president, and Inclan and Quinn's score. The findings support the previous literature that the Democratic Administration collects more tax revenues than the Republican Administration (Inclan, Quinn and Shapiro 2001).

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
(Intercept)	0.319*** (0.010)	0.314*** (0.005)	0.247*** (0.016)	0.324*** (0.007)	0.264*** (0.018)	0.327*** (0.010)	0.273*** (0.019)
Democratic Party		0.012 (0.008)	0.018*** (0.005)				
Republican President				-0.006 (0.008)	-0.016*** (0.004)		
Partisanship						-0.005 (0.008)	
Multinationality			-0.054*** (0.007)		-0.054*** (0.007)		-0.016*** (0.005)
Asset			0.034*** (0.009)		0.034*** (0.009)		-0.054*** (0.007)
Capital Intensity			0.004 (0.004)		0.004 (0.004)		0.034*** (0.009)
Firm Performance			0.161*** (0.012)		0.161*** (0.012)		0.004 (0.004)
ETR <sub><i>t</i>-1</sub>			0.303*** (0.008)		0.303*** (0.008)		0.161*** (0.012)
FDI			-0.080*** (0.018)		-0.080*** (0.018)		0.303*** (0.008)
Unemployment			-0.060*** (0.020)		-0.061*** (0.021)		-0.078*** (0.019)
AIC	-31197	-32130	-20763	-32810	-20761	-32810	-20760
BIC	-31151	-32091	-20677	-32771	-20676	-32771	-20675
Log Likelihood	15604	16070	10393	16410	10392	16410	10392
Num. obs.	16313	16601	9287	17094	9287	17094	9287
Num. groups: firm	897	942	764	942	764	942	764
Num. groups: state	47						
Num. groups: year	25	24	23	25	23	25	23
Num. groups: industry	16						
Var: firm (Intercept)	0.004	0.005	0.002	0.005	0.002	0.005	0.002
Var: state (Intercept)	0.000						
Var: year (Intercept)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Var: industry (Intercept)	0.001						
Var: Residual	0.008	0.007	0.006	0.007	0.006	0.007	0.006

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

Note. All coefficients are estimated with random-effects models accounting for firm- and year-specific effects. Standard errors are shown in parentheses. Variables are rescaled. Democratic Party  $I = gov_{cent1}$ ; Partisanship = Inclan and Quinn's score; DV = Effective Tax Rates (ETR).

Table 3.1: Estimated Effects of Partisan Governments on the Tax Rates that Firms Pay



In addition to this finding, the second component of the argument is that left-leaning governments provide more opaque policy instruments to compensate for high tax rates than right-leaning governments. As discussed in the research design section, I use two dependent variables capturing opaque policy instruments such as tax incentives and regulations indirectly. As an indirect way of capturing opaque policy tools, effective tax rates of firms are useful since they reflect both statutory tax rates and various policy instruments that they receive from governments. If certain firms or industries have a low effective tax rate, it implies that firms receive policy incentives that help reduce their tax rates indirectly since the United States has rarely changed the statutory tax rate.

Given the discussion above, the first dependent variable that I use is the tax rates paid by firms in the manufacturing sector. This is because the largest tax incentives in the United States is depreciation allowance aimed at promoting the manufacturing industry for employment (Sullivan 2011). Given the fact that the manufacturing industry receives considerable tax incentives, their average ETRs should be lower than other industries. Yet such an effect also should be greater under the Democratic Party than under the Republican Party. The second dependent variable that I inspect is the tax rates paid by capital-intensive firms. The FDI literature shows that left-leaning governments are expected to support the domestic labor-intensive firms, while right-leaning governments support more capital-intensive firms (Pinto and Pinto 2008; Smith 2011). Based on these stud-

ies, I expect that capital intensive firms should pay higher tax rates than labor-intensive firms under the Democratic Party than the Republican Party.

Table 3.2 presents the estimates of the effect of partisan governments on two dependent variables that I employ as proxies for policy transparency. Models 1-4 represent results of the first measure of government partisanship, the Democratic Party, while Models 5-8 represent results of the second measure, the party of the president. The main findings show that firms in the manufacturing industry pay lower tax rates than those in other industries across all models. To see whether there is a relationship between partisanship and tax rates firms in the manufacturing industry pay, I include an interaction term in the model and report the results in Models 2-4. The signs of the interaction term correspond to the theoretical expectation, but such an effect is insignificant. For example, firms in the manufacturing industry pay around -0.01 (0.005) while those in other industries pay around -0.004 (0.004) under the Democratic Party based on Model 4. The findings suggest that firms in the manufactory industry pay lower tax rates under the Democratic Party than the Republican Party. These results remain unchanged when I use an alternative measure of government partisanship, the party of the president.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
(Intercept)	0.318*** (0.006)	0.318*** (0.006)	0.250*** (0.018)	0.247*** (0.018)	0.328*** (0.007)	0.328*** (0.007)	0.267*** (0.019)	0.268*** (0.019)
Manufacturing Industry	-0.011* (0.005)	-0.012* (0.005)	-0.007 (0.004)	-0.004 (0.004)	-0.010* (0.005)	-0.010 (0.005)	-0.007 (0.004)	-0.010* (0.004)
Partisanship (gov_cent2)	0.012 (0.008)	0.011 (0.008)	0.019*** (0.005)	0.022*** (0.005)				
Manufacturing × Partisanship( gov_cent2 )		0.003 (0.003)		-0.006 (0.004)				
Republican President					-0.006 (0.008)	-0.006 (0.008)	-0.016*** (0.005)	-0.020*** (0.005)
Manufacturing Industry × Republican President						-0.001 (0.003)		0.006 (0.003)
Multinationality			-0.048*** (0.007)	-0.048*** (0.007)			-0.048*** (0.007)	-0.048*** (0.007)
Asset			0.037*** (0.010)	0.038*** (0.010)			0.037*** (0.010)	0.038*** (0.010)
Capital Intensity			0.003 (0.004)	0.003 (0.004)			0.003 (0.004)	0.003 (0.004)
Firm Performance			0.167*** (0.013)	0.168*** (0.013)			0.168*** (0.013)	0.169*** (0.013)
ETR <sub>t-1</sub>			0.299*** (0.008)	0.299*** (0.008)			0.300*** (0.008)	0.299*** (0.008)
FDI			-0.084*** (0.019)	-0.085*** (0.019)			-0.084*** (0.020)	-0.085*** (0.020)
Unemployment			-0.062** (0.022)	-0.062** (0.022)			-0.063** (0.022)	-0.063** (0.023)
AIC	-30484	-30473	-19617	-19618	-31113	-31101	-19616	-19617
BIC	-30438	-30419	-19525	-19519	-31067	-31047	-19524	-19518
Log Likelihood	15248	15243	9821	9823	15562	15557	9821	9822
Num. obs.	15844	15844	8815	8815	16313	16313	8815	8815
Num. groups: Firm	897	897	727	727	897	897	727	727
Num. groups: Year	24	24	23	23	25	25	23	23
Var: Firm (Intercept)	0.005	0.005	0.002	0.002	0.005	0.005	0.002	0.002
Var: Year (Intercept)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Var: Residual	0.007	0.007	0.006	0.006	0.008	0.008	0.006	0.006

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$

Note. All coefficients are estimated with random-effects models accounting for firm-and year-specific effects. Standard errors are shown in parentheses. Variables are rescaled. Partisanship I = *gov\_cent1*; Partisanship II= the party of the president; DV=Effective Tax Rates (ETR).

Table 3.2: Estimated Effects of Partisan Governments on Corporate Tax Policy Transparency in the Manufacturing Industry

As the second strategy to test policy transparency, I include a variable, a degree of capital intensity of a firm. The reason is that existing studies find that capital intensive firms are more associated with right-leaning governments whereas labor intensive firms are associated with left-leaning governments (Pinto and Pinto 2008; Smith 2013). Table 3.3 presents the results. Models 1-4 represent results of the first measure of government partisanship (*Democratic Party*) while Models 5-8 represent results of the second measure of government partisanship (*the party of the president*). As seen in Table 3.3, the findings show that capital intensive firms pay less in taxes than labor-intensive firms while firms on average pay higher tax rates under Democratic Party than under the Republican Party. To examine whether there is a relationship between partisanship and tax rates capital intensive firms pay, I include an interaction term in the model and report the results in Table 3.3. The coefficient on the interaction term has a positive sign in Model 4, suggesting that capital intensive firms pay more in taxes under the Democratic Party than under the Republican Party.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
(Intercept)	0.320*** (0.006)	0.322*** (0.006)	0.251*** (0.016)	0.254*** (0.017)	0.331*** (0.007)	0.329*** (0.008)	0.268*** (0.018)	0.266*** (0.018)
Capital Intensity	-0.005 (0.004)	-0.008 (0.004)	0.000 (0.004)	-0.005 (0.005)	-0.007 (0.004)	-0.003 (0.004)	0.000 (0.004)	0.005 (0.004)
Partisanship (gov_cent2)	0.011 (0.008)	0.007 (0.008)	0.018*** (0.005)	0.012* (0.005)				
Capital Intensity × Partisanship(gov_cent2)		0.007 (0.004)		0.011* (0.005)				
Republican President					-0.005 (0.009)	-0.000 (0.000)	-0.016*** (0.004)	-0.011* (0.005)
Capital Intensity × Republican President						-0.007* (0.004)		-0.010* (0.004)
Multinationality			-0.055*** (0.007)	-0.055*** (0.007)			-0.055*** (0.007)	-0.055*** (0.007)
Asset			0.034*** (0.009)	0.034*** (0.009)			0.034*** (0.009)	0.034*** (0.009)
Firm Performance			0.162*** (0.012)	0.162*** (0.012)			0.162*** (0.012)	0.162*** (0.012)
ETR <sub>t-1</sub>			0.301*** (0.008)	0.301*** (0.008)			0.301*** (0.008)	0.301*** (0.008)
FDI			-0.082*** (0.018)	-0.082*** (0.018)			-0.082*** (0.018)	-0.082*** (0.018)
Unemployment			-0.060*** (0.020)	-0.060*** (0.020)			-0.061*** (0.021)	-0.061*** (0.021)
AIC	-29974	-29976	-20771	-20774	-30664	-30666	-20769	-20772
BIC	-29929	-29922	-20685	-20682	-30618	-30612	-20684	-20680
Log Likelihood	14993	14995	10397	10400	15338	15340	10396	10399
Num. obs.	15551	15551	9285	9285	16018	16018	9285	9285
Num. groups: Firm	900	900	762	762	900	900	762	762
Num. groups: Year	24	24	23	23	25	25	23	23
Var: Firm (Intercept)	0.005	0.005	0.002	0.002	0.005	0.005	0.002	0.002
Var: year (Intercept)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Var: Residual	0.007	0.007	0.006	0.006	0.007	0.007	0.006	0.006

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

Note. All coefficients are estimated with random-effects models accounting for firm- and year-specific effects. Standard errors are shown in parentheses. Variables are rescaled. Partisanship I = *gov\_cen1*; Partisanship II = the party of the president; DV = Effective Tax Rates (ETR).

Table 3.3: Estimated Effects of Partisan Governments on Corporate Tax Policy Transparency with Firms' Capital Intensity

To explore a substantive effect of government partisanship on tax rates capital intensive firms pay, I calculate the marginal effect of government partisanship on ETRs conditional on firms' capital intensity and present them in Figure 3.2. The left panel shows results of government partisanship measured as posts held by the Democratic Party. As seen on the left panel in Figure 3.2, the coefficient on government partisanship is positive, meaning that capital intensive firms pay higher tax rates when the Democratic Party governs. When I use an alternative measure of government partisanship, the party of the president, the results are reversed in the direction. Capital intensive firms pay higher tax rates under the Republican president than under the Democrat president.

In sum, firms on average pay higher tax rates under left-wing governments than right-wing governments; firms in the manufacturing industry and capital intensive firms pay less in taxes relative to others. Yet the direction of the interaction terms partially corresponds to the theoretical expectation, but such an effect is insignificant. Thus, the results suggest that partisan politics plays a central role in the national tax rate setting, but such an effect is not equally applied to all firms within a country mainly due to various policy tools that contribute to differences in tax rates firms pay across firms or industries.

In addition to the main findings, Table 5.1 presents the results of control variables such as firm characteristic and macroeconomic variables.<sup>10</sup> The control vari-

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<sup>10</sup>Because of multicollinearity issues, I dropped several variables such as spending, trade, capital market liberalization, and debt. The correlations are FDI and spending (0.659), spending and trade (0.721), trade and FDI (0.773), unemployment and debt (0.759), spending and unemployment (0.721), unemployment and growth (0.7).

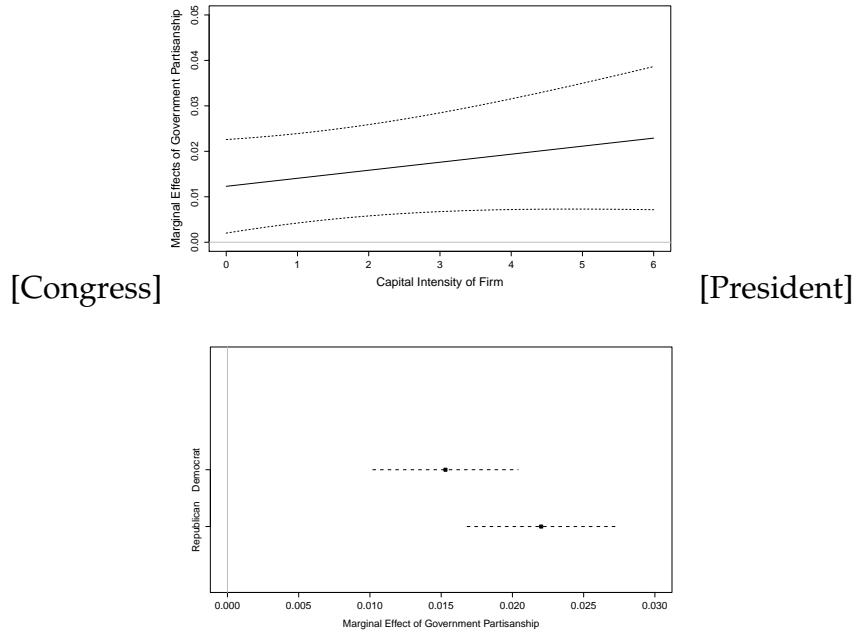


Figure 3.2.: Marginal Effect of Government Partisanship on Tax Rates

Notes. The marginal effect plot is based on Model 4 and Model 8 in Table 3. The coefficient on the interaction term (capital intensity of a firm and the Democratic Party) is 0.011 (0.005). The coefficient on the interaction term (capital intensity of a firm and the Republican president) is -0.01 (0.005). The dash lines are 95% confidence intervals.

ables are generally significant and have the expected signs. With respect to firm-characteristic variables, the effect of asset variable as a proxy for firm size is positive and statistically significant. This result is consistent with the expectation that larger firms face higher ETRs since they receive more attention from the public and stricter regulation from the government although these large firms may have more resources to reduce the tax rate. Similarly, firm performance (ROA) has a positive impact on the ETRs, implying that more profitable firms pay higher tax rates as expected. However, capital intensity is positively correlated with ETRs,

which is not consistent with the expectation that more capital-intensive firms pay less in taxes because tax policy allows them to have tax incentives for depreciation allowance on capital investment. One explanation for the result is that more capital intensive firms become more profitable and competitive and thus face higher tax rates despite tax incentives that governments offer. What is more, as firms become more international, they pay lower tax rates. When it comes to the national-level conditions, FDI flows have a negative impact on tax rates, meaning that firms move production abroad and may avoid high tax rates through their international transactions. The unemployment rate is negatively associated with tax rates, suggesting that an economic downturn leads to low profits and tax rates.

### **3.3 Conclusion**

I have argued that firms on average pay higher tax rates under the Democratic Party than under the Republican Party, but some firms and industries pay lower tax rates under the Democratic Party than the Republican Party mainly due to various policy instruments to offset high tax rates. The findings partially support the argument. The sign of interaction terms is consistent with the theoretical expectation, but such an effect is insignificant. The interesting findings are that firms in the manufacturing industry have a lower level of tax rates than those in other industries, and their tax rates are much lower when the Democratic Party



governs. Capital-intensive firms pay less in taxes than labor-intensive firms, but their tax rates are higher when the Democratic Party governs.

