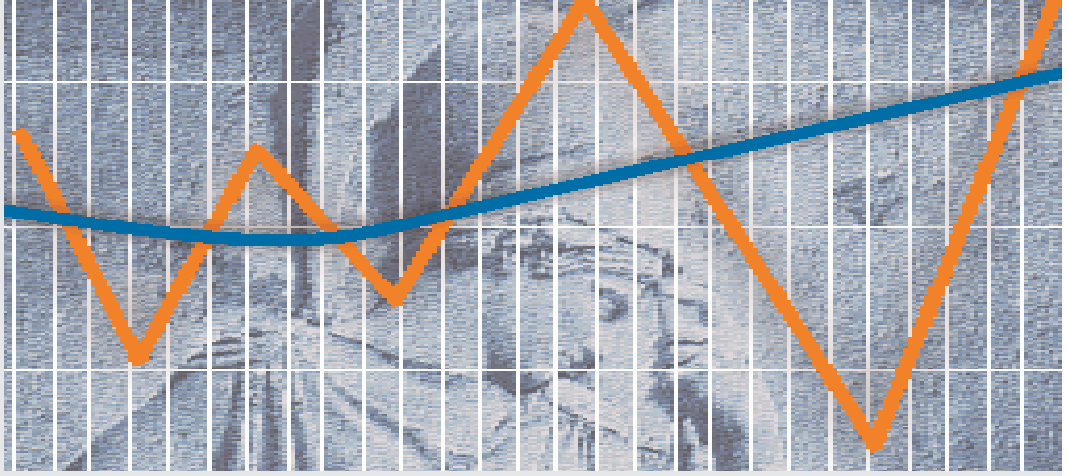

ifo Beiträge
67 zur Wirtschaftsforschung

Wealth and Politics: Studies on Inter Vivos Transfers and Partisan Effects

Christoph Schinke

ifo Institut
Leibniz-Institut für Wirtschaftsforschung
an der Universität München e.V.

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Preface

This dissertation was prepared by Christoph Schinke while he was working at the ifo Institute. It was completed in December 2015 and accepted as a doctoral thesis by the Department of Economics at the University of Munich in May 2016. The dissertation elaborates on topics that are related to (i) intergenerational transfers of wealth and to (ii) how government ideology and elections influence outcomes (income inequality and budget consolidation) and political processes (fiscal planning and policy advice). The dissertation consists of six studies. The first study investigates the determinants of inter vivos transfers of firm ownership. The results show that owners of larger firms, and firms with strong current business conditions, transferred ownership at higher rates than others. Inter vivos transfer rates also rose following a 2009 tax reduction on transfers of business assets. The second study delves into how the 2009 transfer tax reform influenced individual inter vivos transfers in Germany. The results do not show that the reform influenced transfers within the nuclear family, whereas transfers to close relatives and to unrelated recipients increased by about 30 percent. The third study describes how government ideology and globalization were associated with top income shares in OECD countries. The fourth study shows that German state politicians' and governments' words differed from actions regarding budget consolidation and the German debt brake. The fifth study describes how government ideology and upcoming elections influenced fiscal planning in German states. The results show that East German state governments underestimated the size of government in pre-election years. The sixth study investigates how ideological positions of German economic research institutes influenced policy advice in the Joint Economic Forecast.

Keywords: balanced-budget rule, decision making in committees, debt brake, electoral cycles, expressive rhetoric, family firms, fiscal forecasts, globalization, government ideology, inequality, inter vivos transfers, Joint Economic Forecast of German economic research institutes, minority voting,

nuclear family, panel data models, partisan theory, public debt, SOEP, tax reform, transfer taxes

JEL-Codes: D22, D31, D72, E32, E62, F62, H24, H60, H68, H72, H80, I23, N30

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Collaboration with my co-authors James R. Hines Jr., Björn Kauder, Ha Quyen Ngo, Niklas Potrafke, and Marina Riem was great and I thank them for fruitful and mutually inspiring cooperation.

With my colleagues Andreas Bastgen, Christian Breuer, Julian Dieler, Alexander Ebertz, Kai Jäger, Björn Kauder, Manuela Krause, Markus Reischmann, Marina Riem, Marie-Theres von Schickfus, and others, we had a great time and I thank them for advice, good conversations, and their friendship.

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Research assistants, many interns, our team assistants Annette Engellandt and Sabine Kolbinger, and other staff at the ifo Institute provided excellent support for research and project work. For proofreading the dissertation, thanks are due to Mathias Iwanowsky, Ana Maria Montoya Gómez, and Elisabeth Schinke.

During all my endeavors, my family has always been a shelter. Finally, I wish to thank Ana for taking this journey called life with me.

Wealth and Politics:
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zur Erlangung des Grades
Doctor oeconomiae publicae (Dr. oec. publ.)
an der Ludwig-Maximilians-Universität München

2015

vorgelegt von

Christoph Schinke

Referent: Prof. Dr. Niklas Potrafke
Korreferent: Prof. Panu Poutvaara, Ph.D.
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1. Introduction

Economists have been concerned about the distribution of wealth at least since Adam Smith. In his opus magnum, *An Inquiry into the Nature and Causes of the Wealth of Nations,* Smith describes the intergenerational transmission of inequality:

"Birth and fortune are evidently the two circumstances which principally set one man above another. (…) The great shepherd (…), respected on account of his great wealth, (…) and revered on account of the nobleness of his birth, and of the immemorial antiquity of his illustrious family, has a natural authority over all the inferior shepherds (…)." (Smith 1776, p. 553).

Accordingly, success in life may depend a great deal on the family that an individual is born into. In the family, individuals receive intangible goods such as education, values, norms, and habits,[1] but sometimes individuals also receive an endowment of wealth that is passed on from one generation to the next. Wealth can be transferred to the next generation as an inheritance, when parents die, or when parents decide to make inter vivos transfers (transfers between living individuals) to their children. Scholars investigate, for example, whether intergenerational transfers perpetuate wealth and income inequality (Piketty 2000, McIntosh and Munk 2009, Ichino et al. 2011). Examining the distribution of wealth is still a worthwhile endeavor in economic scholarship. Inequality issues, and whether intergenerational private transfers perpetuate wealth inequality, are heavily debated in the academic and in the public arena.[2]

The distribution of wealth depends on societal rules and politics, as John Stuart Mill stressed already in the 19th century:

"The Distribution of Wealth (…) is a matter of human institution solely. The things once there, mankind, individually or collectively, can do with them as they like. They can place them at the

[1] On the intergenerational transmission of education attainment, see, for example, Currie and Moretti (2003), Schütz et al. (2008), and Heineck and Riphahn (2009).

[2] In 2014, the public debate was sparked by the book "Capital in the Twenty-First Century" by Thomas Piketty. Media coverage on the book was divided along ideological lines: while left-wing newspapers reported favorably on the book, rightwing newspapers mainly criticized the book (Schinke 2015).

disposal of whomsoever they please, and on whatever terms. (…) The Distribution of Wealth, therefore, depends on the laws and customs of society. The rules by which it is determined are what the opinions and feelings of the ruling portion of the community make them, and are very different in different ages and countries; and might be still more different, if mankind so chose." (Mill 1848, 1885 edition, p. 182).

The quote shows that it is intriguing to examine how political rules and attitudes influence processes and outcomes. One concept to investigate political processes and outcomes is government ideology (sometimes also described as partisanship). Ideology "may mean any kind of action-oriented theory or any attempt to approach politics in the light of a system of ideas" (New Encyclopædia Britannica 1992, p. 768).[3] The partisan theories describe that leftwing governments appeal to the labor base of the population while rightwing governments rather appeal to capital owners; leftwing governments increase size and scope of government more than rightwing governments (Hibbs 1977, Alesina 1987). Scholars have applied the partisan theories to issues such as budget composition (Potrafke 2011), corporate taxation (Osterloh and Debus 2012), and the size and scope of government (Bjørnskov and Potrafke 2013).

In this dissertation I elaborate on a number of topics that are related to (i) intergenerational transfers of wealth and to (ii) how government ideology and elections influence outcomes (income inequality and budget consolidation) and political processes (fiscal planning and policy advice). The dissertation consists of six studies. The first study (joint work with James Hines, Niklas Potrafke, and Marina Riem) investigates whether a firm's business situation influences inter vivos transfers of firm ownership. The second study investigates how the 2009 transfer tax reform influenced inter vivos transfers in Germany. The third study investigates how government ideology and globalization were associated with top income shares. The fourth study (joint work with Niklas Po-

[3] In a stricter sense, five characteristics describe ideology: "(1) it contains an explanatory theory of a more or less comprehensive kind about human experience and the external world; (2) it sets out a program, in generalized and abstract terms, of social and political organization; (3) it conceives the realization of this program as entailing a struggle; (4) it seeks not merely to persuade but to recruit loyal adherents, demanding what is sometimes called commitment; (5) it addresses a wide public but may tend to confer some special role of leadership on intellectuals" (New Encyclopædia Britannica 1992, p. 768).

trafke and Marina Riem, published in the *German Economic Review*, Potrafke et al. 2016) investigates how politicians' and governments' ideology in German states influenced attitudes towards budget consolidation and the German debt brake. The fifth study (joint work with Björn Kauder and Niklas Potrafke) investigates how government ideology and upcoming elections influenced fiscal planning in German states. The sixth study (joint work with Ha Quyen Ngo, Niklas Potrafke, and Marina Riem, and forthcoming in the *Eastern Economic Journal,* Ngo et al. 2016) investigates how ideological positions of German economic research institutes influenced policy advice in the Joint Economic Forecast. All studies are self-contained.

At the time of finishing this dissertation, the German government is reforming inheritance and gift taxation.[4] At the request of the Constitutional Court,[5] inheritance and gift taxation is due to be reformed by mid-2016. An issue is the taxation of business assets, i.e., the ownership of family firms. Business assets are different from financial assets or real estate assets (the other important types of property that intergenerational transfers usually include): (i) family firms provide employment, and (ii) shares in family firms cannot be liquidated easily because assets are invested in buildings and machinery. Business assets, therefore, receive special tax treatment when being transferred from one generation to the next. The topic of the first study is "Inter Vivos Transfers of Ownership in Family Firms". We examine the determinants of inter vivos transfers of ownership in German family firms between 2000 and 2013. We show in a theoretical model that when firms have inside information on their business conditions, they may have incentives to make early inter vivos transfers to save transfer taxes. In the empirical part, we combine survey data on firms' transfer behaviour, firms' business conditions and other firm-specific characteristics with balance sheet data.[6] The results show that owners of larger firms, and firms with strong current business conditions, transfer own-

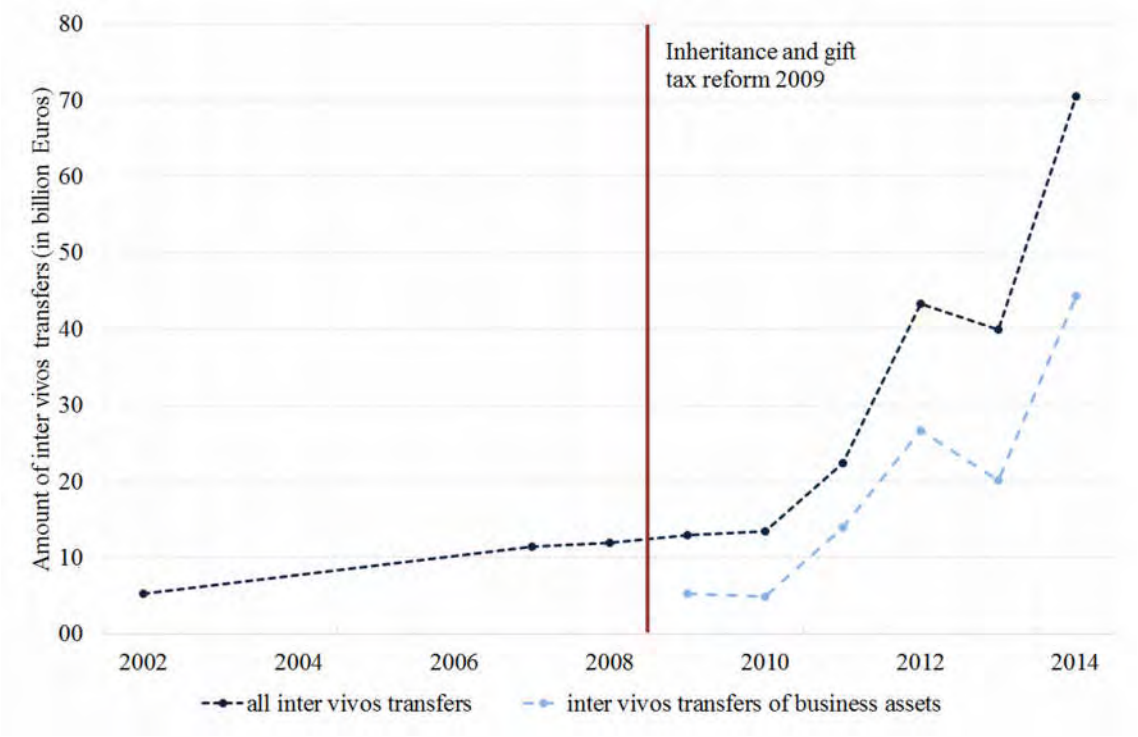
[4] On theoretical considerations regarding optimal inheritance taxation, see Grossmann and Poutvaara (2009) and Piketty and Saez (2013).

[5] Constitutional Court decision 1 BvL 21/12 (December 17, 2014).

[6] Data on firms' transfer behavior was obtained during a third party project on behalf of the *Stiftung Familienunternehmen* (see Potrafke et al. 2014 for the final report). Funding is gratefully acknowledged.

ership at higher rates than others. When a firm's self-described business condition improves from "normal" to "good" the chance of an inter vivos transfer increases by 46 percent. We also show that inter vivos transfer rates rose following the 2009 tax reduction on transfers of business assets. Figure 1.1 shows the amount of inter vivos transfers in Germany, according to tax statistics.[7] Inter vivos transfers increased by about 490% between the years 2008 and 2014, and the gains mainly accrued to inter vivos transfers of business assets. These patterns suggest that transfer taxes significantly influence rates and timing of inter vivos transfers of firm ownership.

Figure 1.1: Inter vivos transfers in Germany (2002-2014)



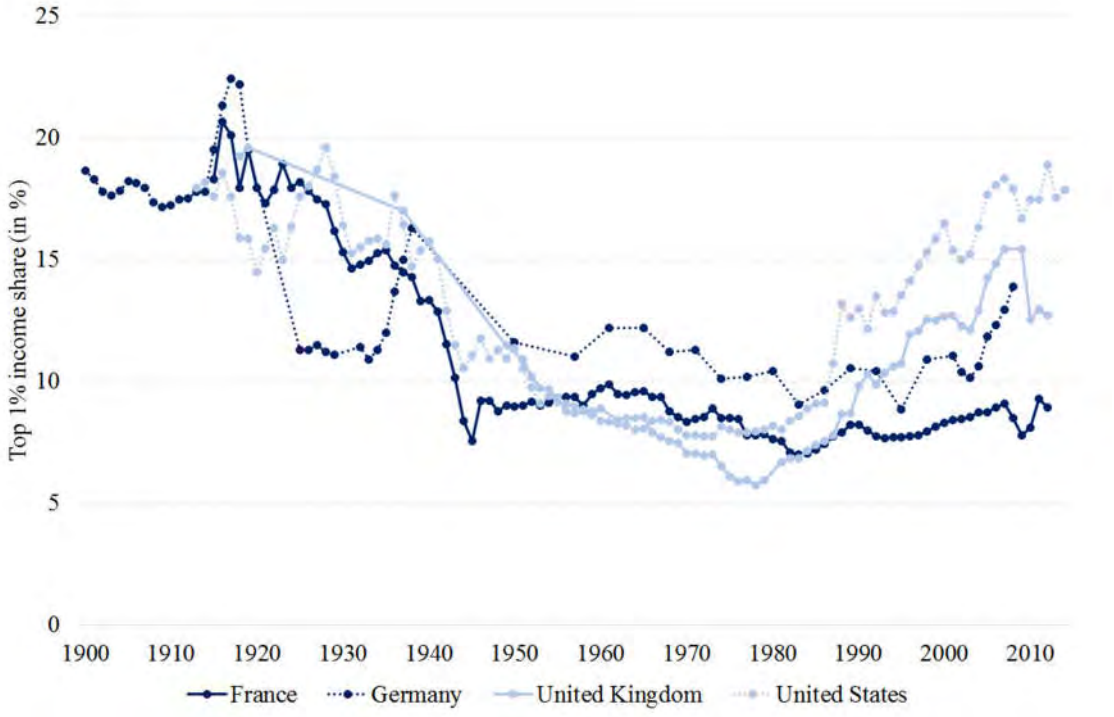
Source: inheritance and gift tax statistics (Federal Statistical Office).