The findings mean that partisanship still plays a central role in setting national tax rates, but certain firms and industries pay different levels of tax rates because partisan governments employ a wide range of policy tools to reduce targeted firms' tax rates. The results presented here imply that constituency costs drive left-wing governments to be more concerned than right-wing governments about the national tax rates. Yet they also provide selective tax incentives or other types of policy tools to counter high tax rates for economic growth. Thus, I show that the effect of government partisanship on corporate tax policy is more nuanced than previous studies explain.

### 3.4 Appendix

Table 3.4: A Summary of Variables

Statistic	N	Mean	St. Dev.	Min	Max
Effective Tax Rate (ETR)	17,094	0.325	0.111	0.000	0.600
Multinationality	11,818	0.240	0.227	0.000	1.000
Asset	18,473	8.012	1.741	2.303	14.990
Capital Intensity	17,314	0.576	0.395	0.000	5.954
Firm Performance (ROA)	18,441	0.085	0.090	0.000	2.542
FDI	18,149	40.590	12.920	18.510	60.560
Unemployment	18,149	5.758	1.388	3.990	9.630
Growth	18,677	2.671	1.773	-2.802	4.847
Partisanship (gov_cent2)	18,149	0.412	0.453	0.000	1.000
Inclan and Quinn's Score	18,677	1.076	0.492	0.414	1.545

Table 3.5: Data and Variables Sources

Variables	Descriptions	Sources
ETR	A ratio of current income tax expense divided by pretax income/current tax expense/pretax income	Compustat North America database through WRDS
Government partisanship	the percentage of cabinet posts controlled by left-wing parties	Comparative Political Data Set (CPDS) by Armingeon et al 2010
	A dummy variable coded 1 if the party of the president is the Democratic party and 0 otherwise	
	Combination of partisan control of the Presidency and Congress. Percentage of seats as the indicator of partisan control of Congress, with a positive sign if Democrats are majority and a negative sign if Republicans are majority, and added it to an indicator for partisan control of the Presidency (1=Democrats, -1=Republican) developed by Quinn and Shaprio (2001)	
Control Variables		
Size	the natural logarithm of a firm's total assets	
Capital Intensity	the net value of firms' property, plant, and equipment (PPE) divided by its total assets	
Firm performance	A ratio of a firm's pretax income(excluding special items) to its total assets	
Multinationality of firms	A ratio of sales from foreign operations to total sales	
FDI	A dummy variable coded 1 if the company reports any foreign sales and 0 otherwise	UNCTAD database
Unemployment	a total FDI flows with outward and inward as a percentage share of GDP	US Commerce Department Database
	the percent of the labor force unemployed	

Notes. Data for firm-level variables are available from Compustat North America Database through Wharton Research Data Services (WRDS).



## Chapter 4

# Empirical Analyses: Corporate Tax Legislation in the United States

In addition to indirect firm-level evidence provided in Chapter 3, this chapter shows more direct evidence to support my argument by focusing on Congressional roll call votes on corporate tax bills from 1986 to 2011 in the United States. Voting demonstrates legislative activity, showing how economic and political considerations affect legislators' voting behavior and how legislators take positions and claim credit on policy issues. My expectation is that left-wing governments will maintain high tax rates but provide generous tax incentives to firms that lower their tax burden. To this end, I conduct two empirical analyses in this chapter. First, I measure ideal points of legislators on roll call votes covering tax rates and tax incentives. Second, I examine what determines legislators' behaviors on corporate tax policy transparency. To this end, I first describe a brief introduc-

tion of the US tax policy-making process. Next, I describe the data and statistical models. Finally, I present the results of the empirical analyses.

## **4.1 Research Design**

### **4.1.1 Background on United States Tax Policymaking Process**

The United States constitution highlights the checks and balances that limit the abuse of powers of government through separation of powers. In particular, the formation of policy, particularly tax policy, reflects such characteristics that the United States constitution underscores. For example, in formulating tax policy, both houses of Congress (the House of Representatives and the Senate) must approve federal tax legislation. Then, if the President signs it, it becomes law.<sup>1</sup> Thus, the tax policymaking process demonstrates the checks and balances that the United States constitution underlines.

Congress plays a primary role in making tax laws since the Constitution indicates that all bills about increases in tax revenues should be addressed in the House of Representatives. The Ways and Means Committee in the House of Representatives and the Senate Finance Committee mainly address tax matters in Congress. Both committees propose tax reform drafts such as international taxation, tax administration, small business taxation, cost recovery, and accounting. Although these committees in both chambers address tax issues, members

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<sup>1</sup>See Solomon (2014) for more details on the United States tax policy making process. This section heavily relies on his work.

of Congress who are not in these committees can also propose legislation. Besides, the Joint Committee on Taxation also assists committees and members of the House and Senate on tax legislative matters. Thus, the Ways and Means Committee in the House of Representatives, the Senate Finance Committee, and the Joint Committee on Taxation play a central role in tax matters in Congress. If each committee approves a bill by a majority vote, then the full House and Senate will consider endorsing the bill by majority vote if there are no filibusters in the process. Subsequently, an identical bill passed by the House of Representative and the Senate is sent to the president for his signature. It becomes law if the president signs the bill.

Although Congress is a central actor in making tax legislation, the president and his administration also influence the formation of tax policy. They propose tax legislative proposals as well as other tax policy documents. The administration also creates commissions. For example, the Obama administration created the National Commission on Fiscal Responsibility and Reform. This commission recommended substantial federal spending reductions accompanied by tax reform that eliminated many deductions, reduced tax rates, and reduced the budget deficits. Also, the Internal Revenue Service (IRS) administers the tax law and improves tax administration by proposing recommendations for law changes to prevent future taxpayer difficulties, including changes to protect taxpayer rights.

Besides legislation in Congress, regulations are equally important in making federal tax policy. The Internal Revenue Code (IRC), the foundation of the United

States federal tax system, does not address all tax questions. Congress delegated general authority to the Treasury Department to release all rules and regulations to enforce the laws as needed. The Treasury Department advises the administration and prepares regulation regarding tax legislation. The IRS administers the tax law and addresses all issues involving particular taxpayers. Thus, the United States federal tax policy can take various forms. These are tax laws, Treasury Department regulations, published guidance by the Treasury Department, guidance by the IRS relating to particular taxpayers, IRS administrative initiatives and IRT internal guidance, tax treaties, and other intergovernmental agreements, and court opinions in litigated cases.

#### **4.1.2 Measuring Ideal Points of Legislators: Data and Methods**

In the first empirical analysis, I analyze the voting patterns of senators from 1986 to 2011 to examine how legislators vote on corporate tax policy with respect to both rates and tax incentives. I also analyze the House votes to perform robustness checks for the results of the Senate votes and report them in the robustness check section. There are two main reasons I focus on senators' votes. First, the Senate roll-call votes show less partisanship than the House votes since senators answer to a larger constituency. Second, the Senate is less vulnerable to agenda control by the majority party since senators can offer amendments with fewer restrictions, possibly reducing the selection bias.<sup>2</sup> The period starts in 1986 because

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<sup>2</sup>Peters (2014) and Jeong (2009) clearly discuss this issue. See also Hartog and Monroe (2011) and Lee (2009).



Congress implemented major corporate tax reform in that year. Thus, looking at the changes after the 1986 tax reform allows us to examine the dynamics of partisan politics on tax bills.

I collected votes that determine the corporate tax rate and those that determine tax incentives in Vote View, relying on two criteria.<sup>3</sup> First, votes had clear effects on corporate tax policy in terms of tax rates and/or tax incentives. I include the final passage of corporate tax bills that reflect a clear measure of legislators' preferences on corporate tax policy that reduces capital tax rates or increases tax incentives. Second, votes did not concern other policy areas. All the selected bills received roll call votes in their respective chamber. Table A3 in the Appendix reports more information about the bills.

I determined votes on five tax bills on tax rates: "Taxpayer Relief Act of 1997," "Jobs and Growth Tax Relief Reconciliation Act of 2003," "Tax Increase Prevention and Reconciliation Act of 2005," "Tax Relief Unemployment Insurance Reauthorization and Job Creation Act of 2010," and "The American Taxpayer Relief Act of 2012." All were major legislative acts as reported by the Tax Policy Center of the Brookings Institution (The Tax Policy Center 2015).<sup>4</sup>

The second set of votes provides tax incentives to certain businesses, which the bills call tax expenditures. I focus on the depreciation tax incentive among various types of tax incentives for two reasons. First, the depreciation tax incentive is one

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<sup>3</sup>To capture all votes relevant to corporate tax bills, I highly relied on a report, major legislative acts, released by the Tax Policy Center from the Brookings Institution.

<sup>4</sup>The report covers major legislation by Act from 1981 to 2013. For more information, visit [www.taxpolicycenter.org/legislation/index.cfm](http://www.taxpolicycenter.org/legislation/index.cfm).

of the largest tax incentives provided in the United States. The report of the Joint Committee on Taxation states that the largest corporate tax expenditure is the domestic production activities deduction, with an estimated revenue loss of \$12.2 billion and the deferral of income earned abroad with an estimated revenue loss of \$83.4 billion.<sup>5</sup> Second, Congress extended the depreciation system in 1986, which significantly accelerated depreciation on tangible property, while repealing the investment tax credit (Sullivan 2011).<sup>6</sup> Thus, depreciation allowance is a unique case that will illuminate the effect of partisan politics on tax incentives. The report released by Joint Committee on Taxation (2011) provides a listing of three tax bill that affects the depreciation system in the period of focus: “The Job Creation and Worker Assistance Act of 2002,” “The Economic Stimulus Act of 2008,” and “The American Recovery and Reinvestment Act of 2009.” Table 4.5 in the Appendix reports more information about each bill.

Each vote is coded as 1 if a senator casts a “yea” vote and 0 for a “nay” vote. Each voting legislator is coded as 1 for Republican affiliation and 0 for Democrat affiliation.

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<sup>5</sup>See Keightley and Sherlock (2014) 2014, pp.4-5. Beyond these two largest tax expenditures, there are largest corporate tax expenditures in FY 2014 include deferral of gain on like-kind exchanges, exclusion of interest on public purpose state and local government bonds, and deferral of gain on non-dealer installment sales. See Joint Committee on Taxation (2014).

<sup>6</sup>Depreciation allowances reduce tax rates paid by certain industries or firms that belong to this criteria. For example, suppose Corporation A made 1 million in profit, but the value of its machinery has depreciated by 5000 dollars. Then this would reduce its tax liability by 30 percent, which is below 35 percent of the statutory tax rate.

### 4.1.3 Statistical Methods

Data are the tax legislation on tax rates and tax incentives, which constitute binary responses to multiple votes from senators. To measure ideal points of legislators on corporate tax bills, I employ an item response theory (IRT) model as a measurement model for binary responses.<sup>7</sup> IRT models link binary response variables to a single latent variable, showing the relationship between item responses and the latent variable. Item responses as observable indicators can help measure the latent variables indirectly.

The reason why I employ a measurement model is that IRT models can provide vote-specific characteristics, such as difficulty and discrimination parameters.<sup>8</sup> The difficulty parameter indicates the probability of answering an item correctly given the ability level of a respondent, suggesting how easy or difficult an item is. The discrimination parameter represents how well an item discriminates among different trait levels. It indicates how strongly related the item is to the latent trait similar to a loading in a factor analysis. Items with high discrimination parameters are better able to differentiate respondents.

Given these two parameters, IRT models allow the analysis to determine which items (here, votes) better predict the trait of the legislator (here, party affiliation).

Another benefit of an IRT model is that a researcher can use them evaluate or es-

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<sup>7</sup>Educational testing, psychological measurements, and political science research have widely used IRT models. See Clinton, Jackman and Rivers (2004); Jackman (2001); Martin and Quinn (2002); Jeong (2009).

<sup>8</sup>I also run a logistic regression model of votes on each bill and all bills using the Senate votes. The results remain unchanged and are discussed in the robustness checks.

timate the ability level of all legislators on the same continuum, legislators might have different difficulties across bills. Besides the advantages of the IRT model, Bayesian inference is more appropriate to estimate the latent traits of legislators on multiple votes since it allows for estimating the uncertainty of parameters and treating unobservable parameters probabilistically.<sup>9</sup>

In understanding the structure of data based on the IRT model, the binary response is whether or not legislators voted “yea.” Legislators’ latent trait is their underlying point of voting behavior on multiple votes. An item’s difficulty indicates the degree to which votes relate to the occurrence of voting behavior variable. An item’s discrimination refers to the degree to which the vote distinguishes levels of the latent voting behavior variable. In an IRT model, the probability that legislator  $i$  votes “yea” on a vote  $j$  can be written as:

$$\begin{aligned} Pr(y_{ij} = 1 | \theta_i, a_j, b_j) &= \Phi(a_j \theta_i - b_j) \\ \theta_i &\sim N(X_i \beta, \sigma^2) \end{aligned}$$

where  $\beta$ ,  $\sigma^2$ , and  $X_i$  represent a vector of coefficients, the variance of ideal points, and a vector of covariates for legislator  $i$ , respectively.  $\theta_i$  is the ideal point

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<sup>9</sup>The software package that I used to perform Bayesian inference for the IRT model is MCMCpack (Martin, Quinn and Park 2011). I used a non-informative prior. I ran 200,000 iterations and discarded the first 10,000 burn-in iterations to ensure the chain has reached a steady state. I also did several diagnostics for convergence such as plots of posteriors and Geweke index and found that there was no evidence for lack of convergence.

of legislator  $i$ ,  $a_j$  is a discrimination parameter for vote  $j$ , and  $b_j$  is a difficulty parameter for vote  $j$ .

## 4.2 Results

The results from the statistical models support the hypothesis. The empirical analysis demonstrates that Democrats oppose reductions in tax rates but favor tax incentives. The additional empirical analysis shows that legislative behavior on corporate tax policy is determined by constituents' economic interests and legislators' political party. Overall, there is a strong relationship between the partisan orientation of legislators and tax policy transparency.

### 4.2.1 Measuring Ideal Points of Legislators

Figure 4.1 presents caterpillar plots ranking Senators by their value of ideal points in both tax rates and tax incentives. As Figure 2 shows, there are clear ideological differences between parties. Republicans have higher scores than most Democrats on tax rates in Figure 4.1, but they have smaller scores on tax incentives in Figure 4.5. These results suggest that Democrats tend to vote against reductions in tax rates but agree to vote for generous tax incentives, as expected. These findings also imply that Democrats oppose unpopular tax cut issues for their core constituency but court support from firms to increase chances of winning elections. However, there is much uncertainty about these estimates, which the

width of most confidence intervals reflects, since we have few items to estimate the latent factors.

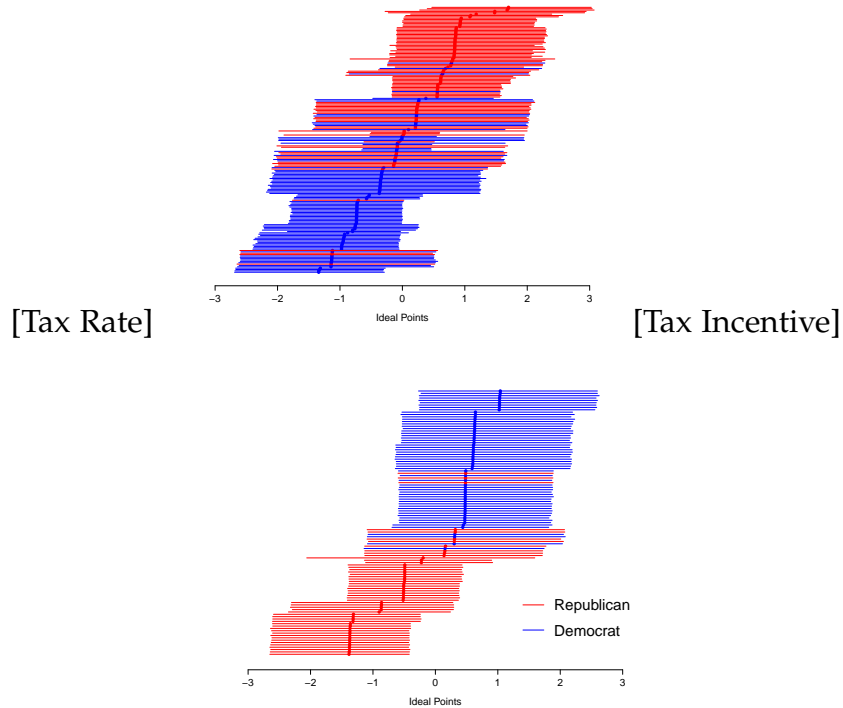


Figure 4.1.: Estimates and 95 % Confidence Intervals for Senators' Positions by Party

In addition to the ideal points of legislators, Figure 4.2 displays the density plots of ideal points for each party and shows a similar result: Republicans have higher scores than Democrats, and the distance between the median legislator of each party is huge in Figure 4.2. Furthermore, the location of the median legislator is between both parties, suggesting that senators from both parties are more polarized on tax votes. By contrast, the result of tax incentives shows the opposite: Democrats have higher scores than Republicans, and the distance between

the median legislator of each party is huge in Figure 4.2. In particular, the location of the median legislator is closer to the location of the Democratic median, implying that Democrats have controlled the tax issue over time.