In the second study, "Inter Vivos Transfers and the 2009 German Transfer Tax Reform", I examine the 2009 transfer tax reform more closely. The reform included changes in tax rates and personal tax exemptions and was supposed to benefit the nucle-

[7] Tax statistics underestimate the true amount of total transfers: Tax statistics do not include inter vivos transfers on which, because of tax exemptions, no tax returns were filed (Schinke 2012).

ar family. I use data from the Socio-Economic Panel (SOEP) that is representative for the German population and includes many personal characteristics. I investigate how the tax reform influenced inter vivos transfers (of all types of assets), and how the effects differed depending on the degree of relationship between donor and recipient. I apply a difference-in-differences approach, using as a control group those individuals who, because of personal tax exemptions, are not subject to gift taxation. The results show that the reform increased donors' propensity to make inter vivos transfers to close relatives by 29% and to unrelated recipients by 31%. The results do not show that the reform influenced donors' propensity to make inter vivos transfers to the nuclear family, nor the average amount of inter vivos transfers to any recipient.

Figure 1.2: Top 1% income shares (France, Germany, UK, USA, 1900 - 2014)



Source: World Top Incomes Database (November 2014).

Next, I turn to issues in political economy. In recent years, public awareness of income inequality appears to have increased. In particular, top income shares as a measure of income inequality have received much attention, especially in rich countries. Top income shares describe the share of (pre-tax) total income that accrues to people within

top percentiles of the income distribution. Many scholars have contributed to compiling a database that includes top income shares for 31 countries (November 2015).[8] Figure 1.2 shows top 1% income shares in France, Germany, the UK and the USA since 1900. The top 1% income share was almost 20% in all four countries and decreased to about 10% until 1950. Between 1980 and 2014, the top 1% income share has returned to pre-1939 levels in the USA, and increased to a lesser extent in the United Kingdom and in Germany. In France, top 1% income shares have remained almost stable since 1950. In the third study, "Government Ideology, Globalization, and Top Income Shares in OECD countries", I use data from the World Top Incomes Database for these and other countries to investigate how government ideology and globalization were associated with top income shares. I include 16 OECD countries over the period 1970 to 2010. Globalization is measured by the KOF index of globalization (Dreher 2006, Dreher et al. 2008) which measures globalization based on many variables, and in particular encompasses economic, social and political dimensions of globalization. Compared to earlier papers, the sample is updated and includes more countries, and I include the interaction effect of government ideology and globalization. The results show that under leftwing governments, the yearly increase of the top 1% income share was 0.2 percentage points lower than under rightwing governments. The effect was stronger when globalization proceeded more rapidly. The results do not show that government ideology influenced the year-on-year change of the next 9% income share. It is conceivable that globalization did not deprive governments of policy instruments to design distributive outcomes.

Which are the policy instruments that rightwing and leftwing governments use in different manners to design outcomes? Governments have many instruments at their disposal. In the fourth study, "Debt Brakes in the German States: Governments' Words and Actions", we focus on fiscal policy and investigate to which extent rightwing and leftwing governments differ in their attitudes towards budget consolidation. It is a popular belief that rightwing governments are keener to run balanced budgets than leftwing governments. In the paper we describe politicians' attitudes towards budget consolidation, looking at state level data to identify differences in policies depending on the ideologi-

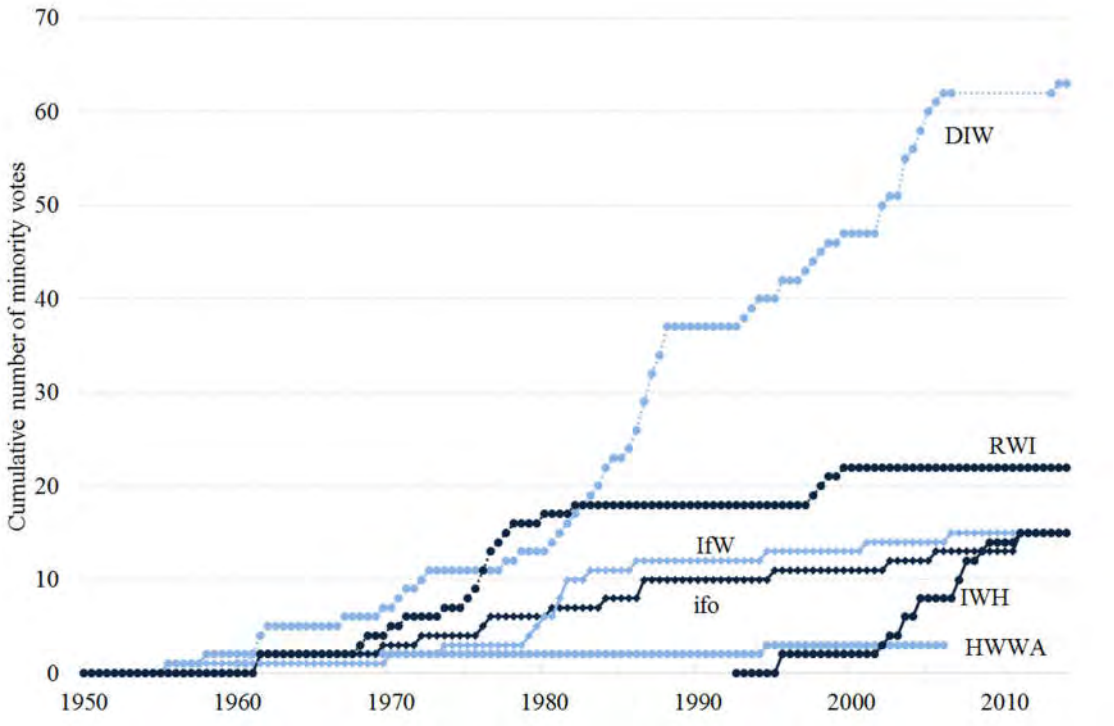
[8] See Atkinson et al. (2011) and http://topincomes.parisschoolofeconomics.eu.

cal position of governments. We use data from Germany: In 2009, a new law on German debt brakes was passed, which does not allow state governments to run structural deficits after 2020. States are, however, autonomous regarding their fiscal policies until 2020. Thus, consolidation strategies initiated between 2009 and 2020 influence if a state can comply with the debt brake in 2020. Our results show that attitudes towards budget consolidation, as expressed by politicians' words in the public debate, differed among parties. For instance, while the conservative CDU party clearly advocated debt brakes in 20 out of 23 party manifestos prior to state elections, the leftwing party Die Linke clearly opposed debt brakes in 13 out of 23 party manifestos. Descriptive statistics indicate that leftwing governments ran on average higher structural deficits than rightwing governments between 2010 and 2014. Primary deficits, however, hardly differed under leftwing and rightwing governments. Because primary deficits do not include interest spending on debt originating from the past, primary deficits describe the fiscal stance of a government better than overall deficits. So why did primary deficits not differ among individual types of government? The macroeconomic environment helped a great deal, as revenues of federal taxes in each year over the period 2010-2014 were much higher than expected and facilitated budget consolidation. Leftwing governments did not need to run deficits to design generous budgets. It is conceivable that parties confirmed their identities by using expressive rhetoric, but responded to shifts in public opinion after the financial crisis and pursued more sustainable fiscal policies when in office.

The next study examines fiscal planning. The German federal government and all state governments prepare projected budgets for the next five years to ensure the consistency of fiscal policies over time and to account for potential future fiscal risks. In "Manipulating Fiscal Forecasts: Evidence from the German States" we examine whether German state governments manipulated fiscal forecasts before elections. In theory, state governments may have incentives to promise voters higher public spending and lower taxes to win upcoming elections (Nordhaus 1975). Our data set includes three fiscal measures over the 1980-2012 period. The results do not show that electoral motives influenced fiscal forecasts in West German states. By contrast, East German state governments underestimated spending in pre-election years by about 0.20 percent of GDP, tax reve-

nues by about 0.36 percent of GDP, and net lending by 0.30 percent of GDP. Thus, East German state governments predicted low levels of spending and tax revenues and produced overcautious deficit projections. As an explanation we propose that East German state governments wanted to pretend convergence to the West German states by using forecasts in election years as a low-cost signaling device. East German politicians may well have believed that promising a size of government similar to Western states is valued by voters.

Figure 1.3: Number of minority votes in Joint Economic Forecast by economic research institute (1950-2014)



Source: own collection.

The last study focuses on the role that economic research institutes, such as the ifo Institute, play in the public debate on economic policy issues. In "Ideology and Dissent among Economists: The Joint Economic Forecast of German Economic Research Institutes" we examine minority votes in the Joint Economic Forecast of German economic research institutes. The leading economic research institutes in Germany prepare biannual reports on the state of the German and the world economy and on economic policy

issues. When an institute does not agree with the majority of institutes regarding the assessment of economic policy issues and recommendations of economic policies, the institute can submit a minority vote. Indeed, economists, and also economic research institutes, differ in their attitudes towards the desirability of economic policies, and the policy positions can often be determined by ideology. The dataset consists of voting behavior over the period 1950-2014. Our results (see Figure 1.3) show that the German Institute for Economic Research (DIW Berlin) submitted by far the most minority votes, consistent with the popular impression that the DIW exhibits a preference for more demand-oriented economic policies and has differed from the other leading economic research institutes in this respect. The DIW submitted 63 minority votes between 1950 and 2014, while the ifo Institute and the IfW Kiel submitted 15 minority votes and the RWI Essen submitted 22 minority votes in the same period. We propose that minority votes display an economic research institute's identity relative to other institutes. When institutes are known to be associated with specific economic-policy positions and preferences, politicians, clients, and voters can take this bias into account when assessing individual pieces of policy advice.

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2. Inter Vivos Transfers of Ownership in Family Firms[1]

2.1. Introduction

Successful family firms are commonly transferred from one generation to the next. Succession occurs naturally at an owner's death, but may also be planned in advance with inter vivos (during life) transfers. Business conditions, family considerations, and estate, gift, and inheritance taxes all have the potential to influence the timing and extent of inter vivos transfers. And these transfers, in changing ownership, may affect the operations and productivity of family firms.

This paper considers the determinants of inter vivos transfers of assets in German family firms. The analysis is based on unique survey data covering the years 2000-2013. The evidence indicates that inter vivos ownership transfers are most common in larger firms and those with strong business conditions. Furthermore, inter vivos transfers rose following a German tax reform in 2009 that reduced transfer taxes.

The difficulty of obtaining data has limited the number of empirical studies of inter vivos transfers of family firms. Scholars describe that macroeconomic conditions - especially financial factors such as the inability to find financial resources to liquidate the possible exit of heirs, the market environment or increased competition - may influence succession planning in family firms (De Massis et al. 2008, Vozikis et al. 2012). While firms are typically the focus of the theory and empirical interest, the units of observation in most data sets are households rather than firms. Empirical studies indicate that people react to tax incentives,[2] and that the amount of inter vivos transfers depends on the incomes of parents and children (Bernheim et al. 2004, Joulfaian 2004, 2005, Hrung 2004, Villanueva 2005, McGarry 1999, Arrondel and Laferrère 2001, Stark and Zhang 2002). People forego substantial tax savings by not making inter vivos transfers that fully ex-

[1] The chapter is joint work with James R. Hines Jr., Niklas Potrafke, and Marina Riem.

[2] On inheritance and inter vivos transfer taxation and legislation see e.g. Gale et al. (2001), Ellul et al. (2010), Hines (2010, 2013), Kopczuk (2013), Wrede (2014).

ploit annual gift tax exemptions (Poterba 2001, McGarry 2001, 2013, Joulfaian and McGarry 2004). Another strand of related literature considers bequest motives (Kotlikoff 1988, Modigliani 1988, Gale and Scholz 1994, Laitner and Ohlsson 2001, Arrondel and Masson 2006, Kopczuk 2007, Ameriks et al. 2011). Wealth transfers from one generation to the next may be accidental or intentional, with inter vivos transfers relatively clear cases of intentional choices.

The owner of a firm has better information on the business situation of his or her firm than do outsiders such as external investors, banks or tax authorities. Information asymmetries can influence a firm's financing and investment decision (Leland and Pyle 1977, Myers and Majluf 1984, Miller and Rock 1985). In a similar vein, decisions on ownership structure may depend on the firm's business situation as perceived by the firm owner. A firm's self-assessed current business situation is likely to offer information on firm value that is not contained in balance sheet variables. Balance sheets are backward looking, whereas the self-assessment of a firm's business situation by its owner reflects soft information and expectations about future developments that influence decisions of the owner. It is a worthwhile endeavour to investigate how a firm's self-assessed business situation relates to transfers of firm ownership to the next generation.

The paper's analysis of inter vivos transfers of assets in family firms is based on a new dataset that includes evidence from a survey conducted among German family firms on inheritances, inter vivos transfers and taxation. The dataset uses Germany's most important business cycle and firm survey data that serve as the foundation of the ifo Business Climate Index, Germany's leading business cycle indicator. The new survey data include information on the years when firms made inter vivos ownership transfers. These data are matched with ifo business survey data, which include information on how firm owners assess the current economic situation, business expectations, whether firm activity is constrained, and many other firm-specific characteristics. The data incorporate balance sheet information from external sources (Amadeus Bureau van Dijk and Hoppenstedt Firmeninformationen GmbH), and cover the years 2000 to 2013.

Business survey and balance sheet data are pre-processed and provided by the Economics and Business Data Center (EBDC), Munich.

The results indicate that when a firm's self-described business situation improves from "normal" to "good," then the chance of an inter vivos transfer rises by 46 percent. The reason for this timing may be that owners of firms with strong business situations anticipate higher tax valuations in the future, and therefore accelerate ownership transfers as part of prudent tax planning.

2.2. Inter Vivos Transfers and Family Firms

Despite the importance of estate planning and the availability of simple methods of tax avoidance, the evidence suggests that wealthy people make surprisingly few inter vivos transfers, thereby foregoing substantial potential tax savings (McGarry 2001, 2013). Empirical studies describe many factors that influence inter vivos transfers. Inheritance and gift taxes affect the timing of transfers, typically encouraging inter vivos transfers compared to bequests (Bernheim et al. 2004, Joulfaian 2004). Capital gain taxes can be offsetting considerations, since the favorable tax treatment of appreciated assets held until death can create some situations in which taxpayers benefit from avoiding inter vivos transfers (Poterba 2001, Joulfaian 2005). The composition of household wealth also influences the chance of making inter vivos transfers. When wealth is held in illiquid forms, such as private business, households are less likely to make inter vivos transfers than when wealth was held in more liquid forms (Poterba 2001). The amount of inter vivos transfers also increases with the lifetime income of parents (Poterba 2001, Hrung 2004): an additional dollar of parental lifetime income appears to increase inter vivos transfers by 0.7 cents in Germany and by 1.2 cents in the United States (Villanueva 2005). Another issue is the allocation of inter vivos gifts among heirs. Empirical studies indicate that parents make greater inter vivos transfers to children with lower incomes than to other children (McGarry 1999). The appeal of this type of redistribution is very intuitive, though as a theoretical matter there are models with the opposite prediction that parents would make greater inter vivos transfers to children with higher incomes than to children with lower incomes (Stark and Zhang 2002).

Family firms may be special cases due to tacit knowledge on the part of the founder or successor (Cabrera-Suárez et al. 2001, Kanniainen and Poutvaara 2007). Studies often find that family firms outperform other firms (Anderson and Reeb 2003). Following ownership succession, firms whose incoming CEOs are related to the departed CEO or firm founder tend to underperform relative to firms with new CEOs who are not related to firm insiders (Pérez-González 2006, Bennedsen et al. 2007, Grossman and Strulik 2010, Molly et al. 2010).

Owners of family firms may make provisions for succession during their lifetimes. In some situations there are incentives to purchase life insurance that will provide liquidity when estate taxes are due (Holtz-Eakin et al. 2001).[3] Several studies examine the succession planning of family businesses (e.g. Sharma et al. 1997, 2003). Sharma et al. (2003) find that even in cases where owners of family firms wanted to preserve their firms, the need to find successors did not induce succession planning. Succession planning appears to start only when trusted successors are available. Vozikis et al. (2012) predict that financial factors such as limited internal financial resources (high opportunity costs of obtaining external financing, inability to sustain transfer tax burdens, low capital stocks, and high earnings variability) impede succession planning. De Massis et al. (2008) describe potential obstacles to a smooth succession. These obstacles include private family conflicts (e.g. low ability or motivation of potential successors, family rivalries, and absence of mutual trust), financial issues (e.g. tax burdens or financial resources that are inadequate to liquidate possible exit of heirs) or changes in the economic environment of the firm (decline in business performance, loss of key customers, decreasing business scale). The willingness of offspring to join family firms correlates positively with business size (Stavrou 1999).

There are substantial transaction costs associated with transferring ownership of a family firm (Bjuggren and Sund 2005). Rates of ownership transfers are likely to be sensi-

[3] Liquidity problems driven by estate tax liabilities may force heirs of family firms to sell business assets (Astrachan and Tutterow 1996, Brunetti 2006, Houben and Maiterth 2011).

tive to changes in estate, gift and inheritance taxes, such as the 2004 abolition of transfer taxes in Sweden. Bjuggren and Sund (2001) describe the role of the legal system in facilitating smooth transition of family firms from one generation to the next.

2.3. German Inheritance and Gift Taxes

Germany does not tax estates, but it does tax receipt of inheritances and inter vivos gifts. Tax rates rise with the amount of gift or inheritance received, and rates are conditioned on the closeness of any family connection between those who give and those who receive. The lowest tax rates and highest exempt amounts apply to gifts to spouses, followed by children, grandchildren, other close relatives, and all others. The German government grants special tax relief for transfers of family business assets, the favorable tax treatment intended to preserve jobs in family businesses. For this purpose, business assets include agricultural and forestry assets and privately held shares in corporations when the owner holds more than 25% of the shares. Inter vivos transfers are subject to the same tax rules as inheritances.

Until 2008, business assets were assessed at tax values that were typically considerably lower than market values, the outcome of tax practices rather than explicit exemptions for family firms (Houben and Maiterth, 2011). In addition, there was a statutory tax exemption of €225,000 for transfers of business assets in family firms, and the remaining taxable amount was reduced by 35%.

Since 2009, business assets have been assessed at estimated market values. Firms with fewer than 20 employees can be transferred tax free. Owners of larger firms can choose between two types of tax relief, of which the first reduces the taxable amount of business assets by 85%. To be eligible for this relief, no more than 50 percent of business assets may consist of non-operating assets such as leased real estate, securities or cultural property; firm owners must commit to keeping the firm in business for at least five years; and the sum of wages and salaries over the following five years must be at least 400 percent of an historical average. An additional tax allowance of €150,000 may apply to the remaining 15 percent of business assets if this value is small. The second op-

tion is even more generous, exempting 100 percent of business assets, but can be chosen only if non-operating assets constitute no more than 10 percent of total business assets; the firm stays in business for at least seven years; and the sum of wages and salaries over the following seven years are at least 700 percent of an historical average. Firms benefitting from transfer tax relief must wait ten years before again being eligible.

Transfers of any business assets that remain after tax relief and exemptions, together with other assets such as real estate and financial assets, are subject to gift and inheritance taxation. Personal tax exemptions apply, e.g. €400,000 for a transfer from parent to child (€205,000 until 2008). Tax exemptions can be used every ten years, making inter vivos transfers an effective instrument for reducing taxes. Tax rates are progressive and vary between 7% and 50%, depending on the degree of kinship between decedent/donor and heir/donee, and the type of property transferred. Transfers to close relatives such as children are subject to lower rates of tax than transfers to more distant relatives such as cousins, which in turn are subject to lower rates of tax than transfers to unrelated individuals; furthermore, transfers of business assets are taxed at the low rates applicable to transfers to children, regardless of the beneficiary.

For example, consider a firm worth €15 million with over 20 employees that a firm owner transfers inter vivos to his son in 2010. Using the 85% tax relief option, business assets of €2.25 million are subject to taxation at the time of the transfer. Deducting the personal tax exemption of €400,000, the taxable transfer is €1.85 million. At a tax rate of 19%, the gift tax due is €351,500.

2.4. Analytical Framework

2.4.1. Timing of Ownership Transfers

Let q_t denote a family firm's true value at time t, and s_t denote the signal of firm value observed by the tax authority and other outsiders. The decision maker's (flow) after-tax return at time t of maintaining ownership by the original owner is given by $v(q_t)$, whereas the after-tax return is $w(q_t)$ if successors own the firm. These returns can dif-

fer if ownership affects firm performance or if the same return is taxed at different rates if received by different potential owners. In the absence of transfer tax considerations families would choose to transfer ownership in period *t* only if $w(q_t) > v(q_t)$. Transfer taxes complicate this decision.

A family chooses inter vivos transfers to maximize the present value ψ, given by:

(1) $$\psi = \int_0^t e^{-rt} v(q_t)dt + \int_t^\infty e^{-rt} w(q_t)dt \quad e^{-rt} \tau(s_t, t),$$

in which *r* is the decision maker's discount rate, t is the date of ownership transfer, and $\tau(s_t, t)$ is the transfer tax imposed in period *t* on a transfer of a family firm with observable value s_t. Time is an argument of the transfer tax function because tax laws vary over time, so the tax obligation associated with a transfer of a firm with a given observable value is time-dependent.

Differentiating ψ with respect to *t** produces:

(2) $$e^{rt} \frac{d\psi}{dt} = v(q_t) \quad w(q_t) + r\tau(s_t, t) \quad \frac{\partial \tau(s_t, t)}{\partial s_t} \frac{ds_t}{dt} \quad \frac{\partial \tau(s_t, t)}{\partial t}.$$

The right side of equation (2) is the (undiscounted) value of slightly delaying ownership transfer at time t, so an optimizing decision maker solving for an interior solution with continuous variables transfers the firm at time t only if this expression equals zero. The first two terms on the right side of equation (2) are familiar from the transfer decision in the absence of taxation, and have the intuitive property that delaying transfer is more attractive the greater is the difference between $v(q_t)$ and $w(q_t)$. Indeed, if $v(q_t)$ exceeds $w(q_t)$ to a sufficient degree at all times t, then the decision maker never transfers ownership of the firm until it becomes absolutely necessary (such as at the death of the original owner). Such situations arise if the original owner is a much more productive owner/manager of the firm than is the potential successor, at least as evaluated by the relevant decision maker (who is commonly the original owner).

The third through fifth terms on the right side of equation (2) capture the tax effects of delaying ownership transfer. The third term is the product of the discount rate and the tax cost of transfer, and reflects simply that delaying the incursion of a given tax liabil-

ity reduces its present value. The fourth term on the right side of equation (2) is the product of the marginal tax rate and the change in the taxable value of a family firm. A rising taxable value reduces the attractiveness of delaying a transfer, since with a positive marginal tax rate it is clearly better to transfer ownership of a firm when it is valued at €50 million than when it is valued at €100 million. Conversely, if a firm is declining in value then there is a tax benefit associated with delaying transfer. Notably, if the taxable value of a firm rises at the discount rate, then the third and fourth terms on the right side of equation (2) sum to zero. Consequently, other considerations equal, taxable firm values that rise faster than the discount rate are associated with accelerated transfers, whereas taxable values that rise more slowly than the discount rate are associated with delayed transfers.

The fifth term on the right side of equation (2) is the change over time in the tax due on the transfer of a firm of given taxable value. If tax rates are rising, then this term reflects that it is costly to delay ownership transfers; and conversely, if tax rates are falling, then it is beneficial to delay transfers.

Optimal ownership transfers incorporate all of these considerations. A local maximum at time t is characterized by a positive value of $\frac{d\psi}{dt}$ just prior to t, a zero value at t, and a negative value immediately following t. These properties reflect changing relative productivities of original owners and successors together with changing degrees to which tax liabilities evolve over time. One of the tax considerations may be that the decision maker anticipates that the taxable value of the firm will rise more or less slowly than the discount rate.

2.4.2. Taxable and Market Values of Family Business Property

Taxable values need not coincide exactly with actual values as understood by firm owners. The tax authority obtains signals of firm value that are largely accurate but may not incorporate recent information that has not yet been revealed in profitability or other objective measures. In order to capture the tax authority's information acquisition pro-

cess it is useful to consider a model in which the true value of a family firm at time $\hat{t}$ is given by:

(3) $$q_{\hat{t}} = z_{\hat{t}}\theta_{\hat{t}} + \int_0^{\hat{t}} u_t dt,$$

in which $z_{\hat{t}}$ is a vector of observable variables at time t, $\theta_{\hat{t}}$ is a date-specific coefficient vector, and u_t is a random variable with mean zero that is independently drawn at time t. $z_{\hat{t}}$ and $\theta_{\hat{t}}$ are assumed to be common knowledge. In the formulation of equation (3), the true firm value is a function of observable considerations captured in z and also a function of unobserved factors that evolve in a random walk fashion.

The signal of firm value available to the tax authority at time t is $s_{\hat{t}}$, given by:

(4) $$s_{\hat{t}} = z_{\hat{t}}\theta_{\hat{t}} + \int_0^{\hat{t}-\gamma} u_t dt + \int_{\hat{t}-\gamma}^{\hat{t}} u_t \left(\frac{\hat{t}-t}{\gamma}\right) dt.$$

In this formulation $s_{\hat{t}}$ differs from the true value $q_{\hat{t}}$ in that the calculation of $s_{\hat{t}}$ attaches linearly declining weight to more recent draws of u_t, starting a period of time γ prior to the present. This corresponds to the tax authority not having the same information as taxpayers about recent developments that affect the firm value, with the least weight attaching to the most recent developments.

In the model expressed by equation (4), and for unchanging values of z and θ, the tax authority's signal of firm value evolves according to:

(5) $$\frac{ds_{\hat{t}}}{d\hat{t}} = \frac{1}{\gamma}\int_{\hat{t}-\gamma}^{\hat{t}} u_t dt.$$

Equation (5) implies that if recent draws of $u_t$are positive, then s_t increases over time, reflecting that the tax authority only gradually incorporates the most recent information in its valuation of the firm. This most recent information, the cumulative draws of u_t between time t γ and time t, might also be described as the current business conditions of the firm. When current business conditions are favorable then the tax authority will gradually revise upward its valuation of the firm, whereas when current business conditions are unfavorable the tax authority will gradually revise downward its valuation of the firm.

It is useful to consider the application of the model of firm valuation in equations (3)-(5) to optimal ownership transfer characterized in equation (2). If tax laws are unchanging then $\frac{\partial \tau(s_t\ ,t)}{\partial t} = 0$ and the fifth term on the right side of (2) disappears. It follows from (5) that if current business conditions are favorable, $\frac{ds_{\hat{t}}}{d\hat{t}} > 0$ which, given that $\frac{\partial \tau(s_t\ ,t)}{\partial t} > 0$, should encourage earlier transfers of ownership. It is worth bearing in mind that $\frac{d\psi}{dt} = 0$ characterizes local optima, of which there may be more than one, and that discrete changes in tax laws or business conditions may produce situations in which there are discrete jumps in the value of ownership transfers.

2.5. Data and Descriptive Statistics

2.5.1. Data

We conducted a survey on inheritances, inter vivos transfers, and transfer taxation (the Inheritance and Gift Tax Survey – IGTS) among owners of family firms in February and March 2014. We first asked participants in the monthly ifo business survey whether they considered themselves to be family firms.[4] The ifo business survey is conducted every month among 7,000 German firms, and provides the basis for the ifo Business Climate Index, Germany's leading business cycle indicator. 4,660 firms identified themselves as family firms. We then sent out the IGTS to the family firms. The response rate was quite high at about 36%.[5] Among other things, respondents gave information on the year in which they made inter vivos transfers (the exact amount of transfers is unknown) and the year in which they paid the gift tax.[6] Understanding the determinants of this measure of inter vivos transfer is the focus of this study.

[4] A firm is defined as a family firm if most voting capital is held by one or several interconnected families.

[5] See Seiler (2010) on nonresponse in business surveys.

[6] The survey questions are "Have there been inter vivos transfers of assets in your firm since the year 2000? Yes, in the year…/ no," and "Have you paid the gift tax since the year 2000? Yes, in the year …/no."

The IGTS data on transfers of business ownership are matched to ifo business survey data. The ifo business survey includes information on the current state of business,[7] the expected development of employment, and credit conditions. Survey measures based on the self-assessment of managers may contain more information than that embedded in financial statement data. Survey responses related to the current state of business, for example, may reflect not only current turnover and profit figures (Abberger et al. 2009), but also new information, especially when requested in the second half of the year when balance sheet information is old (Hönig 2012). Similarly, self-reported firm credit conditions capture financial restrictions more comprehensively than do standard measures such as leverage, credit ratings, and liquidity. Since our sample consists of firms that are not quoted on the stock exchange, financial restrictions can be quite important (Hönig 2012). The business survey data also includes firm characteristics such as numbers of employees, broad industry (construction, retail, manufacturing or services), the founding year and the legal form of each firm. In addition to the survey-based data, we use balance sheet data such as total assets and total equity, based on the Amadeus Bureau van Dijk and Hoppenstedt Firmeninformationen GmbH data bases.[8] Business survey and balance sheet data are pre-processed and provided by the Economics & Business Data Center (EBDC) at the University of Munich and the ifo Institute, Munich.[9]

The study uses annual data. In cases where monthly data are available, for instance from the business survey, these data are converted to yearly frequency by computing yearly averages. Balance sheet data are not available for all firms, and not for the year 2013. The sample size therefore decreases considerably when including balance sheet control variables in some regressions.

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[7] The survey statement is "We evaluate our present state of business as good/satisfactory/bad." Complete questionnaires are available at doi: 10.7805/ebdc-bep-2012.

[8] See Hoenig (2009, 2010) on how survey and balance sheet data are linked.

[9] See Seiler (2012) for more information on the data the EBDC provides.

2.5.2. Descriptive Statistics

Table 2.5 shows descriptive statistics for the subsamples of firms that did not, and those that did, make inter vivos transfers. The total sample includes 13,706 observations of 1,654 firms. 316 firms reported one or more inter vivos transfers (358 inter vivos transfers in total) since 2000. The share of firms making inter vivos transfers is thus quite small.[10] Since business assets are an illiquid form of wealth, the small share of observed inter vivos transfers in our sample is reasonable (Poterba 2001). Two of the variables in Table 2.5 are reported in categorical form. The first is firm employment, which is measured as an integer from 0-5, with 0 corresponding to 0-19 employees, 1 corresponding to 20-49 employees, 2 corresponding to 50-249 employees, 3 corresponding to 250-999 employees, 4 corresponding to 1000-4999 employees, and 5 corresponding to 5000 or more employees. The second is the legal form of firm organization, measured as an integer from 1-3, with 1 corresponding to proprietorships (firms owned by single individuals), 2 corresponding to partnerships (firms owned by multiple individuals who bear liability for firm debts), and 3 corresponding to corporations (whose owners have limited liability). Table 2.6 shows pairwise correlations of the variables.

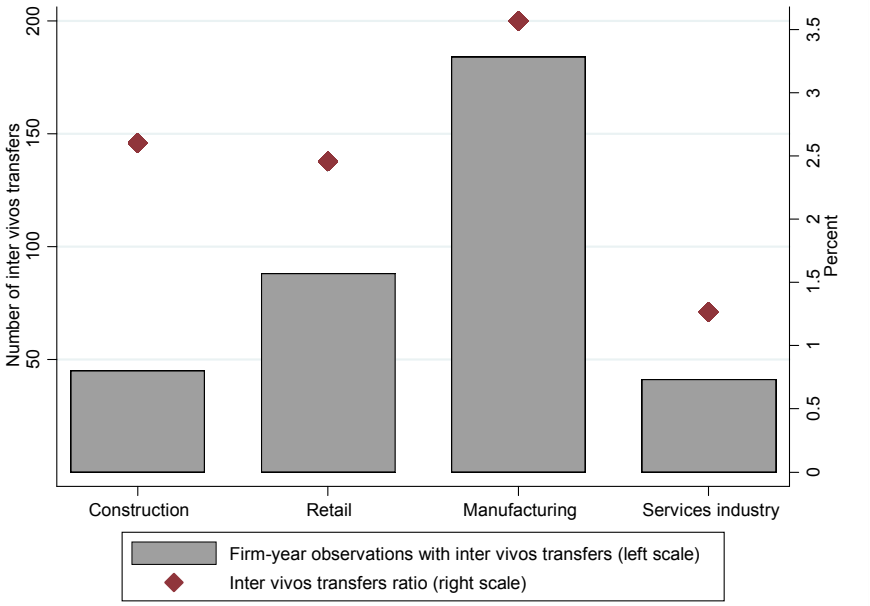
Figure 2.1, Figure 2.2, and Figure 2.3 describe the distribution of inter vivos transfers, depending on industry, legal form, and the number of employees. The sample includes firms in the construction (45 inter vivos transfers), retail (88 transfers), manufacturing (184 transfers) and service industries (41 transfers). The rhombi in Figure 2.1 show that relative to the whole sample, inter vivos transfers are more likely to occur in the manufacturing, construction, and retail industries than in services. Figure 2.2 shows that inter vivos transfers mostly occurred in firms operating as partnerships (46 transfers) or corporations (44 transfers), but rarely in proprietorships (one transfer).[11] Figure 2.3 shows that most inter vivos transfers in the sample (126 transfers) are made by firms with between 50 and 249 employees. The rhombi indicate that the likelihood of making inter

[10] Presumably, even fewer transfers would have been reported if the survey question had asked about received transfers instead of given transfers (Gale and Scholz 1994).

[11] Data on the legal form and the number of employees is not available for the entire sample. The sum of inter vivos transfers is therefore not identical across Figures 2.1 to 2.3.