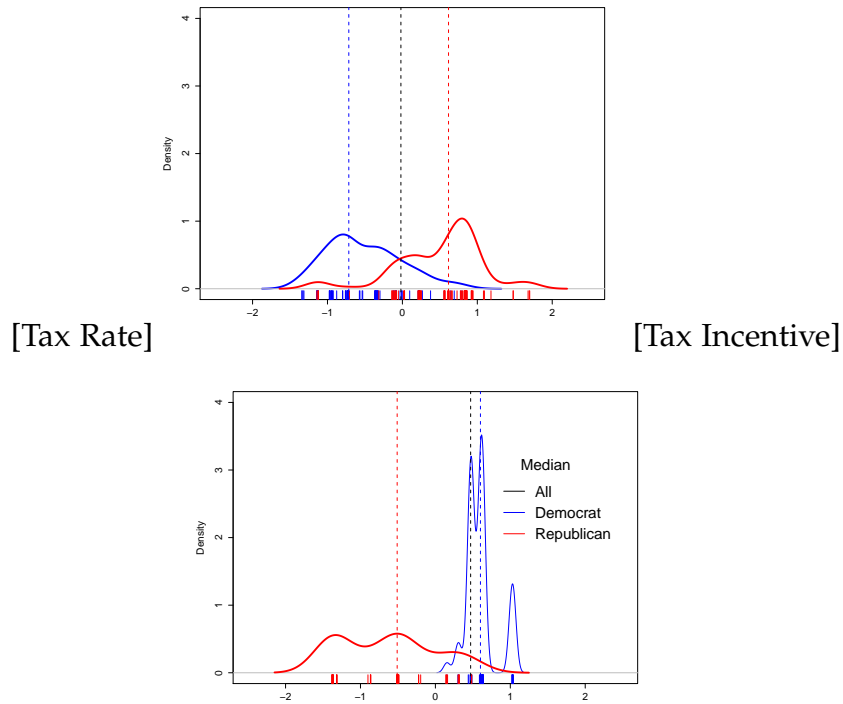


Figure 4.2.: Density plots for each party with positions of the median legislator, the median legislator in the Democratic party, and the median legislator in the Republican party

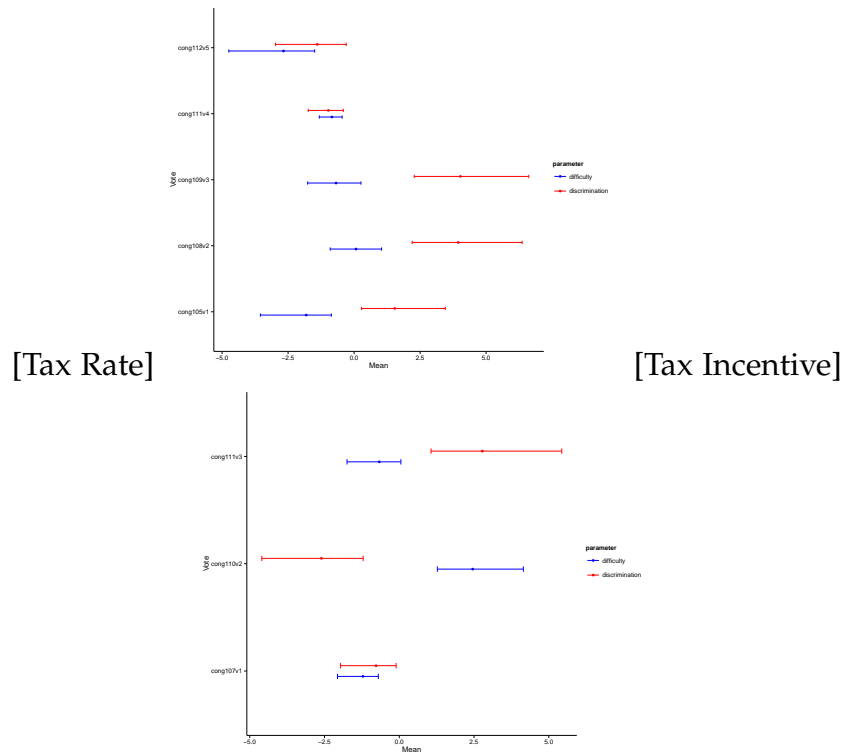
In line with the ideal points of legislators, the IRT model presents the difficulty and discrimination parameters for each item, as seen in Figure reffig: ch4f3. On the one hand, the difficulty parameter indicates whether respondents answer positively. The higher the value of the difficulty parameter, the more likely that there is a positive response (more difficult items). On the other hand, the discrimination parameter indicates whether an item differentiates subjects. The larger

the value the discrimination parameter takes, the more easily the model can discriminate between two legislators with close values on factor scores. In Figure 4.3, we see that “Taxpayer Relief Act of 1997 (congress105v1)” and “The American Taxpayer Relief Act of 2012 (congress112v5)” are the less decisive pieces of legislation. The difficulty parameter is either very high or very low, indicating that most senators voted either in favor or against these items. Indeed, the small absolute values for discrimination parameters tell us that they are not very good at sorting legislators of different ideological positions. On the other hand, we see that “Jobs and Growth Tax Relief Reconciliation Act of 2003 (congress108v2)” and “The American Taxpayer Relief Act of 2012 (congress 112v5)” have high discrimination values, suggesting these acts are useful at sorting senators’ position.

Similarly, Figure 4.3 presents the difficulty and discrimination parameters for tax incentive items. From the fact that the difficulty parameter has a low value for “The American Recovery and Reinvestment Act of 2009 (congress111v3)” and a high value for “The Job Creation and Worker Assistance Act of 2002 (congress107v1)”, we see these are not decisive pieces of legislation. On the other hand, from the fact that “The Economic Stimulus Act of 2008 (congress 110v2)” and “The American Recovery and Reinvestment Act of 2009 (congress 111v3)” have the largest absolute values of discrimination parameters, we can surmise these bills are good at sorting legislators’ ideological positions.



Figure 4.3.: Difficulty and Discrimination Parameters with 95% Confidence Intervals



Notes. (a) Tax Rate: congress105v1=Taxpayer Relief Act of 1997; congress108v2= Jobs and Growth Tax Relief Reconciliation Act of 2003; congress 109v3=Tax Increase Prevention and Reconciliation Act of 2005; congress111v4=Tax Relief Unemployment Insurance Reauthorization and Job Creation Act of 2010; and congress112v5=The American Taxpayer Relief Act of 2012. (b) Tax Incentive: congress107v1= The Job Creation and Worker Assistance Act of 2002; congress110v2=The Economic Stimulus Act of 2008; congress111v3=The American Recovery and Reinvestment Act of 2009.

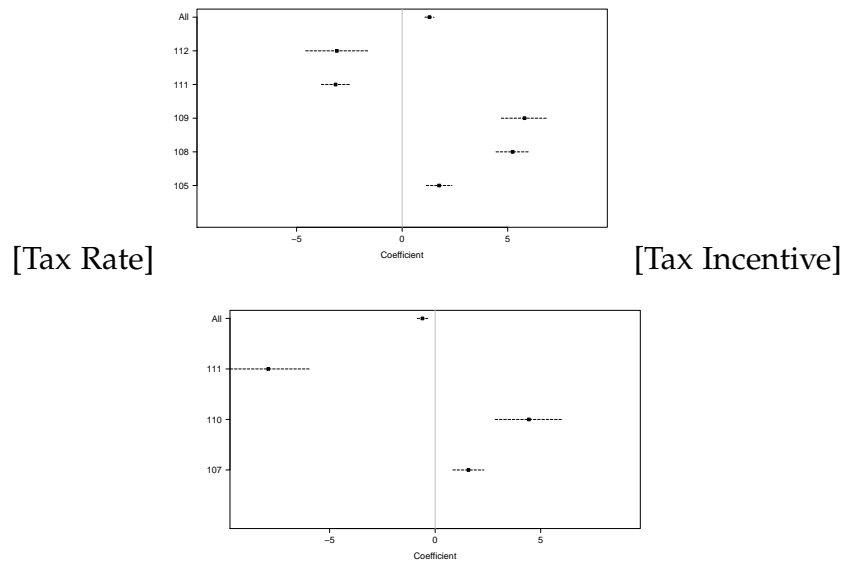
## 4.2.2 Robustness Checks

I perform two robustness checks in this section. I run a model of votes on each agreement and all agreements in both the Senate and the House through a logistic regression model. First, Figure 4.4 displays estimates without control variables using the senators' votes, and Table A6 in the Appendix presents all results with

and without control variables. The results of votes on all agreements related to both tax rate and tax incentive in the Senate are consistent with the theoretical expectation: Republican senators tend to support reductions in taxes and oppose provision of tax incentives. Yet some results on each agreement do not correspond to the direction of the argument. For example, Republican senators tend to oppose two tax rate-related agreements: the Tax Relief Unemployment Insurance Reauthorization and Job Creation Act of 2010 and the American Taxpayer Relief Act of 2012. Furthermore, Republican senators tend to agree with tax incentives as stipulated in the Job Creation and Worker Assistant Act of 2002 and the Economic Stimulus Act 2012.

As the second robustness check, I run the same models using the House votes. Figure 4.5 displays the results without control variables, and Table A7 in the Appendix presents all results with and without control variables. The findings are not consistent with the theoretical argument that Republican legislators tend to oppose reductions in tax rates but support provision of tax incentives more than Democrat legislators do. Yet some results reveal that Republicans tend to agree with reductions in tax rates. These are the Jobs and Growth Tax Relief Reconciliation Act of 2003 and Tax Relief Unemployment Insurance Reauthorization and Job Creation Act of 2010. When it comes to bills related to tax incentives, Republican legislators tend to agree with tax incentives across all models.

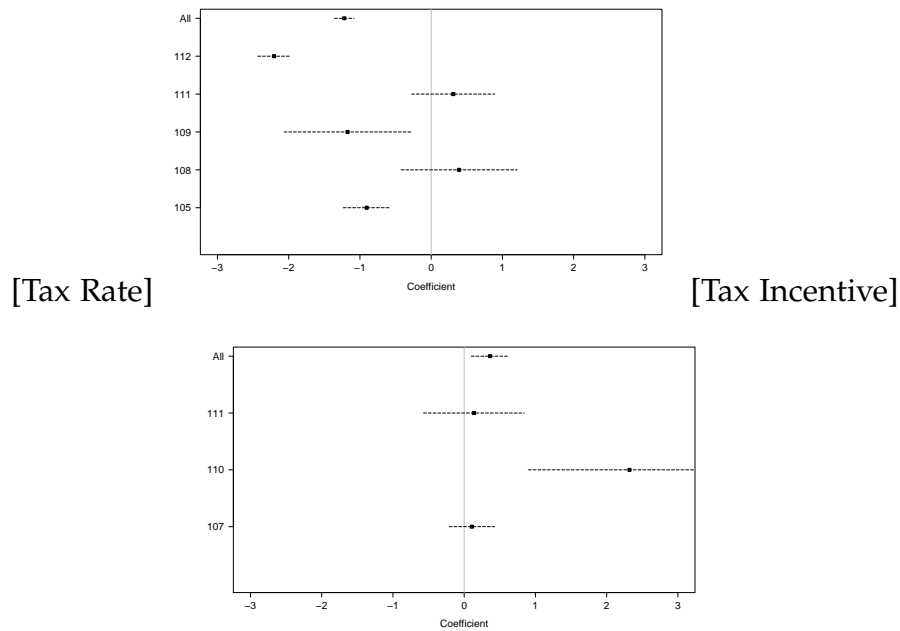
Figure 4.4.: Estimates and 95 % Confidence Intervals for the Senate Votes



Notes. Table A6 and A7 in the Appendix presents results reported here. All estimates are obtained from logistic regression models without control variables. Data are the Senate votes. (a) **Tax Rate:** congress105v1=Taxpayer Relief Act of 1997; congress108v2= Jobs and Growth Tax Relief Reconciliation Act of 2003; congress 109v3=Tax Increase Prevention and Reconciliation Act of 2005; congress111v4=Tax Relief Unemployment Insurance Reauthorization and Job Creation Act of 2010; and congress112v5=The American Taxpayer Relief Act of 2012. (b) **Tax Incentive:** congress107v1= The Job Creation and Worker Assistance Act of 2002; congress110v2=The Economic Stimulus Act of 2008; congress111v3=The American Recovery and Reinvestment Act of 2009.

To sum up, the results obtained from the logistic regression models for each bill and all bills in the Senate are partially consistent with the ideal points estimates of senators discussed in the main result section. Yet the findings of the House votes are not consistent with those of the Senate votes.

Figure 4.5.: Estimates and 95 % Confidence Intervals for the House Votes



Notes. Table A8 and A9 in the Appendix presents all results reported here. All estimates are obtained from logistic regression models without control variables. Data are the House votes. (a) **Tax Rate**: congress105v1=Taxpayer Relief Act of 1997; congress108v2= Jobs and Growth Tax Relief Reconciliation Act of 2003; congress 109v3=Tax Increase Prevention and Reconciliation Act of 2005; congress111v4=Tax Relief Unemployment Insurance Reauthorization and Job Creation Act of 2010; and congress112v5=The American Taxpayer Relief Act of 2012. (b) **Tax Incentive**: congress107v1= The Job Creation and Worker Assistance Act of 2002; congress110v2=The Economic Stimulus Act of 2008; congress111v3=The American Recovery and Reinvestment Act of 2009.

### 4.2.3 Additional Analysis: Determinants of Legislative Behavior on Corporate Tax Bills

#### Data and Methods

Although ideal points of legislators on corporate tax bills may show a relationship between the partisan orientation of legislators and policy transparency, they

do not demonstrate directly what drives the relationship. In the empirical analysis below, I explore what determines legislative behavior on corporate tax policy by running regression models. The primary dependent variable is each legislator's ideal point, which IRT model discussed in the main results above provides.

My independent variables capture legislators' connection to economic interests of the constituency and their political party. These expectations are consistent with previous studies that explore legislative behavior through roll-call votes on a wide range of foreign economic policies in the US context.<sup>10</sup>

Existing studies have shown that two types of constituent influences affect legislators' behavior: (a) class-based coalitions and (b) industry-based coalitions (Hiscox 2002; Jeong 2009). For example, the trade policy literature demonstrates that the Democratic Party tends to represent the interests of labor and import-competing industries and to favor trade protection. However, the Republican Party tends to represent the interests of capital and export-competing industries and to favor free trade policy. This logic can be applied to corporate tax policy. Following Hiscox (2002) and Jeong (2009), I measure the interest of labor as total employment in manufacturing as a share of each state's total population. The dataset that I use was collected from the 1992 Census of Manufacturers and Census of Mining for the period between 1986 and 2010.

The second dataset I use consists of measures of exporting industries and import-competing industries in each state. The measures of the weight of ex-

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<sup>10</sup>For example, see Jeong (2009) and Rickard (2015) for trade policy; Galantucci (2014) for exchange rate policy; Milner and Tingley (2010) for foreign aid, and Peters (2014) for immigration policy.

porting and import- competing industries in a state reflect the total production of the top ten leading exporting and import-competing industries as a proportion of state income. The industry-level import and export data were from the U.S. International Trade Commission website based on the year 2002. The state-level industry production data were from the 1992 and 2002 Census of Manufacturers, Census of Agriculture, and Census of Mining. These variables are standardized so that the coefficients are comparable. I use datasets of constituents' economic interests that Jeong (2009) assembled.

The second independent variable is a legislator' political party. I use a dichotomous variable, which measures whether a legislator is a Republican or Democrat. A legislator is coded 1 for Republican and 0 for Democrat.

Using data Prillaman and Meier (2014) assembled, I include a set of control variables, which cover employment rates (change in percentage of workers employed), growth rates of gross product of state, government ideology of state, and union density in the manufacturing industry at the state level. These variables control for the confounding effects on the partisan orientation of legislators and voting on tax bills. Although these indicators capture the confounding effects, the causal arrows among predictors are ambiguous. Thus, including these control variables in the model can generate post-treatment bias that should not be

included as control variables (Gelman and Hill 2006). For this reason, I report the results of models that exclude these variables in the results section.<sup>11</sup>

I employ a linear regression model to examine the determinants of legislators' voting behavior on the tax bills: tax rate and tax incentive. The first dependent variable is the tax rate, and the second dependent variable is the tax incentive. Descriptive statistics and data sources for each of the variables appear in Table 4.2 and Table 4.3 in the Appendix.

## **Results**

Table 4.1 reports the results of senators' vote choices on corporate tax bills that were intended to reduce capital tax rates. The first column shows that Republicans are more likely to cast a "yea" vote on reductions in capital gains, as expected. In addition, senators who represent the interests of export and import industries are more likely to vote to reduce the tax rate. On the other hand, senators who represent the interest of labor are unlikely to vote to reduce the tax rate. These results are consistent with the trade protection literature that suggests Democrats are closely associated with the interests of labor.

By contrast, the results of examining tax incentives tell a different story. As Model 3, Republicans are less likely to cast a "yea" vote on tax bills. However, sen-

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<sup>11</sup>I also report the results that include these variables in Table A5 in the Appendix. As it shows, the main results remain unchanged after including all control variables in the models. In the models, all the control variables are median values for the period of consideration.

	DV: Tax Rate		DV: Tax Incentive	
	Model 1	Model 2	Model 3	Model 4
(Intercept)	-0.403*** (0.103)	-0.382** (0.129)	0.506*** (0.111)	0.502*** (0.137)
Republican	1.001*** (0.076)	0.95*** (0.19)	-1.205*** (0.088)	-1.197*** (0.211)
Labor	-2.752* (1.251)	-3.083 (1.713)	2.49 (1.343)	2.545 (1.824)
Export	0.577 (0.414)	0.574 (0.415)	-0.318 (0.455)	-0.318 (0.457)
Import	0.177 (0.483)	0.201 (0.491)	-0.757 (0.529)	-0.763 (0.548)
Republican × Labor		0.695 (2.453)		-0.117 (2.622)
R <sup>2</sup>	0.496	0.497	0.675	0.675
Adj. R <sup>2</sup>	0.486	0.483	0.663	0.66
Num. obs.	195	195	113	113

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$

Table 4.1: Legislative Behavior on the Tax Rate and Tax Incentive Bills

ators that represent the interests of labor have a higher probability of voting “yea” while senators that represent the interests of export and import industries have higher likelihood of voting “nay”. These results suggest that the high proportion of labor induces legislators not only to vote for reductions in capital tax rates, but also to vote to provide tax incentives. In addition, I further examine whether there is an interactive effect between political parties and their constituents’ economic interests: the party to which a senator belongs and the proportion of labor in each state. I found that there is little effect between them. Thus, we can conclude that the vote choices of senators are mainly determined by the ideology of political parties and their constituents’ economic interests.



Two factors can explain the firm association between the Democrats and labor. First, the interest among Democrats in reducing unemployment rates (Hibbs 1977). The manufacturing industry has historically played an important role in the growth in output and employment. It once provided high-wage jobs in the manufacturing sector and supported such jobs elsewhere. Jobs in manufacturing are seen as middle-class jobs. Helper, Krueger and Wial (2015) report that the manufacturing sector accounts for 12 percent of the US economy and about 11 percent of the private-sector workforce, but that the country lost 41 percent of its manufacturing jobs between 1979 and 2009 . Nonetheless, Democrats were highly supportive of manufacturing throughout the period of focus.

Second, the labor sector makes most of its donations to Democrats. The labor sector has increased campaign donations and lobbying efforts over time despite decreasing political power arising from the decline in union membership and changes in economic structures.<sup>12</sup> While they only donated \$76 million in the 2008 election cycle, they donated \$141 million to campaigns and committees in the 2012 election cycle (Vendituoli 2013).

In sum, there are clear differences between parties in tax bills related to tax rates and tax incentives. I find that Democrats are more likely to oppose the reductions in tax rates, but favor generous tax incentives aimed at promoting the manufacturing industry. The finding also shows that legislators' political parties and constituents' economic interests determine legislators' voting behavior on

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<sup>12</sup>For more information, visit <http://www.opensecrets.org>.

corporate tax bills. Consistent with the ideal points measured, Democrats and legislators representing the interests of labor are more likely to oppose reductions in tax rates but favor generous tax incentives for the manufacturing industry.

### **4.3 Conclusion**

In this dissertation, I have argued that left-wing governments are more likely to adopt opaque policy instruments than right-wing governments. Specifically, this research shows that the leftist party in the United States, the Democrats, tend to maintain high corporate tax rates but offer more generous tax incentives than the rightist parties. I explain that constituency costs influence political parties' incentives to adopt more opaque policy. Since voters easily understand the effect of some policy instruments, like tax rates, on their personal welfare, changes in tax rates will face higher constituency costs than opaque policies. At the same time, campaign donations tend to hinge on ETR. As well, lowering ETR promotes job production and growth. Politicians, therefore, have an incentive to lower rates, and left-wing politicians are more likely to minimize constituency costs and maximize their electoral benefits. Since left-wing governments pay a higher constituency cost for lowering corporate tax rates, they have a much stronger incentive to employ opaque instruments than right-wing governments.

I find that Democrats are more likely to oppose tax rate reductions, but favor generous tax incentives aimed at promoting the manufacturing industry. The

finding also shows the importance of the Democratic party's alignment with labor. Consistent with the ideal points measured, Democrats and legislators representing the interests of labor are more likely to oppose reductions in tax rates but favor generous tax incentives for the manufacturing industry.

## 4.4 Appendix

Statistic	N	Mean	St. Dev.	Min	Max
Labor	195	0.070	0.031	0.020	0.220
Capital	195	0.168	0.083	0.030	0.580
Export weight	195	0.128	0.095	0.000	0.451
Import weight	195	0.072	0.080	0.000	0.405
Factor score	196	0.001	0.734	-1.342	1.709
Growth rate	171	5.349	1.094	3.594	8.405
Government ideology	171	42.630	22.820	6.250	94.080
Employment	171	0.247	0.218	-0.229	0.749
Union density	171	12.180	5.696	3.500	25.700

Table 4.2: Descriptive Statistics

Variables	Descriptions	Sources
Roll-call votes	Coded 1 for a yes vote and 0 otherwise	VoteView
Partisanship	1 if a legislator is a Republican and 0 otherwise	
Constituency Influence		Jeong (2009)
Labor	The total employment in manufacturing as a hare of each state's total population	It originally sourced from 1992 Census of Manufacturers and Census of Mining for the period between 1986 and 2010.
Capital	Profits in manufacturing-value-added minus wage payments-as a fraction of state income	
Export	The total production of the top 10 leading exporting industries as a proportion of state income	It originally sourced from the US International Trade Commission and Census of Manufacturers for the year 2002.
Import	The total production of the top 10 leading exporting industries as a proportion of state income	
Control Variables		Prillaman and Meier (2014)
Union density	the percentage of the state's labor force that belonged to a union	Barry T. Hirsch, David A. Macpherson, and Wayne G. Vroman (2001)
Ideology	state government ideology	Berry, William D., Evan J. Ringquist, Richard C. Fording and Russell L. Hanson (1998)
Employment	change in percent employed	Business Dynamic Statistics, US Census Bureau
Growth	growth rate of total gross state product	Regional Economic Information System (REIS), Bureau of Economic Analysis.

*Sources:* All the variables about constituency influences were obtained from Jeong 2009. All the control variables came from Prillaman and Meier (2014), which I used a median value of each variable from 1997 to 2006

Table 4.3: Data and Variables Sources

Congress	Tax Bill	Description
105th	Taxpayer Relief Act of 1997	Reduced capital gains tax rates from 28% and 15% to 20% and 10% respectively
108th	Jobs and Growth Tax Relief Reconciliation Act of 2003	Reduced (for regular income tax and AMT) the 10% and 20% are of taxation on adjusted net capital gains and dividend to 5% and 15% respectively beginning after 5/6/03
109th	Tax Increase Prevention and Reconciliation Act of 2005	Extended the reductions in capital gains and dividends tax rates enacted by JGTRRA through 2010; subjected the sale or exchange of a musical composition or copyright to capital gains treatment (through 12/31/10)
111st	Tax Relief Unemployment Insurance Reauthorization and Job Creation Act of 2010	Extended through 2012 reduced tax rates of 0, 15 percent on long-term capital gains and qualified dividends enacted by JGTRRA
112nd	The American Taxpayer Relief Act of 2012	Permanently extended 0, 15 percent rate structure for long term capital gains and qualified dividends that would otherwise be taxed at a rate below 39.6 percent. Allowed the 20 percent rate to return for long term capital gains and qualified dividends that would otherwise be taxed at a 39.6 percent rate. Repealed the 8 and 18 percent tax rates on capital gains from the sale of assets held for more than five years.

*Sources:* Major legislation by act, 1981-2013 released by tax policy center at Brookings Institution; Joint Committee on Taxation budget estimates and technical explanations; Library of Congress public law summaries.

Table 4.4: Major Enacted Tax legislation on Corporate Tax Rates (1986-2012)

Congress	Tax Bill	Description
107th	The Job Creation and Worker Assistance Act of 2002	Allowed an additional first year 30% depreciation allowance for property acquired between 9/10/01 and 9/11/04 for both regular tax and AMT purposes; extended the net operating loss carryback period from 2 to 5 years for such business losses between those same dates
110th	The Economic Stimulus Act of 2008	For 2008, increased the Section 179 expensing limit to \$250,000; allowed 50 percent bonus depreciation for qualifying investments.
111st	The American Recovery and Reinvestment Act of 2009	Extended through 2009 increased Section 179 expensing; allowed 50 percent bonus depreciation for 2009; increased the NOL carryback period to 5 years; allowed deferral of income on the buying back or exchanging of debt at a discount.

*Sources:* Major legislation by act, 1981-2013 released by tax policy center at Brookings Institution; Joint Committee on Taxation budget estimates and technical explanations; Library of Congress public law summaries.

Table 4.5: Major Enacted Tax legislation on the Depreciation System (1986-2012)

	Model 1	Model 2	Model 3	Model 4
(Intercept)	-0.2193 (0.3816)	-0.2210 (0.3823)	0.0142 (0.4240)	0.0118 (0.4267)
Republican	0.9173*** (0.0831)	1.0592*** (0.2340)	-1.0353*** (0.1107)	-0.9815*** (0.2741)
labor	-3.1237 (1.8642)	-2.3319 (2.2310)	2.5810 (2.1010)	2.8850 (2.5447)
Export	0.4984 (0.5331)	0.4788 (0.5349)	0.0783 (0.6071)	0.0666 (0.6132)
Import	0.0482 (0.5026)	0.0006 (0.5088)	-0.9237 (0.5525)	-0.9571 (0.5772)
Growth	0.0282 (0.0440)	0.0209 (0.0455)	0.0055 (0.0470)	0.0034 (0.0482)
Ideology	-0.0030 (0.0021)	-0.0029 (0.0021)	0.0016 (0.0024)	0.0016 (0.0024)
Employment	-0.3408 (0.2191)	-0.3460 (0.2196)	0.4119 (0.2360)	0.4113 (0.2375)
Union Density	-0.0030 (0.0082)	-0.0041 (0.0084)	0.0152 (0.0103)	0.0148 (0.0105)
Republican $\times$ labor		-1.9859 (3.0610)		-0.7447 (3.4721)
R <sup>2</sup>	0.5154	0.5166	0.7181	0.7182
Adj. R <sup>2</sup>	0.4913	0.4894	0.6902	0.6865
Num. obs.	170	170	90	90

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$

Table 4.6: Legislative Behavior on the Tax rates and Tax incentives Bills



	Each Vote												All Votes	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12		
(Intercept)	0.795* (0.322)	3.405 (3.457)	-2.730*** (0.596)	-9.130 (6.087)	-1.792*** (0.441)	-3.209 (8.922)	2.853*** (0.594)	4.457 (3.823)	4.979*** (1.433)	-0.876 (6.560)	0.401** (0.130)	1.659 (1.026)		
Republican	1.751** (0.611)	2.410** (0.910)	5.236*** (0.791)	7.078*** (1.673)	5.799*** (1.101)	12.601* (5.345)	-3.155*** (0.674)	-1.840* (0.830)	-3.096* (1.471)	-1.644 (1.546)	1.294*** (0.217)	1.558*** (0.276)		
Labor		-30.167 (16.070)		10.887 (20.949)		-49.541 (41.130)		-3.767 (17.773)		-16.023 (25.333)		-6.720 (5.144)		
Export		-2.448 (16.070)		18.148* (8.701)		18.407 (12.682)		-2.716 (4.823)		0.873 (7.328)		-0.944 (1.626)		
Import		-3.344 (4.616)		7.488 (7.553)		-2.982 (9.760)		-5.421 (4.257)		-6.218 (6.944)		-1.565 (1.496)		
Ideology		-0.027 (0.020)		-0.004 (0.030)		-0.049 (0.038)		-0.000 (0.020)		0.014 (0.030)		-0.010 (0.006)		
Growth		0.134 (0.400)		0.271 (0.600)		1.830 (1.322)		-0.470 (0.429)		0.913 (0.800)		-0.061 (0.126)		
Employment		1.200 (1.868)		-0.700 (2.303)		-14.387* (6.430)		1.761 (1.989)		0.379 (2.901)		0.213 (0.631)		
Union Density		0.031 (0.080)		0.055 (0.100)		-0.160 (0.171)		0.109 (0.097)		0.174 (0.191)		0.013 (0.025)		
AIC	88	76	54	50	48	37	81	75	39	33	547	479		
BIC	93	98	60	73	53	59	86	97	44	55	556	516		
Log Likelihood	-42	-29	-25	-16	-22	-9	-38	-28	-17.765	-7.828	-271	-230		
Deviance	84	58	50	32	44	19	77	57	35	15	543	461		
Num. obs.	100	83	102	86	98	83	95	80	98	82	493	438		

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

Note. I estimate the effect of government partisanship on voting behavior of legislators on corporate tax legislation through logistic regression models.

Table 4.7: Effects of Partisanship on Legislative Behavior on Tax Rates with the Senate Votes

	Each Vote								All Votes	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 7	Model 8
(Intercept)	0.989* (0.391)	2.557 (4.255)	-4.942** (1.572)	3.890 (4.566)	5.464** (1.933)	2.518 (7.322)	0.339 (0.174)	1.443 (1.408)	0.339 (0.174)	1.443 (1.408)
Republican	1.576* (0.737)	2.117 (1.542)	4.439** (1.592)	2.816 (1.523)	-7.905*** (2.003)	-8.317** (2.701)	-0.601* (0.251)	-0.897* (0.388)	-0.601* (0.251)	-0.897* (0.388)
Labor		-21.986 (19.564)		-7.778 (16.897)		1.227 (28.342)		-3.779 (6.665)		-3.779 (6.665)
Export		0.263 (5.589)		-6.661 (6.271)		-3.569 (8.933)		-1.436 (2.042)		-1.436 (2.042)
Import		6.911 (5.883)		10.238* (5.149)		-6.199 (7.630)		1.268 (1.812)		1.268 (1.812)
Ideology		-0.014 (0.025)		-0.030 (0.023)		0.002 (0.034)		-0.006 (0.008)		-0.006 (0.008)
Growth		0.394 (0.418)		-0.637 (0.475)		0.530 (0.752)		-0.053 (0.156)		-0.053 (0.156)
Employment		0.621 (2.333)		-1.051 (2.034)		1.410 (3.207)		0.500 (0.780)		0.500 (0.780)
Union Density		-0.111 (0.125)		-0.273 (0.175)		0.058 (0.287)		-0.023 (0.038)		-0.023 (0.038)
AIC	57	45	67	49	25	24	351	280	351	280
BIC	61	62	72	70	30	45	358	310	358	310
Log Likelihood	-26	-13	-31	-15	-10	-3	-173	-131	-173	-131
Deviance	53	27	63	31	21	6	347	262	347	262
Num. obs.	65	48	94	74	96	75	255	197	255	197

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$

Note. I estimate the effect of government partisanship on voting behavior of legislators on corporate tax legislation through bayesian logistic regression models.