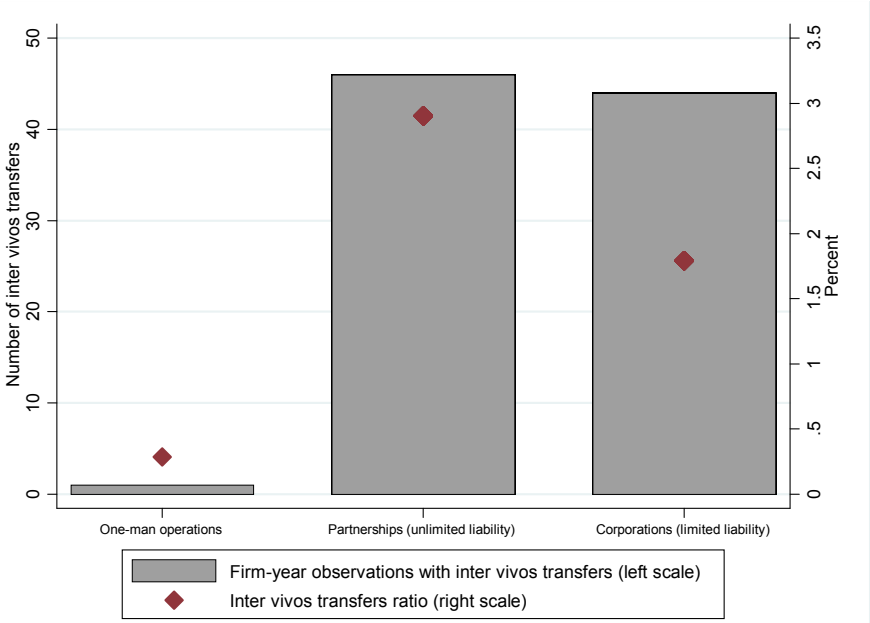
vivos transfers increases with numbers of employees. While inter vivos transfers occur in only 1.46% of firm-year observations of firms with fewer than 19 employees, they do so in 8% of the cases of firms with more than 5000 employees.

Figure 2.1: Inter vivos transfers (absolute and relative) by industry



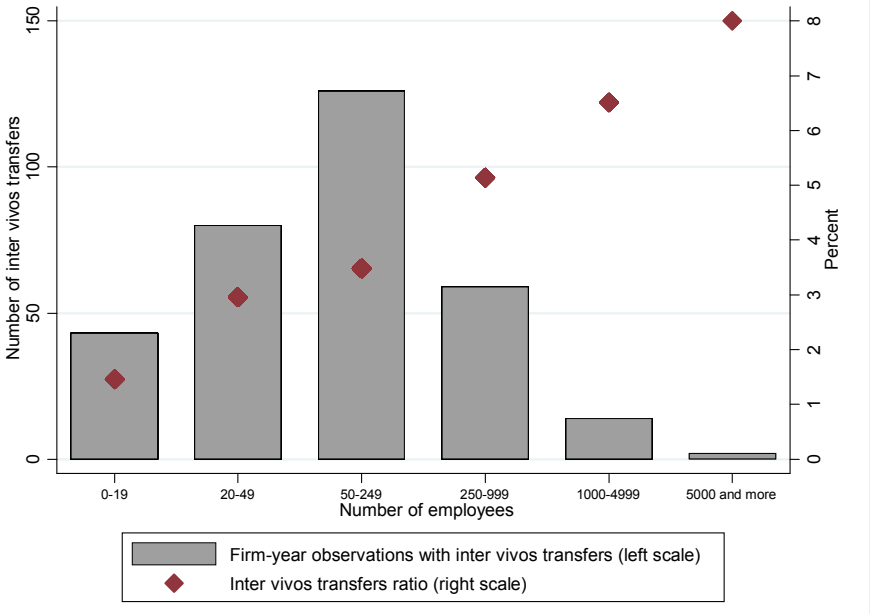
Note: The inter vivos transfers ratio describes the ratio of firm-year observations with inter vivos transfers over all firm-year observations in the sample.

Figure 2.2: Inter vivos transfers (absolute and relative) by legal form



Note: The inter vivos transfers ratio describes the ratio of firm-year observations with inter vivos transfers over all firm-year observations in the sample.

Figure 2.3: Inter vivos transfers (absolute and relative) by firm size



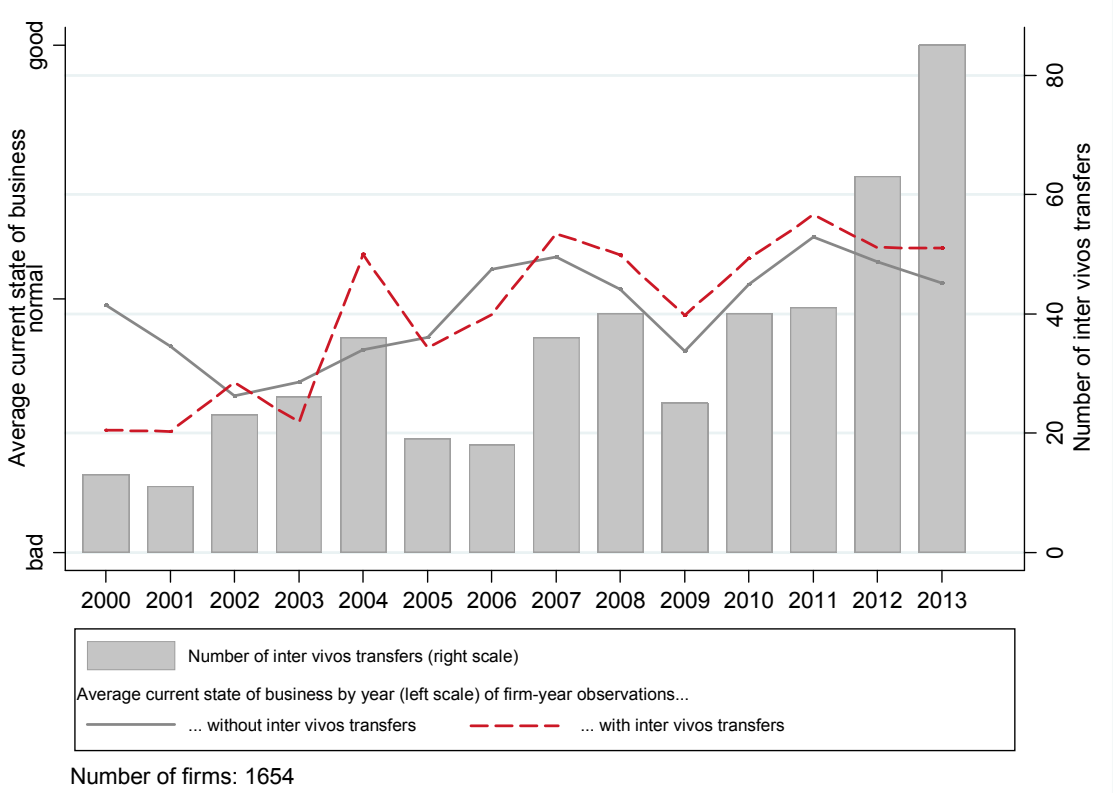
Note: The inter vivos transfers ratio describes the ratio of firm-year observations with inter vivos transfers over all firm-year observations in the sample.

Figure 2.4 shows the average current state of business of firm-year observations with and without inter vivos transfers. The red, dashed line describes for each year the aver-

age current state of business for the sample of firms that made inter vivos transfers in the given year (left scale). The grey, solid line describes the average current state of business for the sample of firms that did not make inter vivos transfers in the given year (left scale). The bars in the background show the number of inter vivos transfers made in a given year (right scale). The number of inter vivos transfers is higher toward the end of the observation period than at the beginning. Figure 2.4 shows that firms making inter vivos transfers in most years had better current business states than firms that not making inter vivos transfers (i.e., the red line is above the grey line). The years 2000-2001, 2003, and 2005-2006 are exceptions, though the relatively small numbers of inter vivos transfers in these years makes inference potentially more sensitive to outliers. The figure also shows that the current state of business and numbers of inter vivos transfers are positively correlated. For example, when the financial and economic crisis hit in 2009 and the business situation deteriorated, firms made fewer inter vivos transfers than in preceding or subsequent years.

Most reported transfers took place since 2010. It is impossible to rule out recall bias, in which survey respondents are less apt to remember inter vivos transfers made years earlier – though these ownership transfers are so important to owners of family firms that it is difficult to imagine that they could possibly forget even the details of transfers during the preceding 15 years. In a similar vein, some family firms in the sample might not have been in existence at the start of the observation period. Another source of potential bias is sample selection, because, by construction, the sample includes only firms that still operated in 2014. Unsuccessful family firms disappeared from the market and cannot be included.

Figure 2.4: Inter vivos transfers and current state of business (2000-2013)



2.6. Empirical Analysis

2.6.1. Empirical Strategy

The theory sketched in Section 2.4 implies the following baseline empirical model of the ownership transfer decision:

(6) $$T_{it} = \beta_1 c_{it} + \beta_2 x_{it} + \varepsilon_{it},$$

in which T_{it} takes the value one if firm i reports an inter vivos transfer in year t, and is zero otherwise. The variable c_{it} in equation (6) is the yearly average of firm i's perception of the current business situation, measured on a scale between one (bad) and three (good). The variable x_{it} is a vector of firm i and year t characteristics, and β_1 a scalar and β_2 a vector of coefficients to be estimated. Control variables include the size of each firm as measured by the numbers of employees and a dummy variable for the time period before the 2009 reform of inheritance and gift taxation. It is reasonable to expect inter vivos transfers to occur more frequently among larger firms with better current

business conditions, and in years when the tax regime favors inter vivos transfers relative to inheritances. Additional control variables include firm assets, firm equity, firm age, dummy variables for a firm's legal form of organization, a firm's self-reported credit status, and its expected future development of employment. Equation (6) is estimated as a random-effects logit model with classical standard errors.

2.6.2. Results

Table 2.1 shows results of estimating equation (6), displayed in odds ratios, for which an odds ratio of 1.0 implies that the associated variable has no effect on the dependent variable, and the p-values reported in Table 2.1 correspond to tests of the hypotheses that the odds ratios equal unity. The regression reported in the first column includes the current business situation as an explanatory variable; the associated 1.439 odds ratio implies that improving business conditions from "normal" to "good" increases the likelihood of an inter vivos transfer by 43.9 percent. The odds ratio is statistically significant at the 1% level. The regressions reported in columns (2) to (4) include industry fixed effects, and sequentially add a dummy variable for the period before 2009, and numbers of employees (measured in six categories). The 1.456 odds ratio in column (4) implies that when the current business situation increases by one point (from normal to good), the chance of making an inter vivos transfer increases by 45.6 percent. The 0.499 odds ratio of the dummy variable for the period before 2009 in column (4) is smaller than one and statistically significant at the 1% level, indicating that firms were less likely to make inter vivos transfers before the inheritance and gift tax reform in 2009 than after the reform. The odds ratio of the current business situation remains statistically significant at the 1% level. The odds ratio of the number of employees is larger than one and statistically significant at the 1% level in column (4).

Table 2.1: Baseline regressions

	(1) Inter vivos transfers	(2) Inter vivos transfers	(3) Inter vivos transfers	(4) Inter vivos transfers
Current state of business	1.439***	1.516***	1.420***	1.456***
	(0.000)	(0.000)	(0.000)	(0.000)
Pre estate and gift tax reform 2009			0.543***	0.499***
			(0.000)	(0.000)
Number of employees (cat.)				1.453***
				(0.000)
Industry Fixed Effects	No	Yes	Yes	Yes
Observations	13706	13706	13706	10661
Groups	1654	1654	1654	1639
Pseudo R2	0.00437	0.0187	0.0276	0.0351
Chi-squared	14.48	62.09	91.41	101.9
Prob > Chi-squared	0.000141	1.05e-12	3.40e-18	9.89e-20
Log likelihood	-1650.3	-1626.5	-1611.9	-1399.7

Random-effects logit models with classical standard errors; odds ratios; *p*-values in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

In Table 2.2 we include more control variables. The regressions presented in columns (1) and (2) add control variables for the firm's expected development of employment and credit conditions. The odds ratio of the credit conditions variable is statistically significant at the 1% level, its magnitude implying that when credit conditions are difficult, the chance of making an inter vivos transfer decreases by 36.6%. The regressions in columns (3) to (5) control for other firm specific characteristics: firm age (in years), a firm's legal form of organization, total assets (in logs, column 8), and total equity (in logs, column 5). The odds ratio of firm age (a variable, it might be noted, that has a maximum value of 882 years) is statistically significant at the 5% level only in the regression reported in column (3). The odds ratio of total assets is statistically significant at the 1% level, and similarly, the odds ratio of total equity is statistically significant at the 5% level; together they indicate that inter vivos transfers are more common among larger and more valuable firms.[12] Inclusion of these firm size and value variables somewhat diminishes the statistical significance of the effect of the current business situation, reflecting the collinearity of these variables as well as smaller sample sizes. As noted in section 4.2, good current business situations affect expected future firm value but may

[12] These specifications, and indeed the available data, do not distinguish between wealth effects (Poterba 2001, Hrung 2004, Villanueva 2005) and ownership effects (more valuable firms have more owners and therefore more potential donors).

not be yet captured in current taxable value. Because firm characteristics are not available for the full sample, the number of observations drops considerably between the regressions reported in columns (1)-(4) of Table 2.1 and those including firm age and size reported in columns (3)-(5). The regression reported in column (6) includes a linear and quadratic time trend to control for whether firms made inter vivos transfers more frequently in recent years. The estimated odds ratio of the squared trend is statistically significant at the 5% level, suggesting that transfers have been more frequent recently; inclusion of time trend variables does not change the estimated positive effects of firm size and the current state of business.

The regression results indicate that better current business situations are associated with greater likelihoods of inter vivos transfers. The association persists when controlling for the 2009 tax reform, industry, firm size, and firm value. This pattern is consistent with firm owners having inside knowledge about a firm's current business situation that is not yet fully captured in taxable value for transfer tax purposes. As a result, when the current business situation is good, a firm's valuation for transfer tax purposes is likely to increase in the future, creating an incentive to accelerate asset transfers. In addition, when a firm's business situation is good, the firm owner perceives the firm to be more successful in the future than when the business situation is bad, and possibly less needy of the value provided by maintaining original ownership. Anticipating the need at some point to pass on a successful firm to the next generation is likely to influence tax planning and encourage immediate transfers of business assets.

Table 2.2: Regressions with additional control variables

	(1) Inter vivos transfers	(2) Inter vivos transfers	(3) Inter vivos transfers	(4) Inter vivos transfers	(5) Inter vivos transfers	(6) Inter vivos transfers
Current state of business	1.374** (0.012)	1.444*** (0.002)	2.212*** (0.001)	1.495* (0.097)	1.538* (0.079)	1.359*** (0.004)
Pre estate and gift tax reform 2009	0.502*** (0.000)	0.568*** (0.000)	0.630* (0.064)	0.962 (0.885)	0.940 (0.816)	1.385 (0.200)
Number of employees (cat.)	1.451*** (0.000)	1.498*** (0.000)	1.148 (0.269)			1.472*** (0.000)
Expected development of employment	1.187 (0.400)					
Credit conditions		0.634*** (0.007)				
Firm age			1.003** (0.018)	1.000 (0.909)	1.001 (0.730)	
Proprietorships			0.165* (0.080)	0.000 (1.000)	0.000 (1.000)	
Corporations (limited liability)			0.694 (0.149)	0.797 (0.406)	0.715 (0.216)	
Total assets (log)				1.284*** (0.003)		
Total equity (log)					1.183** (0.020)	
Linear time trend						0.971 (0.735)
Squared time trend						1.011** (0.027)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10659	8407	2798	2590	2378	10661
Groups	1639	1222	625	748	706	1639
Pseudo R2	0.0354	0.0419	0.0492	0.0458	0.0386	0.0434
Chi-squared	102.6	101.9	31.85	27.47	22.43	125.9
Prob > Chi-squared	3.11e-19	1.02e-19	0.0000990	0.00117	0.00762	1.97e-23
Log likelihood	-1399.3	-1163.4	-307.7	-285.9	-279.3	-1387.7

Random-effects logit models with classical standard errors; odds ratios; *p*-values in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

2.6.3. Robustness Tests

Table 2.3 presents the results of additional regression specifications intended to explore the robustness of the results appearing in Table 2.1.