Table 4.8: Effects of Partisanship on Legislative Behavior on Tax Incentives with the Senate Votes

	Each Vote												All Votes		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12			
(Intercept)	2.482*** (0.273)	4.781** (1.821)	4.126*** (0.565)	3.055 (5.850)	4.904*** (0.808)	13.392* (5.602)	3.251*** (0.355)	6.234* (2.924)	0.895*** (0.162)	0.131 (1.273)	2.449*** (0.116)	2.787*** (0.739)			
Republican	-0.906** (0.329)	-0.707 (0.377)	0.392 (0.815)	2.560 (1.482)	-1.174 (0.893)	-1.474 (0.935)	0.310 (0.584)	0.034 (0.611)	-2.204*** (0.230)	-2.253*** (0.269)	-1.220*** (0.137)	-1.123*** (0.154)			
Labor		6.101 (10.913)		-21.015 (25.329)		5.986 (29.273)		-5.732 (18.494)		3.356 (7.534)		0.758 (4.127)			
Export		2.156 (4.510)		-4.053 (8.578)		-6.616 (10.894)		1.385 (6.823)		1.772 (2.518)		0.274 (1.438)			
Import		-3.741 (2.465)		-7.853 (7.238)		4.896 (8.383)		0.635 (4.969)		-3.220 (1.901)		-1.215 (0.980)			
Ideology		-0.009 (0.008)		0.009 (0.028)		-0.025 (0.027)		0.001 (0.015)		-0.007 (0.006)		-0.003 (0.004)			
Grwoth		-0.455 (0.238)		0.194 (0.672)		-0.689 (0.599)		-0.222 (0.367)		0.083 (0.156)		-0.058 (0.094)			
Employment		1.236 (1.367)		-5.574 (3.668)		2.570 (3.372)		-1.348 (2.220)		-0.786 (0.886)		-0.360 (0.513)			
Union Density		0.010 (0.040)		0.369 (0.228)		-0.224 (0.134)		-0.076 (0.064)		0.046 (0.026)		0.012 (0.015)			
AIC	284	233	57	36	63	58	109	115	454	408	1691	1390			
BIC	292	268	64	70	71	93	116	149	462	443	1702	1439			
Log Likelihood	-140	-107	-26	-9	-29	-20	-52	-48	-225	-195	-843	-686			
Deviance	280	215	53	18	59	40	105	97	450	390	1687	1372			
Num. obs.	382	339	383	336	381	333	362	326	407	360	2064	1694			

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

Note. I estimate the effect of government partisanship on voting behavior of legislators on corporate tax legislation through logistic regression models.

Table 4.9: Effects of Partisanship on Legislative Behavior on Tax Rates with the House Votes

	Each Vote								All Votes	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8		
(Intercept)	1.975*** (0.212)	3.339 (1.830)	3.885*** (0.517)	5.744 (4.612)	3.888*** (0.488)	-5.699 (5.573)	2.785*** (0.169)	3.435* (1.572)		
Republican	0.108 (0.318)	0.034 (0.360)	2.320 (1.419)	2.130 (1.441)	0.137 (0.707)	-0.001 (0.794)	0.364 (0.265)	0.265 (0.311)		
Labor		1.753 (11.106)		-9.893 (27.510)		-13.859 (21.392)		-2.188 (9.231)		
Export		1.143 (4.351)		0.290 (10.006)		2.137 (5.284)		0.125 (3.288)		
Import		1.065 (2.445)		-1.362 (7.377)		5.724 (6.743)		0.908 (2.228)		
Ideology		-0.007 (0.009)		-0.011 (0.024)		0.015 (0.021)		-0.004 (0.008)		
Growth		-0.082 (0.221)		0.166 (0.479)		1.554* (0.743)		0.061 (0.191)		
Employment		1.532 (1.254)		-2.883 (3.334)		-2.021 (2.175)		0.109 (1.092)		
Union Density		-0.072 (0.038)		-0.040 (0.110)		0.174 (0.109)		-0.041 (0.032)		
AIC	275	251	43	54	73	65	486	402		
BIC	283	286	51	89	81	100	496	446		
Log Likelihood	-135	-116	-19	-18	-34	-23	-241	-192		
Deviance	271	233	39	36	69	47	482	384		
Num. obs.	377	357	375	353	374	346	1222	1056		

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$   
Note. I estimate the effect of government partisanship on voting behavior of legislators on corporate tax bills through logistic regression models.

Table 4.10: Effects of Partisanship on Legislative Behavior on Tax Incentives with the House Votes

## Chapter 5

# Empirical Analyses: Transfer Pricing Regulations in OECD Countries

In addition to tax legislation discussed in the previous chapter, regulation is another important factor affecting corporate tax policy outcomes in a direct way. In this chapter, I examine the effect of partisan governments on transfer pricing regulations of multinational corporations, which determine the differences in tax rates between domestic firms and multinational ones. My expectation is that left-leaning governments maintain high corporate tax rates but have low levels of transfer pricing regulations to offset the high tax rates relative to right-wing governments. To test my hypothesis, the next section introduces background on transfer pricing and discusses the theoretical expectation. The second section presents research design. I present results in the third section. The final section concludes.

## 5.1 Background and Previous Research

Economic globalization makes it possible for firms to move production abroad. This increasing mobility of firms arising from economic globalization raises new concerns about how to collect taxes from MNCs, which routinely practice tax avoidance. Debt financing and transfer pricing are common tax avoidance strategies. The former takes advantage of the policy that the interest on the debt is tax deductible. It is therefore common for MNCs to finance affiliates in high-tax countries by debt, typically, with loans extended by the parent company or affiliates in other countries, rather than by equity (see for example, Dharmapala and Riedel (2013)). The latter refers to the practice of delivering intermediate goods to other offshore production branches to reduce reported profits to be taxed (Bartelsman and Beetsma 2003; Lohse and Riedel 2013). Empirical studies show that MNCs with subsidiaries across borders frequently use these intra-company transactions and that they avoid significant taxes this way (Bartelsman and Beetsma 2003; Hines 1996; Klassen, Lisowsky and Mescall 2013).

The Organization for Economic Co-operation and Development (OECD) has proposed guidelines to curb MNCs' use of both debt financing and transfer pricing. Examples include the OECD Model Tax Convention and Transfer Pricing Guideline.<sup>1</sup> These guidelines propose the arm's length principle, stating that transactions between related parties, such as two branches of one MNC, need to

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<sup>1</sup>See OECD (2010a) for more information about the historical development of transfer pricing guidelines.

be comparable to transactions with a third party. This principle calls for requiring MNCs to invoice intra-firm transactions at the same price as charged as unaffiliated parties pay (Cristea and Nguyen 2014), and the guidelines impose a penalty on companies which provide incomplete or inaccurate information (Bartelsman and Beetsma 2003; Lohse and Riedel 2013). Many countries have started to adopt these rules to some extent. For example, the United States has one of the toughest and most detailed transfer pricing guidelines in the world. It was the first country to focus on inter-company transactions and began to regulate transfer pricing starting in early 1968. Australia, Germany, Indonesia, Italy, and Japan introduced transfer pricing regulation in the 1980s. Seventeen additional countries adopted transfer pricing regulations between 1990 and 1999, and 12 countries followed between 2001 and 2009. However, Austria, Ireland, Luxembourg, Malaysia, the Philippines, Switzerland, and Thailand never have.<sup>2</sup>

A number of studies address the effect of regulation on multinational corporations' behavior such as investment and profit shifting (Azmar 2010; Baumann and Friehe 2013; Bartelsman and Beetsma 2003; Lohse and Riedel 2013; Klassen and Laplante 2012; Saunders-Scott 2013). For example, Bartelsman and Beetsma (2003) find that the responsiveness of reported value added to tax differentials is stronger for countries with lax enforcement than for those with strong enforcement. In a similar vein, Lohse and Riedel (2012) show that strong enforcement decreases reported profits, although the effect is smaller for countries with high tax rate.

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<sup>2</sup>See Lohse and Riedel (2013) for further information about transfer pricing regulations around the world.

Saunders-Scott (2013) also finds that the levels and changes in enforcement affect profit shifting, suggesting that increased enforcement determines profit shifting and increases the cost of doing business.

While these studies expand our understanding of the effect of regulation on investment decisions and profit shifting, they do not address why governments have different levels of control for transfer pricing. This lack of attention undermines our understanding of how governments respond to tax competition arising from economic globalization. A large body of literature in comparative and international political economy has demonstrated that domestic politics mediates tax competition due to electoral costs.<sup>3</sup> In particular, research suggests that left-wing governments are associated with high corporate tax rates because of the need for redistribution and consumption-driven economic growth strategies (Basinger and Hallerberg 2004; Garrett 1998; Inclan, Quinn and Shapiro 2001; Osterloh and Debus 2012). Yet these studies fail to explain why corporate tax rates are high while the effective tax rates paid by multinationals are low under left-leaning governments. This seemingly contradictory pattern raises a question of how partisan governments design corporate tax policy.

In this paper, I provide an explanation for this seemingly conflicting pattern by focusing on various policy tools available to politicians, including corporate tax rates, selective tax incentives, and regulation. Although left-leaning governments

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<sup>3</sup>See Garrett and Mitchell (2001); Basinger and Hallerberg (2004); Hays (2003); Jensen (2013); Plumper, Troeger and Winner (2009); Quinn and Shapiro (1991*b*); Steinmo (1993); Swank (1998); Swank and Steinmo (2002); Swank (2013).



tend to increase corporate tax rates, they can also compensate for high tax rates with lax regulation to reduce the tax burden on multinationals. While low tax rates or generous tax incentives are effective instruments to attract MNCs, regulation of transfer pricing can also attract them. Since multinationals can shift their profits to low-tax countries to reduce tax payments, lax regulation can help them move profits across borders, leading to low effective tax rates. If a country has a tight regulation, the effective tax rates that multinationals bear will be equivalent to the nominal corporate tax rates. Given this, the transfer pricing rule can be one of the most effective means to lure investment by MNCs.

In sum, restrictions on transfer pricing can be one of the various policy tools for corporate tax policy. Corporate tax rates, tax incentive, and transfer pricing rules are identical in that these policy instruments affect not only how to collect tax revenues from firms but also how to stimulate business activities for economic growth. Yet each policy instrument may produce different political costs and benefits when utilizing them. In turn, political parties consider the cost and benefit of each policy instrument to maximize their electoral chances.

## **5.2 Theoretical Expectation**

Here I extend my earlier argument, which focused on the incentives that make it more likely that left-wing parties will create opaque policy outcomes to focus on a particular opaque policy outcome: transfer pricing regulations. Taxing corpora-

tions has a complex impact on domestic welfare. The net effects on tax revenue, employment, investment, and economic well-being can be obscure. According to Devereux and Keuschnigg (2008), taxing multinationals can have adverse effects on global and domestic welfare. The taxes they will pay affect firms' choices of how to organize their businesses, the levels of investment in each organizational form, and their welfare around the world. When corporate tax rates are high, firms may prefer outsourcing to offshoring because profit shifting can be more profitable. This profit shifting can increase the income of the subsidiary and thereby promote subsidiary investment. This in turn may depress tax revenues, investment, and employment. This applies to transfer pricing regulation as well as corporate tax rates. The potential adverse effects of regulation include lowering multinational firms' profits, decreasing final goods and intermediate goods output, raising final goods prices, and lowering FDI inflows. In the end, regulation to minimize income shifting may reduce FDI flows as well as tax revenues. Thus, governments have incentive to lower effective tax rates even in the face of constituency costs.

Given their complex incentives, left-wing governments may seek to manipulate transfer pricing regulations to avoid damaging the economy or tax revenues while avoiding constituency costs, because of the policy's opacity. Recent scholarship shows that tightening transfer pricing regulations can be an element of governments' response to tax competition arising from economic globalization because it affects the MNCs' effective tax rates, and therefore attracts investment

(Azmar 2010, Baumann and Friehe 2013, Bartelsman and Beetsma 2003; Lohse and Riedel 2013). The main reason transfer pricing is opaque is that voters are ignorant of it and its impact, which is complex. In a dynamic that may make it easier for left-leaning governments to go against their ideological stance in regard to them, the precise impact of transfer pricing regulation may even be opaque to government officials. Identifying transfer pricing when it occurs between two independent agents when MNCs manipulate their transfer prices on international transactions to reduce their tax payments by shifting reported income to low-tax rates jurisdictions is impractical. To scrutinize such manipulations of international transactions, governments would need to examine the tax documents filed in every jurisdiction in which the MNC functions. Such new procedures would increase costs, which voters are unlikely to reward. Besides, governments of other countries may be unwilling to share the information.<sup>4</sup> Thus, transfer pricing regulations are opaque to some degree to governments as well as constituents.

While both parties, in theory, may prefer to adopt obscure policy instruments such as relaxed control for transfer pricing, the left has a greater incentive to weaken the rules than the right. Right wing-governments can lower transparent corporate tax rates without facing constituency costs. In addition, the right can receive considerable rewards when they enact transparent policy, cutting tax rates. Since tax cuts yield rewards for both their core voters and firms, they are

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<sup>4</sup>However, countries have started to promote international cooperation to impose taxes on multinationals. Crisp, J. (2016, February 8). Juncker backs forcing multinational companies to publish their tax bills. *EurActiv*. Retrieved from <http://www.euractiv.com/section/euro-finance/news/juncker-backs-forcing-multinational-companies-to-publish-their-tax-bills/>.

more willing to appeal to voters by cutting tax rates (transparent policy) rather than by relaxing transfer pricing regulations (non-transparent policy). For this reason, there is little incentive for right-wing parties to employ transfer pricing regulations, which are opaque. By contrast, the left must balance the need to avoid constituency costs, raise tax revenues, and promote economic growth by attracting foreign investment by multinationals.<sup>5</sup> Under these dual pressures, left-leaning governments can maximize their electoral prospects by compensating for high corporate tax rates with opaque policy tools like loose transfer pricing rules.

In summary, left-wing parties confront dual pressures when they decide corporate tax policy: the need to collect more tax revenues to please their constituencies and the need to stimulate economic growth. Because of voters' limited ability to assess them, loose transfer pricing rules face less opposition from voters than transparent policy instruments like tax rates. By contrast, the right tends to appeal to broad voters' support by cutting corporate tax rates rather than weakening transfer pricing rules. This argument leads to the following hypothesis:

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<sup>5</sup>Pinto (2013), in contending that the left is more willing to provide favorable means to MNCs to attract their investment, which generates considerable benefits to labor such as job creation and increased wages, makes a related argument. However, Pinto (2013) does not focus on the use of various policy tools available to left-wing parties. While Pinto (2013) suggests the left may provide favorable conditions to MNCs such as low tax rates, tax incentives, and lax regulation, I address why and, in greater detail, how.

*Hypothesis:* Left-wing governments, relative to right-wing governments, will have higher statutory corporate tax rates and weaker regulations on transfer pricing.

## **5.3 Research Design**

To test my hypothesis, I compiled a dataset covering 19 advanced economies between 2006 and 2009 using a Bayesian factor analysis based on three existing measures of transfer pricing regulations. The unit of analysis is country-year. Table 5.9 in the Appendix shows a sample included in the empirical analysis.

### **5.3.1 Measuring Transfer Pricing Regulations**

Governments' approach to transfer pricing regulations varies a good deal, which makes it difficult to quantify their strictness.

One approach scholars have taken is to focus on the documentation requirement (Bartelsman and Beetsma 2003; Lohse and Riedel 2013). Bartelsman and Beetsma (2003) categorize countries by whether they have transfer pricing rules, transfer pricing documentation rules, or transfer pricing specific penalties. This measure does not fully capture variation in a given country over time, a problem Lohse and Riedel (2013) seek to remedy with a more sophisticated measure based

on documentation requirements. They categorize countries' strictness from 0 to 5, where 0 indicates the weakest rule and 5 indicates the strongest rule.<sup>6</sup>

Other researchers have focused on experts' perceptions of transfer pricing risk (Mescall and Klassen 2014; Saunders-Scott 2013). Mescall and Klassen (2014) use an annual transfer pricing survey of experts assessing the degree of enforcement for 14 components of transfer pricing regulations in 21 countries, which is available from Deloitte and KPMG. The survey results collected from the experts yield the coefficients after regressing the measure of transfer pricing risk. The regression equation shows that nine of the 14 factors are statistically significant in determining the level of transfer pricing risk. The researchers use the coefficients to create a value for the level of transfer pricing risk for both years and countries.<sup>7</sup> Saunders-Scott (2013) eliminates eight of the factors Mescall and Klassen (2014) considered to create a new measure to capture the degree of regulation.<sup>8</sup>

While existing regulation measures are well-developed, they also reveal limitations. Measures based on document requirements have not considered whether countries asking for the documentation impose penalties when transfer pricing occurs. Furthermore, as Saunders-Scott (2013) points out, the enforcement of doc-

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<sup>6</sup>They recorded 0 if a country has no transfer pricing regulation or no general anti-tax avoidance regulation, 1 if a country introduces the arms length principle but has no documentation requirement, 2 if a country requires documentation in practice but has no legislation requiring it, 3 if it has a law but only requires the submission of documentation on request, 4 if disclosure is mandatory for all files but requires a short form, and 5 for mandatory disclosure requiring an extended form. They draw on Ernst Young Transfer Pricing Global Reference Guides, Deloitte Transfer Pricing Country Guides, KPMG Global Transfer Pricing Reviews and PwC International Transfer Pricing publications.

<sup>7</sup>See Table 5.11 in the Appendix for detailed information about components.

<sup>8</sup>These are RelatedParty, SecretCop, NoPenaltyReduction, TaxFirst, NoSetoffs, NoCCAs and NoBenchmark in the above regression model. See Table 5.10 and 5.11 in the Appendix for further information.

umentation requirements varies over time, which these measurements have not captured. As to the approach of Mescall and Klassen (2014) and Saunders-Scott (2013), which has the advantage of displaying more temporal variability than document measures, assessments of experts are clearly subjective. Given these limitations, I construct a measure of regulation that assesses many countries over time by synthesizing these earlier analyses. A latent variable measurement model can help aggregate multiple indicators without any loss of information. It also provides information as to which variables are more or less informative through the incorporation of diverse data sources and the uncertainty of the values of an underlying latent measure, and the impact of this in drawing inferences. While measurement models are extensive, the most widely used model is factor analysis that assesses whether a series of variables of interest are linearly related to an unobservable latent variable called *factor*. The extent to which observable variables are reliable indicators of latent variables depends on whether they have high correlations with one another and offer scores to subjects on the latent variable (Jackman 2008).

I employ factor analysis that addresses mixed data with continuous and ordinal components to construct a synthesized measure of transfer pricing regulations.<sup>9</sup> The standard factor model only considers observed responses where they are either all continuous or ordinal. Ignoring these aspects of observed variables can yield biased estimates. Furthermore, a Bayesian factor analysis is preferable

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<sup>9</sup>The discussion of the results appears in Section A in the Appendix.

since it treats parameters of interest probabilistically, which is appropriate to a latent concept like regulation. The Bayesian factor analysis provides the uncertainty of quantity and relaxes standard assumptions often built upon classical estimation methods. Since the three indicators of rules are mixed with continuous and ordinal responses, I use a Bayesian factor analysis for mixed responses developed by Quinn (2004) to measure the level of control for transfer pricing across countries over time. I use MCMCpack in fitting this model (Martin, Quinn and Park 2011). The model appears as follows:

$$x_{ij} = \begin{cases} x_{ij}^* & \text{if variable } j \text{ is continuous} \\ c & \text{if } x_{ij}^* \in (\gamma_{j(c-1)}, \gamma_{jc}] \text{ and variable } j \text{ is ordinal} \end{cases} \quad (5.1)$$

where the value of the elements of  $X$  consists of latent variables ( $x$ ) and cut points ( $\gamma$ ).  $j$  denotes response variables and  $i$  denotes observations.  $C$  can take values in  $1, 2, \dots, C_j$ .



The model can also be written as follows:

$$x_{ij} = c \text{ if } x_{ij}^* \in (\gamma_{j(c-1)}, \gamma_{jc}], \quad i=1, \dots, N, j=1, \dots, J, c=1, \dots, C_j \quad (5.2)$$

$$x_{ij}^* = \alpha_j + \beta_j \theta_i + \epsilon_{ij}, \quad i=1, \dots, N, j=1, \dots, J \quad (5.3)$$

$$\epsilon_{ij} \sim^{iid} N(0, 1), \quad i=1, \dots, N, j=1, \dots, J, \quad (5.4)$$

where  $\alpha_j$  is the item difficulty parameter for item  $j$ ,  $\beta_j$  is the vector of item discrimination parameters for item  $j$ , and  $\theta_i$  is the latent ability of subject  $i$ .

The datasets used to construct the indicator of regulations come from three sources: *documentation* records Lohse's rating of documentation requirements, *risk* records Mescall's rating of risk, and *cost* records Saunders-Scott's extended risk rating.<sup>10</sup> The empirical analysis below employs these three measures as well as latent factors obtained from the measurement model. *Documentation*, is ordinal and available from 2001 and 2009; *risk* and *cost*, are continuous and available between 2006 and 2011. Countries and years included in the empirical analyses appear in Table 5.9 and Table 5.10 in the Appendix. The continuous variables are standardized to have mean 0 and standard deviation 1. Table 5.11 in the Appendix report measures and data sources of these indicators.

<sup>10</sup>Data for *documentation* are available between 2003 and 2012 for 44 countries, available from Lohse and Riedel (2013). Data for *risk* are available from 2006 and 2011 for 50 countries where I obtain the information from Saunders-Scott (2013). Data for *cost* are available from Saunders-Scott (2013).

### 5.3.2 Other Variables and Methods

The dependent variables are corporate tax rates and the level of transfer pricing regulations. Corporate tax rates are available from the OECD tax database, and the level of regulations is a Bayesian factor analysis based on *documentation*, *risk*, and *cost* as elements of transfer pricing rules. The independent variable is government partisanship. I measure government partisanship as the difference between the percentage of cabinet posts controlled by left-wing parties and the percentage of cabinet posts controlled by right-wing parties in each country (Camyar 2014), as listed by the Comparative Political Parties Dataset (CPPD) that offers annual data on political variables for 23 advanced countries for the period 1966-2010 (Armingeon et al. 2011). The difference ranges from -100 to 100, where -100 represents an entire government controlled by left-wing parties, and 100 indicates an entire government controlled by right-wing parties.

I also employ three alternative measures of government partisanship as robustness checks, which are widely used in the political science literature. The first measure is a share of cabinet seats held by left parties compiled by Swank (2016). The second measure is the percentage of cabinet portfolios right-wing parties hold, according to the Comparative Parties Dataset (CPD) Swank constructed (2016). This approach has been widely used in the welfare spending literature (Allan and Scruggs 2004; Korpi and Palme 2003; Kwon and Pontusson 2010). The third measure is the ideological position of government on a left-right scale constructed by Dring and Manow (2010), which Obinger, Schmitt and Zohlnhfer

(2013) also used. This measure of the left-right position of each party in government is a ratio of the number of seats of that party compared to the total number of parliament seats the cabinet parties hold. If a value is less than five on the mean left-right dimension, left-wing parties dominate government. A value greater than five indicates right-wing parties dominate. This measure is especially important because it not only captures parties' ideological positions on policy-area dimensions over time, but also reflects policy positions of several coalition governments in the time period under consideration.

Following a common approach to control variables in the corporate tax policy literature (Basinger and Hallerberg 2004; Garrett 1998; Inclan, Quinn and Shapiro 2001; Osterloh and Debus 2012; Swank and Steinmo 2002), I use measures of economic globalization and domestic economic changes as control variables, because they affect the level of regulation on transfer pricing and whether voters tend to favor left- or right-wing candidates. I measure economic globalization through capital mobility, trade openness, and FDI flows. Trade openness is measured as imports plus exports as a percentage of GDP. FDI flows are inward and outward as a percentage share of the GDP.<sup>11</sup> FDI data come from the United Nations Conference on Trade and Development (UNCTAD) database, and capital and trade data are available from CPPD. Economic globalization generates tax competition, which incentivizes governments to lift barriers to attract FDI by MNCs. It also generates negative consequences such as unemployment and reductions in the

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<sup>11</sup>Because of multicollinearity issues between FDI and trade, I dropped the trade variable in the process of the data analysis.

safety net. If voters prefer social safety nets to competitive markets, they are more likely to vote for left-oriented parties in anticipation of increased welfare spending. Thus, I expect that economic globalization is negatively associated with the strict level of regulation.

I include domestic economic changes through the unemployment rate, GDP growth rate, debt, and the portion of the population that is elderly (Swank and Steinmo 2002). GDP growth is measured as the percentage change in GDP per capita annually. Unemployment rates are the percent of the labor force unemployed. Debt is measured as the percentage of debt to GDP, and a share of the elderly population is measured as the percent of the population over 65. Data for all of these variables come from the World Bank database. The corporate taxation literature shows in situations of high unemployment and low economic growth, policymakers typically cut taxes to promote economic growth (Swank and Steinmo 2002). Since lax enforcement effectively cuts taxes on MNCs, economic recession would likely correlate with loose rules. Thus, the unemployment rate and debt have an adverse impact on control for transfer pricing while economic growth has a positive effect. At the same time, an aging population requires greater social spending and therefore leads governments to tighten regulations to increase tax revenue. While domestic economic changes strongly affect regulation strictness, they can also influence voters to favor particular parties. In times of economic recession, voters support left-wing parties in anticipation of

job creation and economic recovery through expansionary fiscal and monetary policies.

While these variables control for the confounding effects of the partisan orientation of legislators and regulation on transfer pricing by multinationals, they may generate post-treatment bias. This post-treatment bias refers to a problematic relationship between treatment variable and at least one control variable. If one of the control variables influences the effect of the treatment, this could lead to a misunderstanding of the treatment effect (Gelman and Hill 2006). For example, economic globalization affects partisan governments' responses to external pressures while partisan governments also influence economic globalization. Similarly, domestic economic changes like unemployment rates affect whether governments tend to lean left or right, and the reverse relationship is also possible. One way to address this post-treatment bias is to exclude these variables as control in the regression model (Gelman and Hill 2006). For this reason, I report the results of the model both excluding and including these variables in the results section, although the results are the same. Summary statistics for all variables appear in Table 5.8 in the Appendix.

Latent scores for 19 advanced economies between 2006 and 2009 obtained from a Bayesian factor analysis represent the level of regulation, which is continuous. The structure of data is hierarchical, with a country-year nested within a country, requiring the use of multilevel regression model. To assess whether the structure of data requires to model variance across years and countries, I run the variance

component model accounting for country and year effect as seen in Model 1 in Table 1. Model 1 indicates that year-specific effect is ignorable, which is not surprising given the limited time period in a sample.<sup>12</sup> Thus, I conduct a multi-level regression analysis accounting for country-specific effect. The probability that a country  $i$  determines the level of regulations can be written as follows:

$$Y_i = \alpha_i + \beta X_i + \delta C_i + \epsilon_i$$

$$\alpha_i \sim N(\mu_\alpha + \lambda W_i, \sigma_\alpha^2)$$

where  $y_{it}$  is the outcome variable, the level of regulation for country (i).  $X$  denotes partisanship.  $C$  denotes control variables.  $\alpha_i$  captures unobserved country-specific effects.

## 5.4 Results

Table 5.1 presents the results of the analysis. The signs of coefficients are consistent with the direction of my theoretical argument. A positive coefficient indicates that if a country experiences a leftward shift, it is likely to loosen reg-

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<sup>12</sup>The intraclass correlation coefficient (ICC) is useful to evaluate whether multilevel modeling is needed. The ICC measures the proportion of variance into two components: country and year. The country-level variance in Model 1 in Table 5.1 can be computed as follows:

$$\rho(0.89) = \frac{(\text{country variance}(0.65))}{(\text{country variance}(0.65)) + (\text{year variance}(0.00)) + (\text{residual variance}(0.07))}$$

Based on the value above, country-level variance accounts for 89 percent of total variance of the data.

ulation of transfer pricing. As seen in Models 2-3, the coefficient on *partisanship* is positive and statistically significant, suggesting that right-leaning governments are more willing to tighten the rules. This result provides evidence that the left is reluctant to control for transfer pricing by multinational firms.

While left-leaning parties have relaxed rules on transfer pricing, they tend to have high corporate tax rates. Existing studies demonstrate that the left are positively associated with high corporate tax rates because of the need to collect tax revenues for redistribution (Basinger and Hallerberg 2004; Garrett 1998; Inclan, Quinn and Shapiro 2001; Osterloh and Debus 2012). Consistent with these existing studies, the estimated coefficient that I obtained suggest that the coefficient on *partisanship* goes in the same direction. Models 4-5 indicate that the signs of coefficients correspond to the direction of the theoretical expectation, as hypothesized. The negative coefficients imply that when left-leaning parties govern, corporate tax rates increase. Therefore, the results conform to the hypothesis that the left is reluctant to cut corporate tax rates.

To explore the substantive effect of the primary explanatory variable, *government partisanship*, on the level of transfer pricing regulations, I simulate and generate predictive values of the degree of the rules as I change the values of partisanship. Based on estimates shown in Model 2, I calculate how the predictive values for the level of the rules would change when I alter the value of govern-

Table 5.1: Effects of Government Partisanship on Transfer Pricing Regulations and Corporate Tax Rates

	DV: Transfer Pricing Regulations				DV: Corporate Tax Rates		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
(Intercept)	-0.360*	-0.379*	-0.552	-0.651	0.289*	0.363*	0.363*
	(0.142)	(0.145)	(1.430)	(1.460)	(0.013)	(0.150)	(0.150)
Partisanship		0.165*	0.173*	0.177*	-0.006*	-0.007*	-0.007*
		(0.086)	(0.084)	(0.085)	(0.003)	(0.003)	(0.003)
Capital market liberalization			0.303	0.333		0.022	0.022
			(0.514)	(0.524)		(0.061)	(0.061)
FDI flows			-0.242			0.007	
			(0.153)			(0.007)	
FDI inward flows				0.004			0.008
				(0.436)			(0.023)
FDI outward flows				-0.489			0.006
				(0.450)			(0.019)
Growth			-0.304*	-0.311*		0.009*	0.009*
			(0.101)	(0.102)		(0.004)	(0.004)
Debt			-0.329	-0.367		-0.020	-0.019
			(0.484)	(0.491)		(0.017)	(0.018)
Unemployment			0.001	0.008		-0.003	-0.003
			(0.283)	(0.285)		(0.010)	(0.010)
Elderly Population			0.015	0.060		-0.073*	-0.072*
			(0.680)	(0.692)		(0.036)	(0.037)
AIC	85	86	91	91	-561	-527	-520
BIC	94	95	113	116	-550.	-499	-489
Log Likelihood	-38	-39	-35	-34	284	273	271
Num. obs.	72	72	72	72	126	125	125
Num. groups: country	19	19	19	19	21	21	21
Num. groups: year	4						
Var: country (Intercept)	0.338	0.375	0.368	0.381	0.003	0.006	0.006
Var: year (Intercept)	0.005						
Var: Residual	0.078	0.076	0.069	0.069	0.000	0.000	0.000

*Note.* All coefficients are estimated with random-effects models accounting for country-specific effects. Standard errors are shown in parentheses. Variables are rescaled.

\* $p < 0.1$  or lower.



ment partisanship.<sup>13</sup> The predictive means and confidence intervals appear in Table 5.13.

Table 5.2: Changes in the Predicted Level of Transfer Pricing Regulations by Government Partisanship

Left-oriented	Center	Right-oriented
$x = -0.5$	$x = 0.1$	$x = 0.7$
0.12	0.20	0.27
(-0.45, 0.82)	(-0.30, 0.92)	(-0.45, 0.81)
0.15	0.22	0.24
(-0.52, 0.78)	(-0.57, 0.85)	(-0.23, 0.74)
0.06	0.19	0.19
(-0.56, 0.64)	(-0.33, 0.76)	(-0.49, 0.77)

Note. I calculate predictive values using three values that capture the degree of governing parties' ideology. Based on summary statistics of my sample, I include three values where the first column indicates the most left-leaning governments, the second column represents a median value of government partisanship in the summary statistics of the sample, and the last column indicates the most right-leaning governments. All predictive values are based on Model 2 in Table 5.1. 95 % confidence intervals for each value are shown in parentheses. In Table 1, I rescaled government partisanship by dividing by 100, and its rescaled value ranges between -1 and 1. Its original value ranged from -100 to 100.