Table 2.3: Alternative specifications I

	(1) FE Logit	(2) RE Probit	(3) RE OLS	(4) RE Logit: before tax reform	(5) RE Logit: after tax reform
Current state of business	1.461**	0.161***	0.010***	1.394*	1.522***
	(0.010)	(0.000)	(0.000)	(0.090)	(0.001)
Pre estate and gift tax reform 2009	0.497***	-0.286***	-0.019***		
	(0.000)	(0.000)	(0.000)		
Number of employees (cat.)		0.161***	0.011***	1.138	1.611***
		(0.000)	(0.000)	(0.233)	(0.000)
Lead current state of business					
Industry Fixed Effects	No	Yes	Yes	Yes	Yes
Observations	3255	10661	10661	4501	6160
Groups	316	1639	1639	769	1639
Pseudo R2	0.0264	0.0344		0.00613	0.0405
Within R2			0.00334		
Chi-squared	40.66	99.76	82.14	5.555	79.68
Prob > Chi-squared	1.48e-09	2.81e-19	1.29e-15	0.235	9.80e-16
Log likelihood	-748.9	-1400.8		-450.0	-944.2

Classical standard errors in columns (1)-(2) and (4)-(5), Huber/White/sandwich standard errors in column (3); Odds ratios (except columns 2 and 3); *p*-values in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Unobserved firm-specific characteristics (such as the presence of a qualified successor or the age of the owner) may be correlated with the regressors. It is possible to control for unobserved firm-specific characteristics by estimating fixed effects models that exploit only the within variation of the explanatory variables. Fixed effects estimation of nonlinear panel data is possible for the logit model, but not for the probit model. Column (1) of Table 2.3 reports the results of a fixed-effects logit model, which are consistent with inferences based on the results reported in Table 2.1. Among firms making at least one inter vivos transfer during the observation period, inter vivos transfers are 46.1 percent more likely to occur when the current state of business is good than when the current state of business is normal.

Table 2.4: Alternative specifications II

	(1) RE Logit: Inter vivos<=1	(2) RE Logit: Firm age<250	(3) RE Logit: Lag state of business	(4) RE Logit: Lead state of business
Current state of business	1.429***	2.209***		
	(0.003)	(0.001)		
Pre estate and gift tax reform 2009	0.519***	0.625*	0.492***	0.582***
	(0.000)	(0.062)	(0.000)	(0.000)
Number of employees (cat.)	1.373***	1.151	1.475***	1.357***
	(0.000)	(0.278)	(0.000)	(0.000)
Firm age		1.003		
		(0.332)		
Proprietorships		0.166*		
		(0.081)		
Corporations (limited liability)		0.699		
		(0.164)		
Lagged current state of business			1.444***	
			(0.001)	
Lead current state of business				1.166
				(0.220)
Industry Fixed Effects	Yes	Yes	Yes	Yes
Observations	10309	2791	9600	9038
Groups	1607	624	1614	1612
Pseudo R2	0.0264	0.0454	0.0381	0.0221
Within R2				
Chi-squared	62.99	29.03	101.1	49.29
Prob > Chi-squared	1.11e-11	0.000313	1.47e-19	6.52e-09
Log likelihood	-1160.0	-305.2	-1277.3	-1089.7

Classical standard errors; odds ratios; *p*-values in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Columns (2) and (3) of Table 2.3 present the results of estimating random-effects probit and OLS models, instead of the baseline random-effects logit model. The results remain qualitatively unchanged. Columns (4) and (5) display the results of logit estimation of the determinants of inter vivos transfers before and after the 2009 reform; in both time periods the likelihood of asset transfer is positively associated with the current state of business. The regression reported in column (1) of Table 2.4 restricts the sample to firms making at most one inter vivos transfer over the observation period, with results that closely resemble those for the whole sample reported in column (4) of Table 2.1. The regression reported in column (2) of Table 2.4 uses data only for firms not older than 250 years, thereby dropping seven of the observations used in the regression reported in column (2) of Table 2.2. The results are almost identical, with the current state

of business continuing to be associated with asset transfers, but the odds ratio of firm age now not statistically significant.

The regression reported in column (3) addresses the potential endogeneity of the current state of business variable by using its first lag rather than the contemporaneous value. The estimated odds ratio diminishes in magnitude but remains statistically significant. The regression reported in column (4) drops this lagged variable and instead uses the first lead, as a result of which the estimated odds ratio becomes not statistically significant. Several other specification checks produced results consistent with those reported in the Tables.[13]

Because the study relies on survey data, response behavior may raise sample selection issues. Firms making inter vivos transfers could be overrepresented in our sample since the topic of the questionnaire is inheritance, inter vivos gifts, and their taxation. Firms unfamiliar with the inheritance and gift tax law because they did not experience a succession or did not make inter vivos transfers may have been less likely to participate because they did not consider themselves to have anything to contribute to the survey. Table 2.7 compares family firms responding to the IGTS to firms not responding. T-tests reported in Table 2.7 indicate that the means of credit conditions and firm age are not statistically different in the two subsamples. Firms responding to the survey had a somewhat worse current state of business and expected development of employment than firms not responding (2.07 and 2.10; 1.98 and 2.00). Firms responding to the survey tend to be somewhat smaller than non-response firms as measured by log total assets and log total equity (14.58 and 14.87; 13.12 and 13.41). A chi-squared test does not reject the null hypothesis that response behavior is independent of the federal state within Germany (p-value of 0.51, see Figure 2.5), but chi-squared tests indicate that response behavior varies with numbers of employees, industry and legal form. Firms responding to the survey tend to have fewer employees than firms choosing not to re-

[13] Replacing the current state of business variable with 0-1 dummies for either good or bad business conditions (two separate specifications) produces results very similar to those reported in Table 2.1, as does estimation of standard errors in the Table 2.1 baseline regressions using bootstrap and jackknife procedures.

spond.[14] The results of the chi-squared tests and t-tests notwithstanding, there is little evidence that sample selection is an important issue in interpreting the results, since differences between the subsamples are small and the categorical variables assume multiple values in both of the subsamples. Furthermore, there is little reason to expect that self-classification as a family firm in the ifo Business Climate Survey to be prone to sample selection, since firms answered this question prior to learning the topic of the IGTS.

2.7. Conclusion

Policymakers are understandably concerned about the potential effect of transfer taxes on the liquidity of family firms and the resulting viability of ongoing business operations. One way to address liquidity issues is to encourage inter vivos giving, so that firms choose when to transfer ownership rather than relying on mortality. The results in this paper indicate that ownership succession is more likely when market conditions are good, which is consistent with tax avoidance and with a desire to transfer ownership of better-performing assets. It may also be the case that when the business situation is good, firm owners have the time and resources to tackle the (not urgent) problem of succession planning.

These patterns suggest that, for a given firm value, intergenerational transfer taxation imposes greater burdens on underperforming firms than on firms that perform well. Well performing firms are more likely to make inter vivos transfers of business assets, which are generally tax favoured and can be timed to maximize tax advantage. If an underperforming firm does not manage to prepare for succession in advance, the inheritance tax burden at the moment of the owner's death will be larger than the tax burden of an otherwise-similar well performing firm, the assets of which were transferred during lifetime. The desirability of distinguishing tax burdens in this way may depend on

[14] Firm size is correlated with industry and legal form: firms in the retail and the services industries have, on average, fewer employees than firms in the construction and manufacturing industries, and firms operating as proprietorships have, on average, fewer employees than firms operating as corporations or partnerships.

the impact of transfer taxes on the activities of well performing and poorly performing firms, about which currently very little is known.

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Appendix: Additional Tables and Figures

Table 2.5: Descriptive statistics

	Obs.	Mean	Std. Dev.	Min.	Max.	Source
No inter vivos transfers						
Inter vivos transfers	13348	0.00	0.00	0	0	- see below -
Current state of business	13348	2.01	0.57	1	3	
Expected development of employment	13341	1.95	0.34	1	3	
Number of employees (cat.)	10337	1.33	1.07	0	5	
Credit conditions	8259	0.31	0.46	0	1	
Firm age	3792	40.01	45.59	0	882	
Total assets (log)	3025	14.86	1.87	7	21	
Total equity (log)	2797	13.57	2.10	6	21	
Inter vivos transfers						
Inter vivos transfers	358	1.00	0.00	1	1	
Current state of business	358	2.13	0.56	1	3	
Expected development of employment	358	2.00	0.34	1	3	
Number of employees (cat.)	324	1.77	1.07	0	5	
Credit conditions	278	0.17	0.38	0	1	
Firm age	87	56.74	98.87	0	880	
Total assets (log)	68	15.75	2.12	8	21	
Total equity (log)	67	14.36	2.56	8	21	
Full sample						
Inter vivos transfers	13706	0.03	0.16	0	1	Own collection (Inheritance and Gift Tax Survey)
Current state of business	13706	2.01	0.57	1	3	Ifo business survey
Expected development of employment	13699	1.95	0.34	1	3	Ifo business survey
Number of employees (cat.)	10661	1.35	1.07	0	5	Ifo business survey
Credit conditions	8537	0.30	0.46	0	1	Ifo business survey
Firm age	3879	40.38	47.48	0	882	Amadeus/ Hoppenstedt
Total assets (log)	3093	14.88	1.88	7	21	Amadeus/ Hoppenstedt
Total equity (log)	2864	13.58	2.12	6	21	Amadeus/ Hoppenstedt

Table 2.6: Correlation matrix

	Inter vivos transfer	Current state of business	Expected development of employment	Number of employees (cat.)	Credit conditions	Firm age	Total assets (log)
Current state of business	0.033***						
Expected development of employment	0.024**	0.548***					
Number of employees (cat.)	0.071***	0.116***	0.022*				
Credit conditions	-0.054***	-0.286***	-0.215***	-0.087***			
Firm age	0.052**	-0.117***	-0.077***	0.201***	-0.018		
Total assets (log)	0.069***	0.072***	0.024	0.793***	-0.150***	0.403***	
Total equity (log)	0.057**	0.073***	0.049**	0.705***	-0.172***	0.350***	0.880***

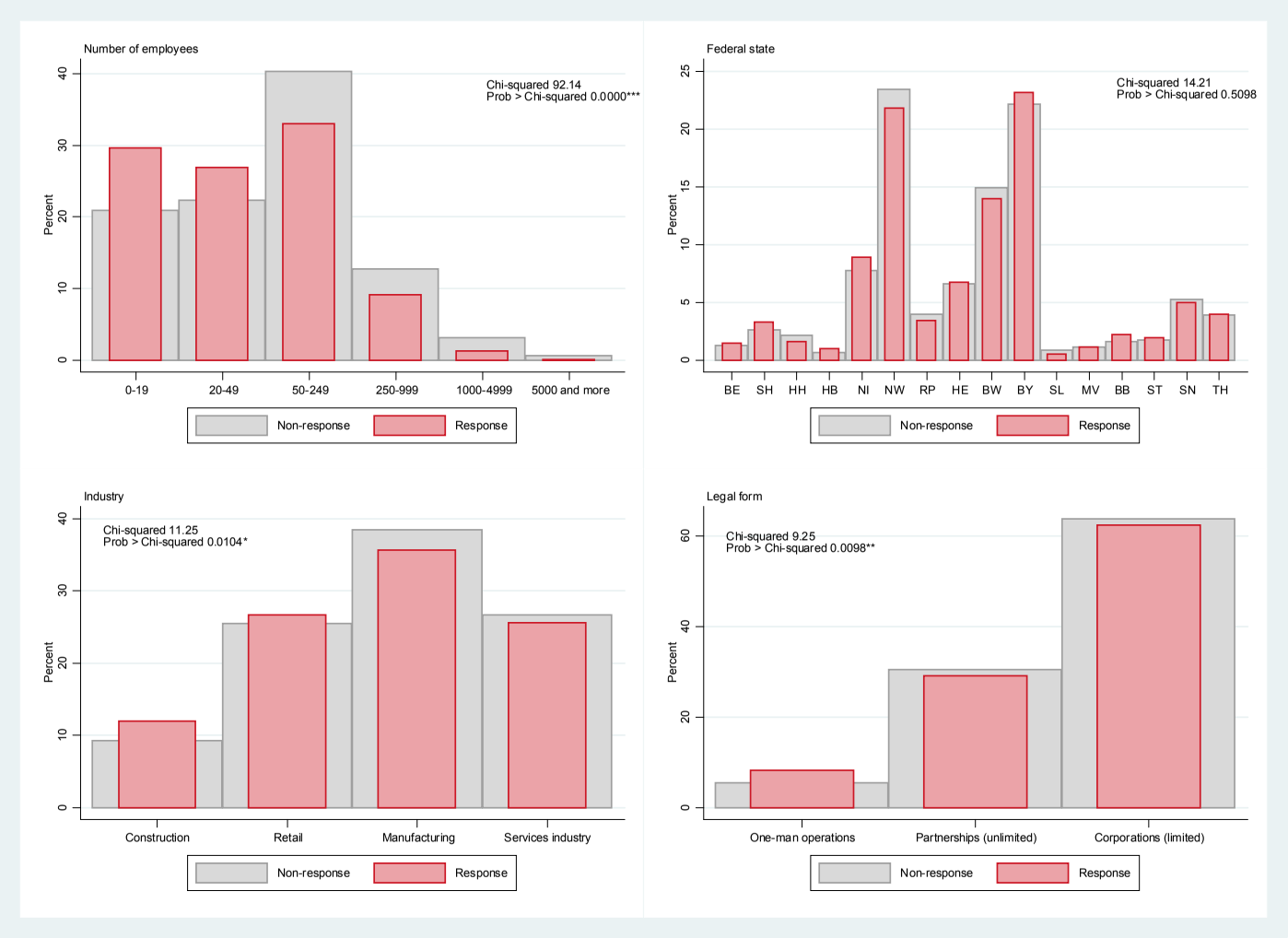
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 2.7: Response behavior

	Non-response	Response	Test statistic (difference)
Current state of business	2.10	2.07	0.03*
N	3003	1657	(0.042)
Expected development of employment	2.00	1.98	0.02**
N	3003	1657	(0.009)
Credit conditions	0.26	0.27	-0.01
N	2180	1224	(0.347)
Firm age	40.16	38.09	2.07
N	1983	1113	(0.187)
Total assets (log)	14.87	14.58	0.29***
N	1812	1020	(0.000)
Total equity (log)	13.41	13.12	0.29***
N	1733	975	(0.001)

Note: "Response" indicates that the firm participated in the Inheritance and Gift Tax survey; "Non-response" indicates that the firm did not participate in the survey. Test statistics and p-values are drawn from standard t-tests for the difference in means.

Figure 2.5: Response behaviour by firm size, state, industry, and legal form



Note: The null hypothesis of Pearson's chi-squared test is that response behaviour is independent of the number of employees / federal state / industry / legal form.

3. Inter Vivos Transfers and the 2009 German Transfer Tax Reform

3.1. Introduction

Intergenerational transfers have been an issue in the public and academic debate for many years. Many economists investigate the motives to make transfers to offspring and other recipients (Cox 1987, Cox and Rank 1992, Konrad 1995, Cremer and Pestieau 1996, 1998, Altonji et al. 1997, Arrondel and Masson 2006, Norton and Van Houtven 2006, Arrondel et al. 2014) and how transfers are distributed among recipients (Dunn and Phillips 1997, Schoeni 1997, McGarry 1999, Wolff et al. 2007, Hochguertel and Ohlsson 2009). Another issue is how taxes affect transfer behavior (McGarry 2000, Page 2003, Bernheim et al. 2004, Joulfaian 2004, Nordblom and Ohlsson 2006). One way to reduce the tax burden that would be due on an inheritance on the occasion of the original owner's death is making inter vivos transfers (gifts) beforehand (McGarry 2000a).

I investigate tax reform effects on transfers to direct offspring, i.e., within the nuclear family, and also include transfers to other close relatives such as parents, siblings, nephews and nieces, and to other recipients who might not be related to the donor. Transfer tax reforms may well have different effects, depending on the degree of relationship between donor and recipient.

On the occasion of a Constitutional Court decision,[1] the German government reformed inheritance and gift taxation in 2009. One explicit purpose of the reform was to benefit the nuclear family (Deutscher Bundestag 2008). Given that transfer taxation is due to be reformed again by mid-2016 (and again because of a Constitutional Court decision),[2] it is a topical issue how the previous reform influenced inter vivos transfers in Germany.

[1] Constitutional Court decision 1 BvL 10/02 (November 7, 2006).
[2] Constitutional Court decision 1 BvL 21/12 (December 17, 2014).

A transfer tax reform is unlikely to influence inheritances in the short term. (A curious exception is a study by Kopczuk and Slemrod (2003) who show that the timing of death reacts to estate tax changes. However, the reason may well be ex post doctoring of the reported date of death.) A transfer tax reform may influence capital accumulation, so that tax reform effects on inheritances would unfold after several years. Inter vivos transfers are different: people continuously decide about whether, when, and how much inter vivos transfers they want to make to other people. People may react to changed tax incentives immediately.

Donors' transfer behavior has two dimensions. The first is the intensive dimension: the potential donor decides whether to make any inter vivos transfers or not. The second is the extensive dimension: if and only if a donor makes inter vivos transfers, he may then decide on the amount of the transfer. I examine both dimensions.

I examine whether inter vivos transfer behavior in the German population has changed after the tax reform 2009. The data is from the Socio-Economic Panel (SOEP), derived from representative household surveys and provided by the DIW Berlin. To identify a causal effect I use a difference-in-differences approach, comparing the transfer behavior of the group of individuals who were potentially affected by gift taxes to the transfer behavior of the rest of the population. The results show that the reform increased donors' propensity to make inter vivos transfers to close relatives (unrelated recipients) by 29% (31%). The results do not show that the reform influenced either inter vivos transfers to the nuclear family, or the average amount of inter vivos transfers to any recipient.

3.2. Literature

Many scholars investigate the determinants of inter vivos transfers, especially from parents to children. The reasons for such transfers include altruism or exchange motives. Most empirical studies find more support for exchange motives than for altruism (Cox 1987, Cox and Rank 1992, Altonji et al. 1997, Arrondel and Masson 2006, Norton and Van Houtven 2006). Inter vivos transfers out of exchange motives reinforce the distri-

butional effects of public transfers (Cox and Jakubson 1995). Inter vivos transfers may help young recipients in founding and establishing firms or purchasing the primary residence (Arrondel et al. 2014). Inter vivos transfers may also be strategic tools that the old generation uses to establish a gerontocracy (Konrad 1995, Poutvaara 2003) or to discipline children (Cremer and Pestieau 1996). Under asymmetric information regarding children's behaviour, parents may want to delay inter vivos transfers (Cremer and Pestieau 1998). An empirical issue is the allocation of inter vivos transfers among recipients. Studies indicate that parents make larger inter vivos transfers to children with lower incomes than to other children (Dunn and Phillips 1997, Schoeni 1997, McGarry 1999, Wolff et al. 2007, Hochguertel and Ohlsson 2009). The composition of household wealth also influences the chance of making inter vivos transfers. When wealth is held in illiquid forms, such as private business, households are less likely to make inter vivos transfers than when wealth is held in more liquid forms (Poterba 2001). The amount of inter vivos transfers also depends on parents' financial attitudes (Hayhoe and Stevenson 2007) and increases with the lifetime income of parents (Poterba 2001, Hrung 2004, Villanueva 2005). When donors make transfers to individuals outside of their household, donors may still feel the need to control the use of transferred resources (Batista et al. 2015).

Inheritances and inter vivos transfers are taxed in many countries, mainly for a redistributive purpose (Hines 2013).[3] Inter vivos transfers can be used to save taxes: McGarry (2000a) estimates that if estate taxes were eliminated, yearly inter vivos transfers from parents to children would decrease by nearly 30 percent. But despite the importance of estate planning and the availability of simple methods of tax avoidance, the evidence suggests that wealthy people make surprisingly few and small inter vivos transfers, thereby foregoing substantial potential tax savings (McGarry 2001, 2013, Joulfaian and McGarry 2004). Inheritance and gift taxes affect the timing of transfers, typically encouraging inter vivos transfers compared to bequests (McGarry 2000, Page 2003, Bernheim et al. 2004, Joulfaian 2004, Nordblom and Ohlsson 2006). Capital gain

[3] On optimal inheritance taxation, see Grossmann and Poutvaara (2009) and Piketty and Saez (2013).

taxes can be offsetting considerations, since the favorable tax treatment of appreciated assets held until death can create some situations in which taxpayers benefit from avoiding inter vivos transfers (Poterba 2001, Joulfaian 2005).

There are only few empirical studies on inter vivos transfers in Germany. All of them use the SOEP data. Schupp and Szydlik (2004) and Kohli et al. (2005) provide descriptive evidence on inheritances and inter vivos transfers between 1996 and 2002. Private households received around €12.5m in inter vivos transfers per year (Schupp and Szydlik 2004). Westerheide (2005) shows that more than 80% of received inter vivos transfers and inheritances were saved.

3.3. Inter Vivos Transfer Taxation and the 2009 Reform

Germany does not tax estates, but it does tax the receipt of inheritances and inter vivos transfers. Tax rates rise with the amount of transfers received, and tax rates depend on the closeness of any family connection between decedent/donor and heir/recipient. There are three tax classes: Tax class I includes the nuclear family such as the spouse and children, tax class II includes close relatives such as parents and grandparents, siblings, nephews, nieces, and parents- and children-in-law. Tax class III includes all other, more distantly related or unrelated recipients. The lowest tax rates and highest tax-exempt amounts apply to transfers to the nuclear family. As the closeness of family connection decreases, tax rates increase and tax-exempt amounts decrease.

Personal tax exemptions apply, e.g. €400,000 for a transfer from parent to child.[4] Tax exemptions can be used every ten years, making inter vivos transfers an effective instrument to save taxes. Tax rates are progressive and vary between 7% and 50%, depending on the degree of kinship between decedent/donor and heir/recipient, and the

[4] There is an additional tax exemption for transfers of consumer durables, amounting to €53,000 for spouses, children, and grandchildren, and €12,000 for other degrees of kinship. The amounts of these additional tax exemptions were virtually the same before and after the 2009 tax reform.

type of property transferred. Table 3.1 and Table 3.2 show personal tax exemptions and applicable tax rates before and after the tax reform.

Table 3.1: Personal tax exemptions for inter vivos transfers (in €, nominal)

Tax class	Degree of Kinship	Before 2008	Since 2009
I	Spouse	307,000	500,000
	Partner in civil union	5,200	500,000
	Children, grandchildren	205,000	400,000
	Grandchildren when child is still alive	51,200	200,000
II	Parents and grandparents, siblings, nephews, nieces, divorced spouse, parents- and children-in-law	10,300	20,000
III	Others	5,200	20,000

Source: ErbStG §16.

Several aspects of inheritance and gift taxation were reformed as of January 1st, 2009. Personal tax exemptions were increased: From €205,000 to €400,000 for transfers within the nuclear family, from €10,300 to €20,000 for transfers to close relatives, and from €5,200 to €20,000 for transfers to other recipients. At the same time, to ensure revenue neutrality of the reform, tax rates for transfers to close relatives and other recipients were increased. Given these changes, I expect the propensity and amount of inter vivos transfers in the core family to rise in the years after the 2009 reform. It is unclear *ex ante* whether to expect inter vivos transfers to close relatives and other recipients to rise or to fall after the 2009 reform, because the effect of increasing tax exemptions and the effect of increasing tax rates work into opposite directions.

Valuation of assets also changed after the 2009 reform. At the request of the Federal Constitutional Court, real estate and business assets have been assessed using market values since 2009. Before the reform, real estate and business assets were assessed using tax values that on average corresponded to 70% and 54% of market values (Maiterth et al. 2009). Furthermore, tax exemptions on transfers of business assets were introduced to preserve jobs in family firms.

Table 3.2: Tax rates (in %), depending on tax class

Until 2008				2009				Since 2010		
Tax value (up to … €)	**I**	**II**	**III**	**Tax value (up to … €)**	**I**	**II**	**III**	**I**	**II**	**III**
52,000	7	12	17	**75,000**	7	15	30	7	30	30
256,000	11	17	23	**300,000**	11	20	30	11	30	30
512,000	15	22	29	**600,000**	15	25	30	15	30	30
5,113,000	19	27	35	**6,000,000**	19	30	30	19	30	30
12,783,000	23	32	41	**13,000,000**	23	35	50	23	50	50
25,565,000	27	37	47	**26,000,000**	27	40	50	27	50	50
>25,565,000	30	40	50	**>26,000,000**	30	43	50	30	50	50

Source: ErbStG §19.

3.4. Data

I use data from the SOEP, which is the most important household survey in Germany.[5] The data set includes the years 2005 to 2012, i.e., four years before and four years after the 2009 reform. Each wave contains information for about 20,000 individuals. On average, individuals remain in the sample for 4.4 years. Every year, SOEP participants are asked whether they made transfers to other individuals in the previous year, and if so, how much.[6] The survey distinguishes between transfers to children, to parents, to other relatives, and to other recipients that are not related to the respondent.[7] Transfers to children describe transfers within the nuclear family, belonging to tax class I. Transfers to parents and other relatives describe transfers towards other close relatives, belonging to tax class II. Other transfers belong to tax class III. The survey question is about transfers that individuals made towards other individuals outside of the household. Transfers

[5] I use SOEP version v29. For a description of the SOEP see Wagner et al. (2007). Official government publications such as the German Federal Government's Reports on Poverty and Wealth, last published in 2013, rely heavily on the SOEP data.

[6] The survey question is "Have you personally given payments or support during the last year to relatives or other persons outside of your household? How much in the year as a whole?"

[7] The SOEP also provides information on transfers towards the spouse or divorced spouse. As such transfers only occur in 0.6% of all cases (spouses normally live in the same household), and such transfers are often not taxed (because of large tax exemptions), I do not include inter vivos transfers to the spouse.

between individuals living in the same household are therefore not included in my data set – the distribution of wealth and income within households is a different issue. SOEP participants also provide information on many personal characteristics, such as age, gender, marriage status, education, etc. In 2007, participants were also asked about personal wealth, such as business assets, real estate and financial assets. Table 3.8 shows descriptive statistics. Table 3.9 describes in detail how all variables were constructed. The data set is an unbalanced panel.

Table 3.3 shows a descriptive comparison of inter vivos transfer behavior before and after the tax reform. I compute average statistics for the periods before and after the reform, using sample weights.[8] The left panel describes the propensity to make inter vivos transfers, i.e., the intensive margin of transfer behavior. The propensity to make any inter vivos transfer increased from 14.5% before the reform by 1 percentage point to 15.5% after the reform. A two-sided t-test on means indicates that the difference is statistically significant at the one percent level. Among the subcategories, transfers to children are the most common, explaining most of the overall increase: the propensity to make transfers to children increased from 8.8% by 0.9 percentage points to 9.7%. The propensity to make transfers to parents decreased from 2.4% by 0.2 percentage points to 2.2%, and the propensity to make transfers to other relatives increased from 2.7% by 0.2 percentage points to 2.9%. The propensity to make transfers to non-relatives increased from 1.6% by 0.1 percentage point to 1.7%.

The right panel of Table 3.3 compares the average amount of positive transfers, i.e., the extensive margin of transfer behavior, before and after the reform. The average yearly amount of all transfers to any recipient in the four years before the reform was €3,210.5 (in real terms, using prices from the year 2005), and increased by almost €100 after the reform. The average amount of transfers to children increased from €3,757.6 to €3,833.4. The average amount of transfers to parents decreased from €1,763.8 to

[8] Sample weights provided with the SOEP data ensure that the marginal distribution of the sample fits the marginal distribution of the German population regarding age and gender (Pischner 2007).

€1,590. The average amount of transfers to other relatives increased from €1,664.9 to €1,717.5, and the average amount of transfers to non-relatives increased from €964.7 to €1,254.5.

Table 3.3: Inter vivos transfers before and after the reform

Transfer	Propensity to make inter vivos transfer (in %)			Average transfer amount in real EUR (if>0)		
	Before Reform (2005-2008)	After Reform (2009-2012)	T-Test on Difference	Before Reform (2005-2008)	After Reform (2009-2012)	T-Test on Difference
Any/all	14.5	15.5	***	3,210.5	3,308.4	
To children	8.8	9.7	***	3,757.6	3,833.4	
To parents	2.4	2.2	*	1,763.8	1,590.0	**
To other relatives	2.7	2.9	***	1,664.9	1,717.5	
To non-relatives	1.6	1.7	**	964.7	1,254.5	**

Note: Sample weights were used. Source: SOEP v29. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

However, other variables are also likely to influence inter vivos transfers and may give rise to bias in the descriptive results. I therefore estimate econometric models to control for confounding factors in the following sections.

3.5. Empirical Approach

I examine how the tax reform affected inter vivos transfers. The basic empirical model has the following form:

$$Transfer_{i,k,t} = \beta_{1,k} Reform_t + \beta_{2,k} Taxed_{i,k} + \beta_{3,k} Reform_t \quad Taxed_{i,k} + \sum_j \delta_{j,k} X_{i,j,t} + \eta_{k,l} + \tau_{k,t} + u_{i,k,t}$$

with i=1,…, 27924; j=1,…, 12; k=1,…, 4; l=1,…, 16; t=2005,…,2012

where the dependent variable describes the real amount of transfers to relatives of degree of kinship *k* by donor *i* in period *t*. Degrees of kinship include children, parents, other relatives, and non-relatives. I account for inflation by deflating nominal values with the consumer price index. The dummy variable $Reform_t$ assumes the value 1 in

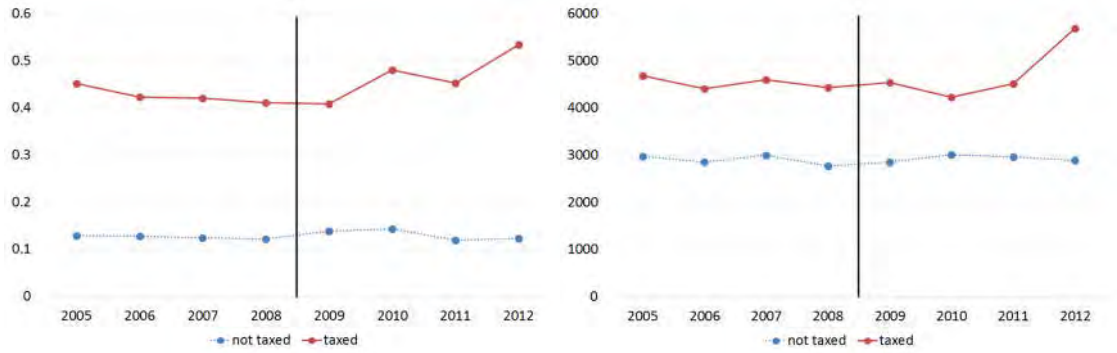
the years 2009–2012. The dummy variable $Taxed_{i,k}$ describes donors that were potentially affected by gift taxes: the variable assumes the value 1 if donor *i* made a transfer of a value above 1/10th of the pre-reform tax-exempt amount in at least one year. $\sum_j X_{i,j,k,t}$ contains 12 variables that measure personal, socio-economic characteristics. I include age, gender, marital status, children, years of education, labor income, religion, nationality, and party preference. $\eta_{k,l}$ describes a fixed state *(Länder)* effect, $\tau_{k,t}$ is a fixed time effect to control for common macroeconomic shocks, and $u_{i,k,t}$ is the error term.

To identify a causal effect of the reform on inter vivos transfer behavior, I use a difference-in-differences approach. The treatment group consists of individuals who are potentially affected by gift taxes, and the control group consists of all other individuals. The underlying assumption is that in the absence of a tax reform, both groups would follow an identical trend over time. The coefficient of interest is the coefficient of the interaction term, β_3, which measures the differential effect that the reform had on the treatment group, compared to the control group.

In choosing the treatment group, I opt for a generous definition by which I probably overestimate the size of the treatment group. There are several reasons why individuals in the treatment group (who report a transfer above 1/10th of the pre-reform tax-exempt amount in at least one year) may actually not be influenced by taxation and the tax reform. First, the transfer tax is due on the recipient, but the SOEP data includes all transfers of the donor. The donor could make transfers to several recipients. Second, tax exemptions are valid for 10 years, and donors might not make transfers in all years. Third, taxed values as observed by the tax authority may not be identical to the values reported by donors. If anything, they are likely to be smaller (Maiterth et al. 2009, Houben and Maiterth 2011). Overestimating the size of the treatment group (i.e., including individuals in the treatment group that belong to the control group and actually do not react to the reform) gives rise to downward bias of the estimated treatment effect. The estimate of β_3 is therefore a conservative one, and the true effect may well be larger.

The following graphs show inter vivos transfer behavior over time separately for the treatment and the control group. Figure 3.1 includes transfers to all kinds of relatives. The propensity and the amount of inter vivos transfers are flat before the reform in the treatment and the control group.[9] The control group (dotted line) appears not to be affected by the reform and to follow the pre-reform trend. In the treatment group (solid line), the propensity to make any inter vivos transfer increases from 2009 to 2012. The amount of inter vivos transfers to all kind of relatives increases strongly in the year 2012. Distinguishing between transfers within the nuclear family (Figure 3.2), to close relatives (Figure 3.3 and Figure 3.4) and to non-relatives (Figure 3.5) yields similar, albeit more volatile results.

Figure 3.1: (i) Propensity and (ii) amount of inter vivos transfers before and after tax reform



[9] The reform was foreseeable: policy-makers made the planned personal tax-exempt amounts public in November 2007. But political parties agreed on the reform package only in November 2008. Policymakers emphasized that new rules would not apply retroactively for inter vivos transfers. The focus of the public debate was mainly on valuation issues (the reason why the Constitutional Court required a tax reform) and tax exemptions for transfers of business assets. As a matter of fact, the descriptive graphs do not show relevant variations in transfer behaviour before 2009.