Table 5.13 reveals that the more left-wing the government, the less likely the government is to implement tight regulation. As a government moves to the right, the level of the rules increases. For example, when the value of government partisanship is -0.5, signifying the government is highly left-leaning, its level of the rules will be 0.12. As the value increases from -0.5 to 0.7 as a government moves to the right, its regulation value will change from 0.12 to 0.27, indicating stricter control.<sup>14</sup> Thus, the main findings reveal that left-leaning governments

<sup>13</sup>Based on Model 2, I calculate the predictive values drawn from three randomly selected observations. I use R package, *merTools*, to compute predictive values for multilevel models developed by Knowles and Frederick (2015)

<sup>14</sup>The value for transfer pricing regulations in the sample ranges from -1.7 to 1.3, where 1.3 indicates the strongest transfer pricing regulations. A shift in transfer pricing regulations from 0.12 (when the left governs) to 0.27 (when the right governs) means an increase in the level of transfer pricing regulations. The magnitude of change in transfer pricing regulations is thus relatively

compensate for high corporate tax rates with relaxed rules for transfer pricing to reduce the tax burden on multinationals.

In addition to the main findings, the results of control variables appear in Table 5.1. First, FDI flows have an adverse effect on transfer pricing rules. The result suggests that governments attract foreign direct investment to promote economic growth by lifting barriers on transfer pricing regulations. The relaxed rules make it possible for MNCs to reduce their tax burden and costs of doing business, leading to growing FDI flows. When I run a model using FDI inward and outward flows separately, the findings show that FDI inward flows have a positive impact on regulations while FDI outward flows have a negative impact on regulations. Capital market liberalization is positively associated with transfer pricing rules. The result implies that capital market liberalization may put pressure on governments to tighten regulations. There is also a negative and statistically significant association between economic growth and transfer pricing rules. This result makes sense because governments have a greater incentive to relax control for transfer pricing to promote business activities of MNCs in the face of an economic downturn. A high proportion of debt is also likely to have loose rules, which is consistent with the theoretical expectation. To stimulate economic growth, governments may have incentives to relax control for better economic conditions. The unemployment rate is positively associated with high regulation. As a way of collecting tax revenues, governments may have a tendency to rein

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small, but the fact is that the level of regulations increases as governing parties become increasingly right-oriented.

in transfer pricing rules. Besides, countries with large elderly populations have a positive effect on regulations. Thus it makes sense that governments may need to collect tax revenues for social spending by regulating tax avoidance of MNCs.

In summary, the core results confirm the conventional wisdom that left-leaning governments maintain high corporate tax rates. However, they also show, as hypothesized, that such governments provide lax regulations to compensate for high corporate tax rates. By incorporating policy transparency into partisan theory, this paper complements existing literature by claiming that political parties differ in utilizing various policy instruments to maximize their electoral benefits. As Kono (2006) notes, some democratic countries tend to use non-transparent policy tools to maximize electoral benefits by balancing the need for campaign donations from interest groups with their need for voters' support. The findings of this paper expand the understanding of the relationship between democracy and policy transparency by showing that the left has a greater tendency to create opaque policy outcomes than the right within democracies.

#### **5.4.1 Robustness Checks**

I perform several robustness checks to evaluate the key findings. First, I use the three measures of transfer pricing regulations and report the results in Table 5.3. The estimated coefficients on *government partisanship* are statistically significant except for the second measure, *risk*. Yet the signs of government partisanship are consistent with those reported in Table 5.1. The results suggest that left-leaning

is negatively associated with the level of regulations on transfer pricing, which supports the theoretical expectation.

Table 5.3: Estimates of the Effects of Government Partisanship on Transfer Pricing Regulations with Alternative Measures

	Documentation		Risk		Cost	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
(Intercept)	2.820*	2.057	3.895*	1.630	2.239*	-0.664
	(0.209)	(1.178)	(0.134)	(1.441)	(0.205)	(2.116)
Partisanship	0.157*	0.150*	0.054	0.070	0.163*	0.167*
	(0.072)	(0.070)	(0.070)	(0.066)	(0.069)	(0.069)
FDI		-0.053		-0.241		-0.008
		(0.151)		(0.131)		(0.149)
Capital Market		-0.158		0.348		0.756
		(0.369)		(0.539)		(0.816)
Growth		-0.511*		-0.047		-0.126
		(0.124)		(0.099)		(0.095)
Debt		-0.818		-0.788*		-0.505
		(0.531)		(0.343)		(0.397)
Unemployment		0.031		0.622*		0.082
		(0.330)		(0.216)		(0.238)
Elderly Population		1.231*		1.137*		0.897
		(0.591)		(0.578)		(0.740)
AIC	326	312	166	163	180	187
BIC	338	343	177.419	191	191	215
Log Likelihood	-159	-146	-79	-71	-86	-83
Num. obs.	180	175	119	116	123	119
Num. groups: country	21	20	22	21	22	21
Variance: country.(Intercept)	0.892	0.990	0.369	0.435	0.895	1.044
Variance: Residual	0.223	0.200	0.129	0.112	0.120	0.120

Note. All estimates are obtained through a random-effects model accounting for country-specific effects. Standard errors are shown in parentheses. Variables are rescaled.

\* $p < 0.05$  or lower.

Second, I run the models reported in Table 1 using three alternative measures of government partisanship. As you see in Table 4, the results highly support the main hypothesis: left-leaning governments tend to have weaker regulations than right-leaning governments. The first measure, the ideological position of left-right, shows that right-oriented parties have a positive impact on regulations. The second measure, right-leaning government, yields the same result. The third

measure, left-leaning governments, reveals a negative sign, meaning that the left is less likely to regulate transfer pricing than the right. The results obtained from three different measures capturing the partisan composition of government are consistent with the theoretical expectation, which is also statistically significant.<sup>15</sup>

Finally, I test the hypothesis through an alternative model specification. I replicate all models using fixed-effects models and report the results in Table 5.5. The results are similar to those estimated through random-effects models accounting for country-specific effects, which reveals that the main outcomes are robust to an alternative model specification. The results from both model specifications are almost identical: The left is positively associated with high corporate tax rates, but negatively correlated with the strict level of regulation of transfer pricing. The results imply that government partisanship plays a central role in corporate tax policy in a more nuanced way than prior scholarship has suggested.

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<sup>15</sup>Economic globalization and government partisanship may interact in a way that affects transfer pricing regulations. I run a model including this interactive term and report the results in Table A8 in the Appendix. I also display a marginal effect of government partisanship on transfer pricing regulations in Figure A2 in the Appendix, but there are no significant effects between them.

Table 5.4: Effects of Government Partisanship on Transfer Pricing Regulations with Alternative Measures of Independent Variable

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
(Intercept)	-0.905*	-0.541	-0.461*	-0.541	-0.244	-0.287
	(0.255)	(1.463)	(0.160)	(1.401)	(0.156)	(1.420)
Ideological position of left-right	0.099*	0.087*				
	(0.037)	(0.036)				
Right-leaning government			0.002*	0.002*		
			(0.001)	(0.001)		
Left-leaning government					-0.004*	-0.004*
					(0.002)	(0.002)
Capital market liberalization		0.307		0.317		0.290
		(0.504)		(0.500)		(0.513)
FDI flows		-0.264		-0.231		-0.241
		(0.154)		(0.151)		(0.152)
Growth		-0.308*		-0.312*		-0.309*
		(0.103)		(0.103)		(0.101)
Debt		-0.160		-0.221		-0.342
		(0.498)		(0.477)		(0.483)
Unemployment		(0.293)		(0.287)		(0.281)
Elderly population		-0.312		-0.109		-0.026
		(0.746)		(0.663)		(0.675)
AIC	84	89	95	100	93	98
BIC	93	111	104	123	102	121
Log Likelihood	-38	-34	-43	-40	-42	-39
Num. obs.	68	68	72	72	72	72
Num. groups: country	18	18	19	19	19	19
Var: country (Intercept)	0.376	0.344	0.359	0.345	0.375	0.366
Var: Residual	0.077	0.071	0.080	0.072	0.076	0.068

*Note.* All estimates are obtained through a random-effects model accounting for country-specific effects. Standard errors are shown in parentheses. Variables are rescaled.

\* $p < 0.1$  or lower.

Table 5.5: Estimates of the Effects of Government Partisanship on Transfer Pricing Regulations with Fixed-Effects Models

	Latent factor			Documentation			Risk			Cost		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8				
(Intercept)	-0.635* (0.138)	0.713 (2.518)	3.920* (0.162)	2.355* (1.009)	3.470* (0.149)	-0.586 (1.529)	1.234* (0.144)	-0.902 (1.567)				
Partisanship	0.218* (0.094)	0.187* (0.087)	0.148* (0.074)	0.126 (0.071)	0.065 (0.073)	0.069 (0.068)	0.186* (0.070)	0.192* (0.070)				
Capital Market		0.459 (0.375)		-0.030 (0.416)		1.011* (0.279)		0.236 (0.285)				
FDI		-0.027 (0.223)		-0.034 (0.169)		-0.056 (0.187)		0.224 (0.178)				
Growth		-0.376* (0.123)		-0.495* (0.130)		-0.006 (0.099)		-0.105 (0.095)				
Debt		-1.476 (0.768)		-1.206 (0.664)		-1.404* (0.459)		-0.950* (0.463)				
Unemployment		0.296 (0.346)		0.248 (0.366)		0.887* (0.249)		0.116 (0.255)				
Elderly Population		-1.134 (1.650)		1.594* (0.700)		2.108* (0.986)		1.429 (1.011)				
R <sup>2</sup>	0.858	0.895	0.827	0.851	0.747	0.794	0.898	0.906				
Adj. R <sup>2</sup>	0.806	0.841	0.804	0.825	0.689	0.734	0.876	0.879				
Num. obs.	72	72	180	175	119	116	123	119				

\*  $p < 0.05$  or lower.

Note. I estimate the effect of government partisanship on the level of transfer pricing regulations through fixed-effects models by country. Country-specific effects are not reported. Variables are rescaled.

In addition to the main findings, Table 5.3 shows that economic variables affect the level of transfer pricing regulations. The outcomes are similar to those reported in Table 1. The level of capital market liberalization has a positive effect, meaning that the more a country opens the capital market, the more a country has tight regulation. When countries are more open to FDI flows, they tend to tighten transfer pricing rules. Furthermore, the level of growth is negatively associated with the rules, which makes sense because governments will relax rules to stimulate business activities. Debt has a negative effect, meaning that when governments have a low level of debt, they are less likely to tighten regulation. The unemployment rate is negatively related to transfer pricing rules. The reason is that governments may need to collect more tax revenues from MNCs by tightening transfer pricing to provide public goods. A share of the elderly population has an inconsistent impact across all models.

To sum, the robustness checks suggest the key findings of the study are correct. They complement existing explanations: the left increases corporate tax rates, and there are the differences in tax rates between internationally operating firms and domestically operating ones. Optimal strategies of left-wing governments explain this seemingly inconsistent pattern as a means to maximize their electoral prospects. Thus, this paper complements existing explanations that left-leaning governments maintain high corporate tax rates by showing that they use non-transparent policy instruments to reduce the tax burden on MNCs.



## 5.5 Conclusion

Many studies have emphasized the distinctive role of government partisanship in corporate tax policy. However, none of the studies have considered the possibility that partisan governments differ in utilizing various policy instruments to maximize their electoral prospects and thus result in the subsequent distinctive policy outcomes, high corporate tax rates and the low level of regulation. While the left needs to garner public support by being reluctant to cut corporate tax rates, they also need to court investment from multinational firms to stimulate economic growth and thus offer lax regulation on transfer pricing. Thus, left-wing governments compensate for high corporate tax rates with loose rules for transfer pricing.

The novel finding of this chapter can provide a potential solution to the debate drawn from the corporate tax policy literature and the FDI literature. The corporate tax policy literature suggests that the left is positively associated with high corporate tax rates; the FDI literature suggests that the left tends to provide generous conditions to multinational corporations to attract investment to generate increased wages and jobs for labor. I suggest that both corporate taxation literature and FDI literature can coexist when we consider various policy instruments available to politicians as they design corporate tax policy.

## 5.6 Appendix

### A. Measure of Transfer Pricing Regulation

Table 5.6 shows a summary of the posterior distribution of parameters obtained from the measurement model.<sup>16</sup> First, the continuous variables (*risk* and *cost*) were standardized to have mean 0 and standard deviation 1. The factor loading ( $\lambda_2$ ) of continuous variable, *risk*, is 0.53 (0.12). This indicates that there is a positive association between *risk* and the latent factor, regulation. The estimated variance of risk variable is 0.72, suggesting that this variable explains the variability in the latent factor significantly. Similarly, the factor loading of the other continuous variable, *cost*, is 0.68 (0.15), indicating the positive relationship between *cost* and the latent factor. The *cost* explains 55 percent of the variability in regulations.

Turning to the ordinal variable, *document*, I find that the factor loading of the ordinal variable is 0.89 (0.35). This variable accounts for a sizable portion of the variability in regulations. The result indicates a strong positive association between *document* and regulation.

In addition to these estimated parameters, the factor analysis also shows the latent factor score of each observation, country-year. Table 5.7 presents a correla-

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<sup>16</sup>I fit the model using the MCMC algorithm. I discarded the initial 10,000 initiations and ran 1,000,000 initiations. The standard diagnostics suggest that there is evidence for convergence. I fit this model in R with MCMCpack package.

Table 5.6: Posterior density summary of the measurement model of regulation

	$\lambda_1$	$\lambda_2$	$\gamma_2$	$\gamma_3$	$\gamma_4$	$\psi$
Documentation	2.89 (0.60)	0.89 (0.35)	2.01 (0.48)	2.61 (0.57)	4.21 (0.82)	
Risk		0.53 (0.12)				0.72 (0.14)
Cost		0.68 (0.15)				0.55 (0.20)

Note. The first column ( $\lambda_1$ ) offers information about the item difficulty parameters in the ordinal item response theory literature. The second column ( $\lambda_2$ ) provides information about factor loadings in the factor analysis or the item discrimination parameters in the IRT theory. The third column ( $\gamma$ ) provides information about cut points of an ordinal variable. The last column ( $\psi$ ) contains information about the error variances. I use three measures to construct a single indicator of regulations of transfer pricing. Three measures are “documentation” developed by Lohse, “risk” developed by Mescall, and “cost” developed by Saunder-Scott.

tion matrix of four measures. The interdependencies between observed variables indicate that a factor analysis is appropriate to reduce the set of variables.

Table 5.7: Correlation of measures

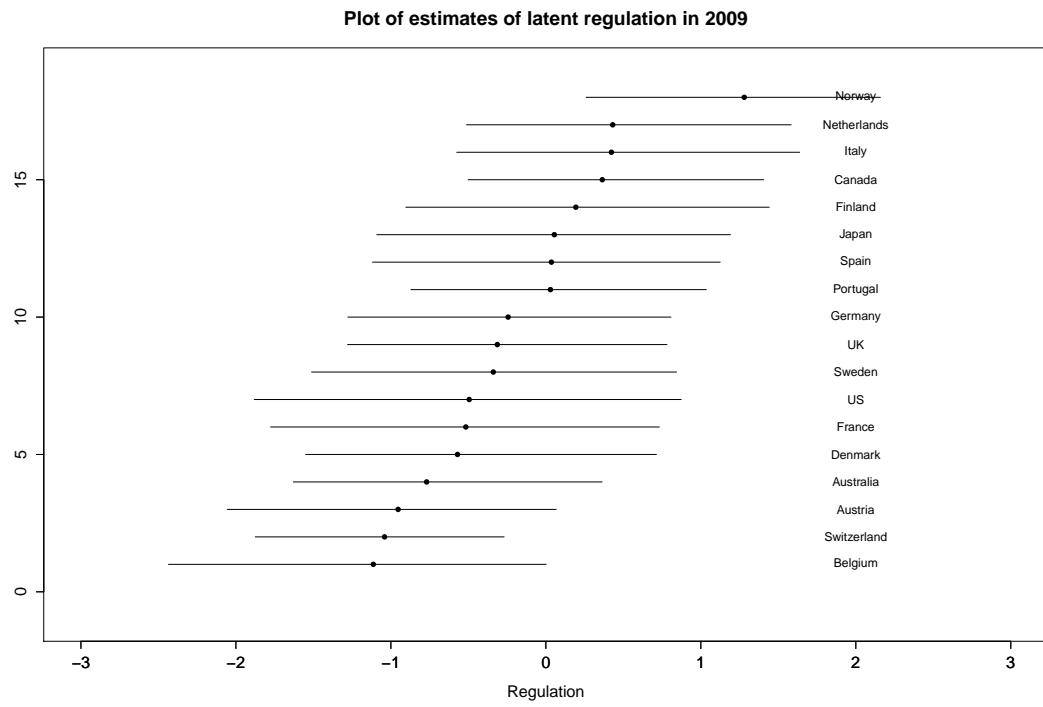
	Documentation	Risk	Cost	Latent factor
Documentation	1.00			
Risk	0.22	1.00		
Cost	0.34	0.28	1.00	
Latent factor	0.59	0.49	0.71	1.00

Note. Three measures are “Documentation” developed by Lohse, “risk” developed by Mescall, and “cost” developed by Saunders-Scott. Latent factor is obtained from a Bayesian factor analysis based on these observed indicators.