Figure 3.2: (i) Propensity and (ii) amount of inter vivos transfers to children before and after tax reform

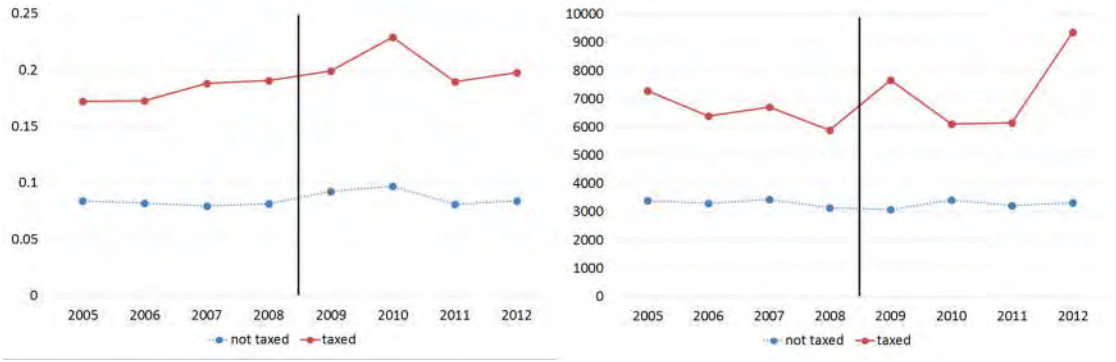


Figure 3.3: (i) Propensity and (ii) amount of inter vivos transfers to parents before and after tax reform

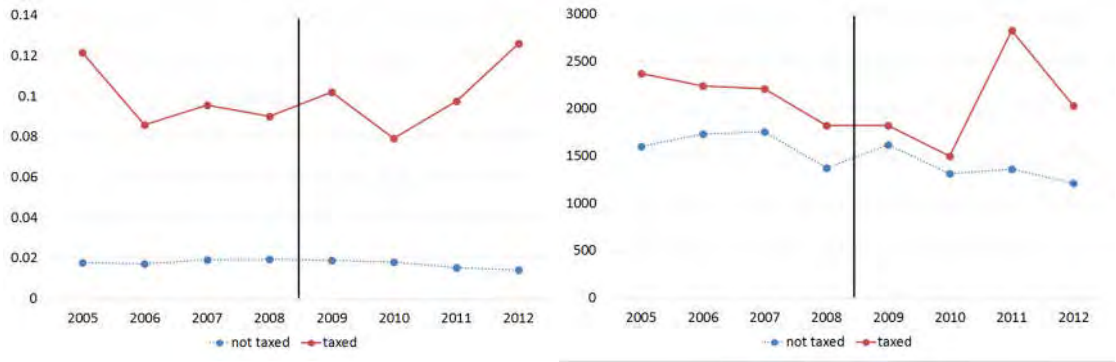


Figure 3.4: (i) Propensity and (ii) amount of inter vivos transfers to other relatives before and after tax reform

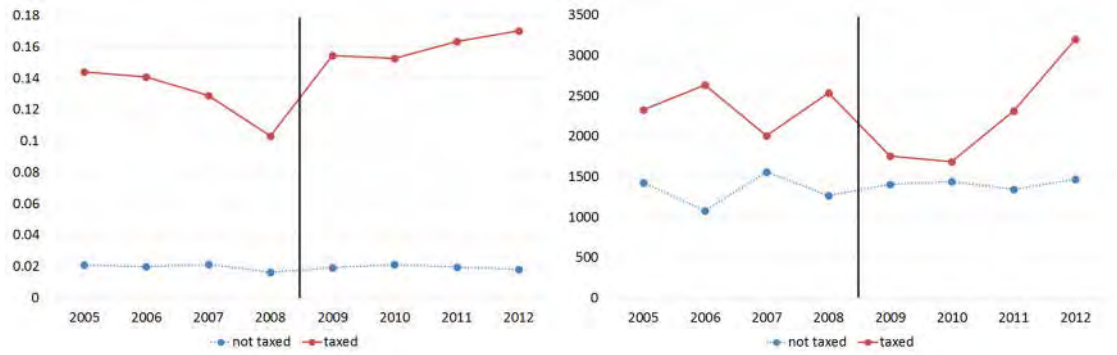
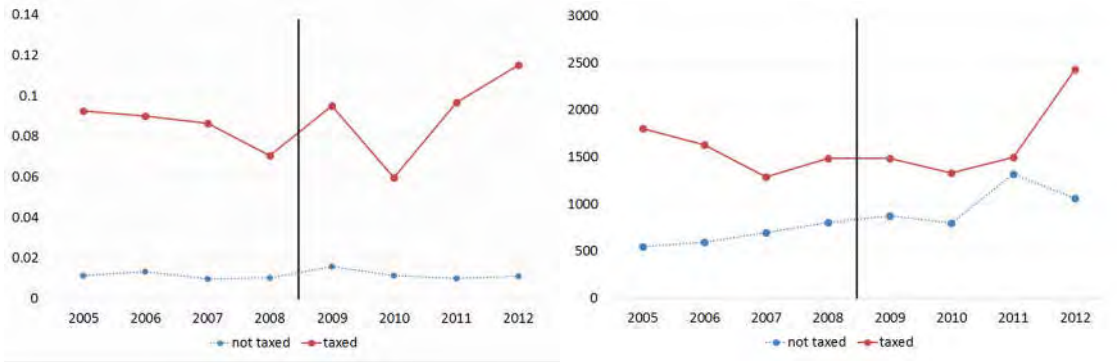


Figure 3.5: (i) Propensity and (ii) amount of inter vivos transfers to non-relatives before and after tax reform



It may well be that donors needed some time to react to the reform and only changed transfer behavior in 2011 or 2012. It is conceivable that donors need time to prepare for a major inter vivos transfer. A donor may also want to observe a potential recipient for some time, until finally making the transfer, resulting in delays for potential reform effects to unfold.

In a first step, I investigate whether the reform influenced the propensity to make inter vivos transfers, i.e., the extensive margin. The dependent variable is a dummy variable that assumes the value 1 if individual *i* made an inter vivos transfer in period *t*. I estimate random effects panel logit models with standard errors robust to heteroskedasticity and clustered at the individual level (Huber/White/sandwich standard errors – see Huber 1967 and White 1980).

In a second step, I focus on positive transfers. I investigate whether the reform influenced the amount of transfers, i.e., the intensive margin. The dependent variable measures the real amount of inter vivos transfers individual *i* made in period *t*. I estimate random effects linear panel models with standard errors robust to heteroskedasticity and clustered at the individual level.

3.6. Results

Table 3.4 shows the regression results when I use the propensity of making inter vivos transfers to any individual (nuclear family, close relative or other recipients) as dependent variable. The table shows exponentiated regression coefficients, i.e., odds ratios. In column (1) I only include the tax reform dummy variable, in columns (2) to (5) I include the treatment group dummy variable and the interaction between the reform and the treatment group dummy variable, year fixed effects, state fixed effects, and the full set of socio-economic control variables. The coefficient of the tax reform dummy variable is statistically significant at least at the 5 % level in all specifications. The numerical meaning of the odds ratio in column (5) is that the propensity to make any inter vivos transfer increased by 23.6% after the reform. The coefficient of the treatment group dummy variable is statistically significant at the 1% level in all specifications. The numerical meaning of the odds ratio in column (5) is that the propensity to make any inter vivos transfer is 1,954.3% higher in the treatment group than in the control group. The coefficient of the interaction term is statistically significant at the 1% level in all specifications. The numerical meaning of the odds ratio of the interaction term in column (5) is that after the tax reform, the propensity to make any inter vivos transfer increased by 22.1% in the treatment group relative to the control group.

The reform effects may differ between inter vivos transfers to the nuclear family, to close relatives and to other recipients. Table 3.5 shows the results separately for transfers to different recipients. The first column repeats column (5) from Table 3.4, i.e., the dependent variable includes transfers to any individual. In columns (2) and (3), I use transfers to children and to parents as dependent variables. The coefficients of the interaction term lack statistical significance. In column (4) I use transfers to other close rela-

tives as dependent variable. The coefficient of the interaction term is statistically significant at the 5% level. The numerical meaning of the odds ratio is that after the tax reform, the propensity to make inter vivos transfers to other close relatives increased by 29% in the treatment group relative to the control group. In column (5) I use transfers to non-relatives as dependent variable. The coefficient of the interaction term is statistically significant at the 5% level. The numerical meaning of the odds ratio is that after the tax reform, the propensity to make inter vivos transfers to non-relatives increased by 31.3% in the treatment group relative to the control group. The coefficients of many control variables are statistically significant. When the donor is female, the propensity to make transfers to children and to parents decreases by 20.6% and 20.7%, and the propensity to make inter vivos transfers to other relatives increases by 19.6%, compared to when the donor is male. When age increases by one year, the propensity to make inter vivos transfers to children, other relatives and non-relatives increases by 9%, 2.2%, and 0.7%, and the propensity to make inter vivos transfers to parents decreases by 4.5%. When the donor is of foreign nationality, the propensity to make inter vivos transfers to parents and other relatives increases by 164.8% and 102.6%, and the propensity to make inter vivos transfers to children decreases by 23.1% compared to donors with German nationality. When the donor has a preferences for rightwing (leftwing) political parties, the propensity to make inter vivos transfers to children, other relatives, and non-relatives increases by 35.7% (21.1%), 37.7% (16.7%), and 47.4% (44.4%) compared to individuals who do not report to have party preferences.[10] When the donor is married, the propensity to make inter vivos transfers to parents and other relatives increases by 49.3% and 22.5%, and the propensity to make inter vivos transfers to non-relatives decreases by 25.2%. When the donor is widowed, the propensity to make inter vivos transfers to children and parents decreases by 23.1% and 40.5%, and the propensity to make inter vivos transfers to other relatives increases by 77.5%. Having children increases the donor's propensity to make inter vivos transfers to parents by 24.7% and decreases the

[10] Additional tests show that individuals with preferences for leftwing parties (SPD / Grüne / Die Linke) are significantly more likely to make inter vivos transfers to children and to other relatives (columns 2 and 4) than individuals with preferences for rightwing parties (CDU / CSU / FDP). For the other dependent variables, the difference between the coefficient of leftwing and rightwing party preference lacks statistical significance.

propensity to make inter vivos transfers to other relatives and non-relatives by 33.7% and 26.5%. When the number of years of education increases by one year, the propensity to make inter vivos transfers to children, parents, other relatives and non-relatives increases by 21.5%, 3.3%, 4.8%, and 10.4%. When yearly labor income increases by €1,000, the propensity to make inter vivos transfers to children, parents and other relatives increases by 0.8%, 0.3%, and 0.2%.

I also investigate whether the reform influenced the amount of transfers. Table 3.6 shows the results. The dependent variable is the amount of all inter vivos transfers to children, parents, other relatives, and non-relatives, and the sample only includes observations with inter vivos transfers larger than zero. Subsequently including additional fixed effects and control variables, the coefficient of the interaction term lacks statistical significance in all specifications.

Table 3.4: Extensive margin (transfer yes/no). Panel logit regressions with random effects

	(1) Transfer	(2) Transfer	(3) Transfer	(4) Transfer	(5) Transfer
Tax reform	1.237***	1.191***	1.109**	1.109**	1.236***
	(0.029)	(0.031)	(0.048)	(0.048)	(0.057)
Taxed		43.502***	43.452***	43.119***	20.543***
		(3.156)	(3.151)	(3.124)	(1.450)
Tax reform * Taxed		1.308***	1.307***	1.303***	1.221***
		(0.089)	(0.089)	(0.088)	(0.085)
Female					0.733***
					(0.031)
Age					1.044***
					(0.002)
Foreign					1.407***
					(0.130)
Party preference: leftwing					1.404***
					(0.050)
Party preference: rightwing					1.267***
					(0.049)
Catholic					0.984
					(0.050)
Protestant					0.988
					(0.047)
Married					0.595***
					(0.030)
Widowed					0.679***
					(0.058)
Children					4.868***
					(0.309)
Education					1.191***
					(0.010)
Labor income					1.008***
					(0.001)
State fixed effects	No	No	No	Yes	Yes
Year fixed effects	No	No	Yes	Yes	Yes
Observations	165613	165613	165613	165613	147182
Groups	37379	37379	37379	37379	27924
R^2	0.00106	0.0287	0.0290	0.0302	0.0596

Exponentiated coefficients; robust standard errors in parentheses (Huber/White/sandwich standard errors); $^{*}\ p < 0.10$, $^{**}\ p < 0.05$, $^{***}\ p < 0.01$.

Table 3.5: Extensive margin (transfer yes/no) by kind of transfer. Panel logit regressions with random effects

	(1) Transfer	(2) Transfer to children	(3) Transfer to parents	(4) Transfer to other relatives	(5) Transfer to non-relatives
Tax reform	1.236***	1.439***	0.662***	1.126	1.073
	(0.057)	(0.080)	(0.075)	(0.104)	(0.117)
Taxed	20.543***	34.860***	477.299***	147.215***	145.122***
	(1.450)	(5.817)	(68.546)	(15.914)	(18.514)
Tax reform * Taxed	1.221***	1.207	1.048	1.290**	1.313**
	(0.085)	(0.191)	(0.130)	(0.130)	(0.153)
Female	0.733***	0.794***	0.793***	1.196***	1.124
	(0.031)	(0.044)	(0.062)	(0.076)	(0.080)
Age	1.044***	1.090***	0.955***	1.022***	1.007***
	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)
Foreign	1.407***	0.769*	2.648***	2.026***	0.950
	(0.130)	(0.106)	(0.352)	(0.266)	(0.173)
Party preference: leftwing	1.404***	1.357***	1.121	1.377***	1.474***
	(0.050)	(0.059)	(0.089)	(0.088)	(0.109)
Party preference: rightwing	1.267***	1.211***	1.008	1.167**	1.444***
	(0.049)	(0.056)	(0.092)	(0.081)	(0.115)
Catholic	0.984	0.944	0.955	1.047	0.958
	(0.050)	(0.058)	(0.113)	(0.106)	(0.123)
Protestant	0.988	0.991	0.962	0.888	1.096
	(0.047)	(0.055)	(0.111)	(0.087)	(0.128)
Married	0.595***	1.093	1.493***	1.225**	0.748***
	(0.030)	(0.072)	(0.153)	(0.103)	(0.063)
Widowed	0.679***	0.769**	0.595*	1.775***	0.887
	(0.058)	(0.081)	(0.169)	(0.228)	(0.132)
Children	4.868***		1.247**	0.663***	0.735***
	(0.309)		(0.137)	(0.057)	(0.062)
Education	1.191***	1.215***	1.033**	1.048***	1.104***
	(0.010)	(0.012)	(0.015)	(0.012)	(0.014)
Labor income	1.008***	1.008***	1.003***	1.002***	1.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
State fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	147182	147182	147182	147182	147182
Groups	27924	27924	27924	27924	27924
R^2	0.0596	0.0577	0.198	0.157	0.176

Exponentiated coefficients; robust standard errors in parentheses (Huber/White/sandwich standard errors); * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 3.6: Intensive margin (amount of transfers). Linear panel regression with random effects

	(1) Amount of transfers	(2) Amount of transfers	(3) Amount of transfers	(4) Amount of transfers	(5) Amount of transfers
Tax reform	-40.660	-126.358*	-165.336	-197.954	-131.432
	(100.776)	(76.057)	(181.509)	(181.378)	(195.644)
Taxed		2361.169***	2361.621***	2273.293***	2100.898***
		(292.145)	(291.549)	(294.301)	(260.602)
Tax reform * Taxed		320.240	316.343	340.986	513.702
		(394.765)	(394.534)	(395.116)	(389.821)
Female					-557.194***
					(122.409)
Age					56.379***
					(5.129)
Foreign					-542.068***
					(177.806)
Party preference: leftwing					-21.091
					(116.942)
Party preference: rightwing					774.553***
					(157.459)
Catholic					-320.568
					(212.794)
Protestant					69.618
					(238.428)
Married					-116.172
					(129.094)
Widowed					159.061
					(279.428)
Children					1374.472***
					(214.036)
Education					297.848***
					(28.172)
Labor income					20.640***
					(3.669)
State fixed effects	No	No	No	Yes	Yes
Time fixed effects	No	No	Yes	Yes	Yes
Observations	26332	26332	26332	26332	24412
Groups	10428	10428	10428	10428	8992
R^2	0.001	0.0155	0.0158	0.0212	0.0795

Robust standard errors in parentheses (Huber/White/sandwich standard errors); * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

When I investigate inter vivos transfers to children, parents, other relatives, and non-relatives separately, the coefficient of the interaction term lacks statistical significance

for all individual categories (Table 3.7). The coefficients of many control variables are statistically significant. When the donor is female, the amount of inter vivos transfers to children and to non-relatives decreases by €374.6 and €346. When the donor's age increases by one year, the amount of inter vivos transfers to other relatives increases by €14.4. When the donor has foreign nationality, the amount of transfers to children and to other relatives decreases by €512 and €300.2. When the donor has a preference for rightwing political parties, the amount of transfers to children, to parents and to non-relatives increases by €560.2, €471.8, and €555.8. When the donor is married or widowed, the amount of transfers to children increases by €451.2 or €889.1. When the donor has children, the amount of transfers to other relatives decreases by €924.3. When the number of years of education increases by one year, the amount of transfers to children and to non-relatives increases by €237.9 and €77.5. When yearly labor income increases by €1,000, the amount of transfers to children, to parents, to other relatives and to non-relatives increases by €14.9, €9, €14, and €5.4.