The Bayesian model has several advantages, but one of them displays point estimates and uncertainty estimates about the latent factor scores. Figure 5.1 shows the latent factor scores with 95% confidence intervals for 19 democracies in 2009.<sup>17</sup> As a measure of regulation, the latent factor demonstrates that Norway, Netherlands, Italy, Canada, and Finland have higher scores, indicating that they have strict regulations of transfer pricing. In contrast, Belgium, Switzerland, Austria, Australia, Denmark, and France are at the very low end of the scale, indicating that they have lax regulations of transfer pricing. Yet, it is also worth mentioning that the 95% credible intervals for the latent factor scores are wide, suggesting that there is substantial uncertainty in these measures.

<sup>17</sup>Countries are Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, UK, and USA.

Figure 5.1.: Estimates of regulation in 2009



## B. Supporting Information

Table 5.8: Descriptive Statistics

Statistic	N	Mean	St. Dev.	Min	Max
Latent factor	72	-0.321	0.626	-1.730	1.320
Documentation	175	2.890	1.070	1	4
Risk	117	3.940	0.645	1.360	4.870
Cost	120	2.230	0.994	0	5
Capital market liberalization	252	2.360	0.300	1.120	2.440
GDP growth	252	3.970	3.770	-9.830	19.400
Corporate tax rate	252	0.307	0.063	0.130	0.520
Partisanship	252	0.081	0.736	-1.000	1.000
Partisanship (Left)	252	34.500	39.200	0.000	100.000
Partisanship (Right)	252	42.800	38.700	0.000	100.000
Left & Right ideology	240	5.540	1.570	2.070	8.700
FDI	252	0.935	0.694	0.069	4.030
FDI inward	252	0.443	0.343	0.011	2.040
FDI outward	252	0.492	0.390	0.048	2.020
Debt	252	0.709	0.353	0.138	2.050
Unemployment	252	0.666	0.289	0.212	2.170
Elderly Population	251	1.590	0.253	1.080	2.330

Table 5.9: List of Countries Included in Empirical Analyses

<u>Country</u>
Australia
Austria
Belgium
Canada
Denmark
Finland
France
Germany
Ireland
Italy
Japan
Netherlands
Norway
Portugal
Spain
Sweden
Switzerland
United Kingdom
<u>United States</u>

Note. Countries are included in the empirical analysis shown in Table 1. The time period is between 2006 and 2009.

Table 5.10: List of Countries and Years Included in Empirical Analyses

Country	Documentation	Risk	Cost
Australia	2001-2009	2006-2011	2006-2011
Austria	2001-2009	2006-2011	2006-2011
Belgium	2001-2009	2006-2011	2006-2011
Canada	2001-2009	2006-2011	2006-2011
Denmark	2001-2009	2006-2011	2006-2011
Finland	2003-2009	2006-2011	2006-2011
France	2001-2009	2006-2011	2006-2011
Germany	2001-2009	2006-2011	2006-2011
Greece	2001-2009	2011	2011
Ireland	2001-2009	2006, 2010-2011	2006-2011
Italy	2001-2009	2006-2011	2006-2011
Japan	2001-2009	2006-2011	2006-2011
Netherlands	2001-2009	2006-2011	2006-2011
New Zealand		2006-2011	2006-2011
Norway	2004-2009	2006-2011	2006-2011
Portugal	2001-2009	2006-2011	2006-2011
Spain	2001-2009	2006-2011	2006-2011
Sweden	2001-2009	2006-2011	2006-2011
Switzerland	2001-2009	2006-2011	2006-2011
UK	2001-2009	2006-2011	2006-2011
US	2001-2009	2006-2011	2006-2011

Note. Countries and years are included in the robustness checks shown in Table 3.



Table 5.11: Measures of Regulation I

Measures	Descriptions	Sources
Documentation	Categorical variable ranging from 0 to 5 depending on countries' transfer pricing documentation requirement. 0 if a country has no transfer pricing regulation or no general anti-tax avoidance; 1 if a country introduces the arms length principle but has no documentation requirement; 2 if a country does not have legislation on documentation requirement, but requires it in practice; 3 if a country has documentation requirements introduced in national law, but the submission of documentation is only required on request; 4 if countries requiring a short form; 5 countries requiring an extended form	Lohse and Riedel (2013). Originally came from various sources. These are Ernst Young Transfer Pricing Global Reference Guides, Deloitte Transfer Pricing Country Guides, KPMG Global Transfer Pricing Reviews and PwC International Transfer Pricing publications.
Risk	expert's perceptions of transfer pricing risk (Mescall 2011) using an annual transfer pricing survey of experts on transfer pricing regulations from Deloitte and KPMG.  $\text{risk} = 1.027 + (0.224)\text{NoPriorityofMethods} + (0.251)\text{RelatedParty} + (0.387)\text{SecretComp} + (0.227)\text{NoPenaltyReduction} + (0.178)\text{TaxFirst} + (0.229)\text{NoSetoffs} + (0.175)\text{NoCCAs} + (0.326)\text{NoBenchmark} + (2.794)\text{TPAudit}$	Saunders-Scott (2013). Originally came from Mescall and Klassen (2014).
Cost	seven factors of Mescall's regressors that are statistically significant; combined with RelatedParty, SecretCop, NoPenaltyReduction, TaxFirst, NoSetoffs, NoCCAs and NoBenchmark	Saunders-Scott (2013)

*Note:* Regressors for measures *Risk* and *Cost* are described in Table A7 in the Appendix.

Table 5.12: Measures of Regulation II

Variables	Descriptions
Priority of Method	NoPriorityofMethods=1 if a country does not identify a priority of transfer-pricing methods to use.
Transfer-pricing Documentation Requirement	DocReq=1 if a country has legislation requiring transfer-pricing documentation
Contemporaneous Documentation Requirement	ContempDoc=1 if a country has a requirement that documentation be prepared at the time of transactions
Related-Party Disclose	RelatedParty=1 if a country has a tax return that requires disclosure of related-party transactions
Availability of Benchmark Data	NoBenchmark=1 if benchmark data on prices is not available to taxpayer
Use of Foreign Comparables	NoForeignComp=1 if the government does not allow the use of foreign comparables for transfer pricing transactions
Use of Secret Comparables	SecretComp=1 if the government uses secret comparables in the calculation of "correct" transfer prices
Transfer-Pricing Penalty Reduction	NoPenaltyReduction=1 if the government does not allow for reductions in transfer-pricing penalties
Pay Tax First	TaxFirst=1 if the taxpayer is required to pay tax assessment before going to competent authority
Availability of Cost-Contribution Agreements	NoCCAs=1 if the government does not allow cost-contribution agreements
Availability of Commissionaire Arrangements	NoCommissionaire =1 if the government does not allow commissionaire arrangements.
Related-Party Setoffs	NoSetoffs=1 if no bundling of transactions is allowed
Self-Initiated Adjustments	Adjust=1 if self-initiated adjustments are allowed
Availability of Advance Pricing Agreements	APA=1 if advanced pricing agreements are allowed
Audit Risk	TPAudit: ranges between .2 if audit risk is low and 1 if audit risk is high

Source: Saunders-Scott (2013) (p.40)

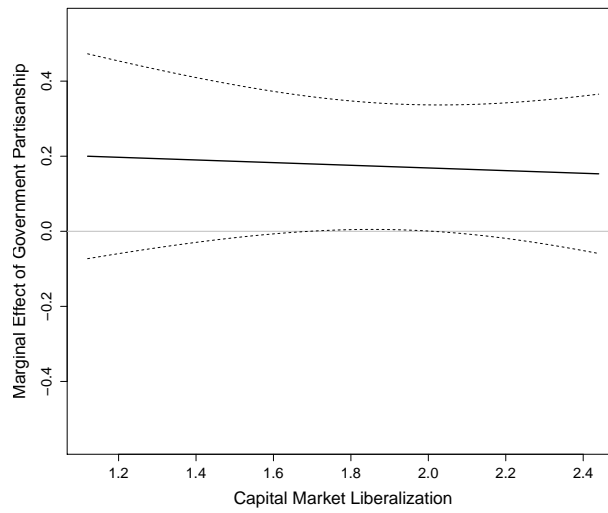
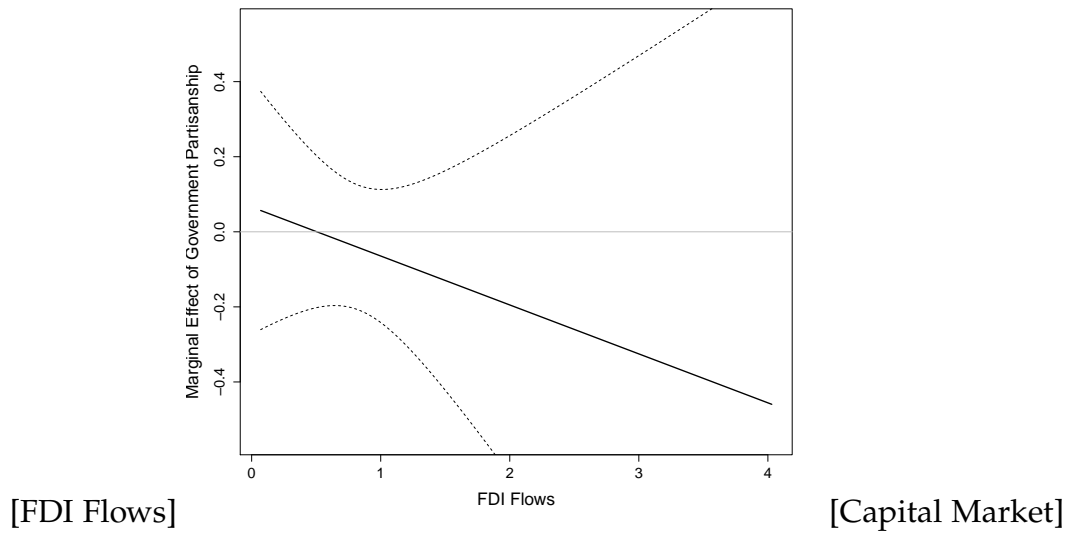
Table 5.13: Effects of Government Partisanship on Transfer Pricing Regulations with Interaction Terms

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
(Intercept)	-0.867 (1.196)	-0.868 (1.204)	-0.552 (1.430)	-0.505 (1.419)	-0.243 (0.204)	-0.227 (0.213)	-0.552 (1.430)	-0.465 (1.451)
Partisanship	0.166 (0.087)	0.117 (0.283)	0.173* (0.084)	0.240 (0.274)	0.164 (0.088)	0.121 (0.180)	0.173* (0.084)	0.066 (0.173)
Capital market liberalization	0.206 (0.501)	0.206 (0.504)	0.303 (0.514)	0.301 (0.508)			0.303 (0.514)	0.309 (0.520)
Partisanship $\times$ Capital market liberalization		0.025 (0.138)		-0.035 (0.134)				
FDI flows			-0.242 (0.153)	-0.247 (0.153)	-0.126 (0.143)	-0.143 (0.156)	-0.242 (0.153)	-0.286 (0.167)
Partisanship $\times$ FDI flows						0.053 (0.192)		0.130 (0.182)
Growth			-0.304* (0.101)	-0.309* (0.104)			-0.304* (0.101)	-0.310* (0.102)
Debt			-0.329 (0.484)	-0.303 (0.483)			-0.329 (0.484)	-0.291 (0.492)
Unemployment			0.001 (0.283)	-0.017 (0.287)			0.001 (0.283)	-0.009 (0.285)
Elderly population			0.015 (0.680)	-0.009 (0.678)			0.015 (0.680)	-0.032 (0.689)
AIC	87	91	91	95	89	93	91	94
BIC	99	105	113	120	101	106	113	119
Log Likelihood	-38	-39	-35	-36	-39	-40	-35	-36
Num. obs.	72	72	72	72	72	72	72	72
Num. groups: country	19	19	19	19	19	19	19	19
Var: country (Intercept)	0.395	0.400	0.368	0.358	0.328	0.333	0.368	0.377
Var: Residual	0.076	0.078	0.069	0.071	0.080	0.081	0.069	0.069

Note. All estimates are obtained through a random-effects model accounting for country-specific effects. Standard errors are shown in parentheses. Variables are rescaled.

\*  $p < 0.05$

Figure 5.2.: Marginal Effects of Government Partisanship on Transfer Pricing Regulations



# Chapter 6

## Conclusions

This dissertation examines how partisan politics affects corporate tax policy transparency. Despite a large body of literature that emphasizes the role of partisan politics on the corporate tax rate setting, the current literature still lacks an explanation for why we observe wide variation in tax rates firms pay within a country. By focusing on a wide range of policy tools available to politicians, I argue that constituency costs affect left-leaning governments' incentive to maintain high tax rates, but simultaneously to employ opaque policy instruments like tax incentives to allow firms to effectively evade high tax rates. Since voters can easily evaluate the effect of corporate tax rates on their welfare in contrast to that of tax incentives, changes in tax rates yield high constituency costs relative to those in tax incentives. Thus, left-wing governments tend to produce opaque policy. They need to promote economic growth by reducing their tax burden through tax in-

centives with low constituency costs; they also need to garner voter support by avoiding policy instruments with high constituency costs.

I provide two types of evidence to support the argument: one indirect firm-level taxation analysis and two direct tax legislation and transfer pricing regulations analyses. The findings show that left-leaning governments maintain high corporate tax rates while simultaneously providing non-transparency policy instruments such as tax incentives and lax transfer pricing regulations to offset high corporate tax rates.

### **6.0.1 Future research**

This dissertation raises several questions to be further explored in future research. First, this dissertation relies on several untested important assumptions. The assumptions are that voters punish leftist candidates at the polls for cutting taxes on firms, and such a punishment will be greater for left-oriented voters. The reason is that these voters believe they stand to gain from higher corporate tax rates and view politicians who lower corporate taxes less favorably. However, these voters are less likely to punish a politician who reduces tax rates via opaque means. To examine the micro-level causal mechanism underlying partisan politics and policy transparency, a randomized survey experiment among voters on corporate tax policy needs to be conducted in future research.

What is more, this dissertation raises another question of how left-wing governments decide which firms receive non-transparent policy instruments. The

reasons for why the left provides non-transparent policy instruments are that the left needs to garner campaign donations from firms and promote economic growth for (re) elections. Yet how left-leaning governments pick the firms which get incentives remains unanswered. Future research needs to examine how partisan politics selects the winners by focusing on tax incentive bills in the United States.

Finally, the last question is how the constituency costs affect incentives of partisan governments when they delegate domestic authority to international organizations and comply with international agreements. This dissertation shows that left-leaning governments have a greater incentive to provide non-transparency policy instruments than right-leaning governments due to constituency costs. In line with this reasoning, it is plausible to expect that left-leaning governments will try to take credit to gain benefits from their positions on salient and popular issues while at the same time they will attempt to avert voters' punishment on complex and unpopular policy issues by delegating their authority to international organizations. Thus, future research needs to explore how constituency costs affect incentives of partisan governments in deciding delegation of authority to international organizations and compliance with international agreements.







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