The results give rise to the conclusion that the tax reform increased the overall propensity to make inter vivos transfers by 22.1%, but the reform did not affect inter vivos transfer behavior within the nuclear family and towards parents. The reform increased the propensity to make inter vivos transfers to other relatives by 29% and to non-relatives by 31.3%. The reform did not affect the average amounts of transfers.

3.7. Robustness Tests

I submitted all results to rigorous robustness tests. Despite the large set of control variables that I include in the regressions, there may still be unobserved individual-specific characteristics that affect transfer behavior such as transfers that a donor himself had received earlier or an inherent sense of altruism. I estimate fixed effects models to control for individual fixed effects. The sample size decreases because only observations with variance in the dependent variable, i.e., individuals who made inter vivos transfers at least in one year, are included in the regressions. Inferences do not change, except for the effect of the reform on the propensity to make transfers to other relatives. The coefficient of the interaction term remains positive but lacks statistical significance.

The results may be sensitive to the time window around the reform that is used to identify reform effects. There is essentially a trade-off between bias and efficiency: a larger observation period increases efficiency, but may introduce bias as the distance to the reform increases. I used smaller windows around the reform date, reducing the observation period to 2006-2011, 2007-2010 and 2008-2009. Inferences do not change. In some specifications, the coefficient of the interaction effect for transfers to non-relatives lacks statistical significance, but it remains positive.

The results may depend on the use of sample weights. Using sample weights is not compatible with clustering standard errors in the panel logit model, so when including sample weights in the regressions I use classical standard errors instead of Huber/White/sandwich standard errors. Inferences do not change. The coefficient of the reform effect on transfers to children is also positive and statistically significant, and the coefficient of the reform effect on transfers to parents is negative and statistically significant. Weights are not allowed for the linear random effects model, so I estimate population-average models with robust standard errors. The results show that the reform increased the amount of inter vivos transfers to non-relatives by €397.7. The coefficient is statistically significant at the 10% level.

The results may depend on individuals who make inter vivos transfers to individuals living abroad. As the gift tax is due on the recipient, tax considerations might not matter for cross-border inter vivos transfers. When I exclude transfers to individuals living abroad, inferences do not change. Only the coefficient of the interaction effect for transfers to non-relatives lacks statistical significance, but it remains positive.

Table 3.7: Intensive margin (amount of transfers) by kind of transfer. Linear panel regressions with random effects

	(1) Amount of transfers	(2) Amount of transfers to children	(3) Amount of transfers to parents	(4) Amount of transfers to other relatives	(5) Amount of transfers to non-relatives
Tax reform	-131.432	-420.017**	-109.399	284.653	580.597
	(195.644)	(196.380)	(161.864)	(202.411)	(521.939)
Taxed	2100.898***	13126.964***	2304.968***	2524.735***	1567.031***
	(260.602)	(1035.331)	(139.189)	(167.108)	(170.791)
Tax reform * Taxed	513.702	1286.327	78.509	129.397	458.500
	(389.821)	(1557.502)	(164.491)	(200.088)	(369.456)
Female	-557.194***	-374.588***	12.290	-69.003	-345.961*
	(122.409)	(121.090)	(178.658)	(174.027)	(203.588)
Age	56.379***	9.152	0.060	14.431**	9.425
	(5.129)	(5.611)	(7.711)	(7.110)	(6.364)
Foreign	-542.068***	-512.011*	-160.551	-300.248**	102.896
	(177.806)	(291.071)	(137.909)	(145.496)	(171.124)
Party preference: leftwing	-21.091	109.624	86.150	120.918	-105.191
	(116.942)	(140.038)	(173.315)	(139.621)	(129.678)
Party preference: rightwing	774.553***	560.241***	471.808**	-129.017	555.762**
	(157.459)	(163.348)	(202.774)	(168.419)	(259.880)
Catholic	-320.568	-362.157	30.570	-293.025	-444.137
	(212.794)	(281.199)	(159.607)	(242.164)	(278.903)
Protestant	69.618	-156.387	-33.501	66.834	128.304
	(238.428)	(305.537)	(303.484)	(258.365)	(291.415)
Married	-116.172	451.161***	-44.576	204.008	-206.158
	(129.094)	(120.675)	(192.162)	(217.000)	(399.090)
Widowed	159.061	889.148***	566.222	553.966	353.044
	(279.428)	(276.197)	(783.774)	(339.397)	(481.228)
Children	1374.472***		3.646	-924.303***	-635.338
	(214.036)		(150.415)	(298.289)	(462.189)
Education	297.848***	237.886***	38.154	37.208	77.516*
	(28.172)	(23.495)	(32.421)	(34.483)	(46.486)
Labor income	20.640***	14.879***	9.002**	14.021*	5.444***
	(3.669)	(2.426)	(4.019)	(8.466)	(2.053)
State fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	24412	17454	3173	4088	2485
Groups	8992	6742	1604	2208	1518
R^2	0.0795	0.221	0.136	0.168	0.0683

Robust standard errors in parentheses (Huber/White/sandwich standard errors); * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Transfer behavior might also depend on the amount of business assets, financial assets, and real estate ownership. I include these three wealth variables as additional control variables. While the sample size decreases by 11%, inferences do not change, except for the coefficient of the interaction effect for transfers to non-relatives which lacks statistical significance, but remains positive. The coefficients of the wealth variables are statistically significant in some specifications: When the amount of business assets increases by €100,000, the propensity to make inter vivos transfers to parents (non-relatives) increases (decreases) by 1.3% (0.8%), and the average amount of inter vivos transfers to parents (other relatives) increases (decreases) by €21.9 (€13.7). When the amount of real estate increases by €100,000, the propensity to make inter vivos transfers to children (other relatives) increases (decreases) by 4.4% (4.8%), and the average amount of inter vivos transfers to children, to parents and to other relatives increases by €99.8, €116.3, and €119.9. I also include triple-interaction terms between the tax reform dummy variable, the treatment dummy variable and each of the three wealth variable, to account for changes in asset valuation that where part of the 2009 reform. Inferences regarding the main explanatory variables do not change. The triple-interaction effects lack statistical significance in most specifications.[11]

3.8. Conclusion

I investigated how the reform of transfer taxation in 2009 influenced inter vivos transfers in Germany. The results show that the reform increased individuals' propensity to make inter vivos transfers to close relatives by 29% and to unrelated individuals by 31%. The results do not show that the reform affected inter vivos transfers to the nuclear family, nor the average amount of inter vivos transfers to any recipient.

I have not dealt with large inter vivos transfers. Such transfers are unlikely to be included in household survey data such as the SOEP. The SOEP is said to be representative for almost the entire German population (to be more precise, adult population living in

[11] Only when the dependent variable is the propensity to make transfers to non-relatives, the coefficient of the triple-interaction of the tax reform dummy variable, the treatment dummy variable, and the amount of financial assets is negative and statistically significant.

private households), but top percentiles of the income distribution are missing.[12] Although the tax reform was intended to benefit the core family, the results do not show that the reform influenced inter vivos transfer behavior towards offspring. It appears that for the largest part of the population, changes in tax rules as they stand do not influence transfer decisions within the core family. There is, however, evidence that the 2009 reform indeed induced inter vivos transfers of business assets on a large scale (Hines et al. 2015). Tax statistics show that inter vivos transfers increased by 263% between 2008 and 2012 (see Figure 1.1). In Germany, transfer taxation appears to influence transfers within the core family only at the very top of the income distribution.

[12] Frick et al. (2007) show that the sample size within the top fractiles of the income distribution is small, therefore drawing robust inferences is not possible.

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Appendix: Additional Tables

Table 3.8: Descriptive statistics

	Observations	Mean	Std. Dev.	Min.	Max.
Transfer to children	165613	0.107	0.309	0.00	1.00
Transfer to parents	165613	0.021	0.145	0.00	1.00
Transfer to other relatives	165613	0.027	0.162	0.00	1.00
Transfer to non-relatives	165613	0.017	0.128	0.00	1.00
Transfer	165613	0.159	0.366	0.00	1.00
Amount of transfers to children	165613	466.639	3063.639	0.00	262732.63
Amount of transfers to parents	165613	38.935	566.114	0.00	93528.81
Amount of transfers to other relatives	165613	48.180	722.850	0.00	71085.49
Amount of transfers to non-relatives	165613	22.719	666.838	0.00	213256.48
Amount of transfers	165613	613.432	3480.202	0.00	328346.88
Tax reform	165613	0.493	0.500	0.00	1.00
Taxed	165613	0.069	0.253	0.00	1.00
Taxed (child)	165613	0.012	0.109	0.00	1.00
Taxed (parent)	165613	0.032	0.176	0.00	1.00
Taxed (other relatives)	165613	0.038	0.192	0.00	1.00
Taxed (non-relatives)	165613	0.029	0.168	0.00	1.00
Business assets	137304	0.105	1.416	0.00	53.23
Real estate assets	137304	0.612	1.452	-0.72	22.91
Financial assets	137304	0.136	0.517	0.00	15.00
Female	165613	0.525	0.499	0.00	1.00
Age	165613	50.268	17.683	15.00	100.00
Foreign	165613	0.058	0.235	0.00	1.00
Party preference: leftwing	165613	0.228	0.420	0.00	1.00
Party preference: rightwing	165613	0.198	0.399	0.00	1.00
Catholic	165613	0.073	0.259	0.00	1.00
Protestant	165613	0.087	0.282	0.00	1.00
Married	165613	0.595	0.491	0.00	1.00
Widowed	165613	0.069	0.254	0.00	1.00
Children	154948	0.728	0.445	0.00	1.00
Education	156841	12.249	2.708	7.00	18.00
Labor income	165613	17.430	28.065	0.00	2292.51

Table 3.9: Description of variables

Transfer to children	=1 if individual made any transfer to children that year, zero otherwise
Transfer to parents	=1 if individual made any transfer to parents that year
Transfer to other relatives	=1 if individual made any transfer to other relatives that year
Transfer to non-relatives	=1 if individual made any transfer to non-relatives that year
Transfer	=1 if individual made any transfer that year
Amount of transfers	Total real amount of transfers made by individual that year in EUR (base year: 2005)
Amount of transfers to children	Total real amount of transfers to children made by individual that year in EUR (base year: 2005)
Amount of transfers to parents	Total real amount of transfers to parents made by individual that year in EUR (base year: 2005)
Amount of transfers to other relatives	Total real amount of transfers to other relatives made by individual that year in EUR (base year: 2005)
Amount of transfers to non-relatives	Total real amount of transfers to non-relatives made by individual that year in EUR (base year: 2005)
Amount of transfers	Total real amount of transfers made by individual that year in EUR (base year: 2005)
Tax reform	=1 in years after the tax reform (2009-2012)
Taxed (child)	=1 if individual made at least one inter vivos transfer to children of more than €20,500
Taxed (parents)	=1 if individual made at least one inter vivos transfer to parents of more than €1,030
Taxed (other relatives)	=1 if individual made at least one inter vivos transfer to other relatives of more than €1,300
Taxed (non-relatives)	=1 if individual made at least one inter vivos transfer to non-relatives of more than €520
Taxed	=1 if any of the "Taxed" variables = 1
Business assets	Real value of business assets in 2007, winsorized (top 50 observations), in €100,000 (base year: 2005), SOEP imputation a)
Real estate assets	Real value of primary residence and other real estate ownership in 2007, winsorized (top 50 and bottom 50 observations), in €100,000 (base year: 2005), individual's share in total household's value, SOEP imputation a)
Financial assets	Real value of financial assets in 2007, winsorized (top 50 observations), in €100,000 (base year 2005), individual's share in total household's value, SOEP imputation a)
Female	=1 if individual is female
Age	Age in 2009 in years
Foreign	=1 if individual's nationality is non-German
Party preference: leftwing	=1 if individual expresses party preference for SPD / Grüne / Die Linke
Party preference: right-wing	=1 if individual expresses party preference for CDU / CSU / FDP
Catholic	=1 if individual has catholic confession
Protestant	=1 if individual has protestant confession
Married	=1 if individual is married and living together
Widowed	=1 if individual is widowed
Children	=1 if individual has/had children
Education	Number of years of education
Labor income	Real amount of individual labor earnings per year (in €1000, base year 2005)

4. Government Ideology, Globalization, and Top Income Shares in OECD Countries

4.1. Introduction

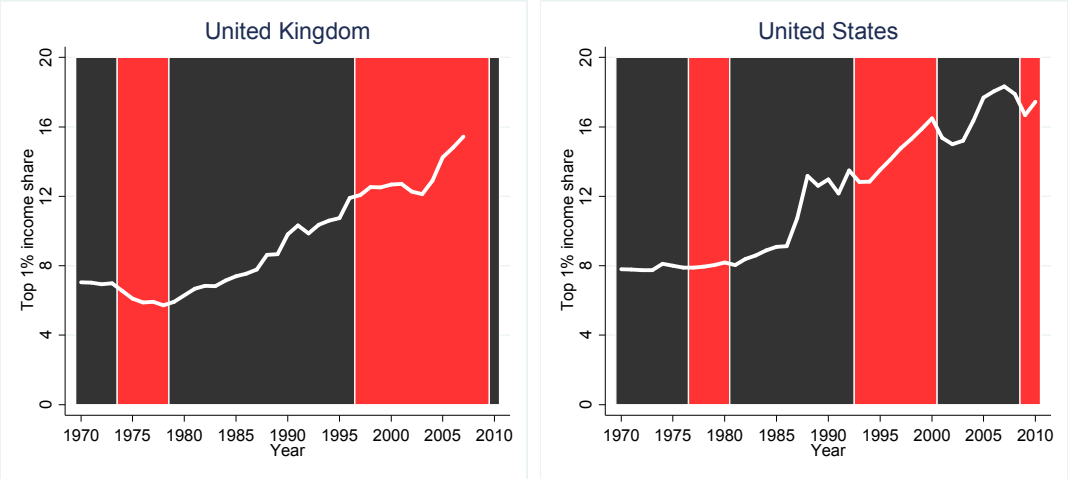
People are concerned about income inequality. Many studies focus on disparities of people's incomes or wealth levels. The standard measure of income inequality used in the academic and public discourse is the Gini index. But Gini indices have shortcomings because they are based on survey data, which often does not represent incomes of the rich correctly. People often do not report their correct income or do not respond at all, and income is measured with error. Another measure of income equality is the share of income accruing to certain percentiles of the population.[1] Higher income shares of top percentiles imply higher overall inequality. Following the seminal work by Piketty (2001, 2003), many scholars computed top income shares for a number of countries, and compiled the results in the World Top Incomes Database (Atkinson et al. 2011, Alvaredo et al. 2013).

Figure 4.1 shows how the share of pre-tax income accruing to the top 1% of the income distribution has evolved in the United Kingdom and in the United States since the 1970s. In both countries, the income share of the top 1% has more than doubled since the beginning of the 1980s. The top 1% income share started to increase almost exactly when rightwing politicians took office who implemented crucial changes to the national economies: Margaret Thatcher was a conservative politician and British prime minister from 1979 to 1990, and Ronald Reagan was a Republican politician and President of the United States from 1981 to 1989. Government ideology and top income shares correlate. The 1980s were also the starting years of the latest wave of globalization (Dollar 2005). Globalization entails increased competition among states for production factors and the tax base. Some economists describe that globalization prevents governments to

[1] Other popular inequality measures include earnings ratios, for instance the ratio between the earnings of the 90th and the 10th percentiles of the income distribution, or the share of labor in national income (Guerriero and Sen 2012). See also Atkinson (1970).

implement their preferred economic policies (e.g. Sinn 2003). Disentangling how top income shares, government ideology and globalization are related is hence a worthwhile endeavor.

Figure 4.1: Top 1% income shares and government ideology



Note: Black (red) background indicates that rightwing (leftwing) government was in power. Source: World Top Incomes Database.

Scheve and Stasavage (2009) first investigated whether government ideology influenced top income shares. They find the income share of the top 1% to be significantly lower under leftwing national governments. My paper contributes to the literature in several dimensions: I include more countries in the analysis than Scheve and Stasavage (Denmark, Finland, Italy, Norway, Portugal, and Spain), I use an updated sample until the year 2010 and I use yearly data which is more suited to identify partisan effects than five-year averaged data. I furthermore use an encompassing index to elaborate on the effect of globalization on inequality, and I investigate whether the effect of government ideology on top income shares depends on the pace of globalization.

My dataset includes 16 OECD countries for which data on top income shares is available. Since globalization is a multifaceted concept, I employ the KOF index of globalization as an encompassing measure of globalization. The dataset covers the period 1970 to 2010. The results show that the top 1% income share increased more under rightwing

governments than under leftwing governments. The effect was stronger when globalization proceeded more rapidly.

4.2. Related Studies

4.2.1. Top Income Shares

Top income shares have increased a great deal in English speaking countries and India and China since around 1980 (Atkinson et al. 2011). Atkinson et al. (2011) describe that the reason is mainly a surge in top wage incomes. On the contrary, top income shares did not increase as much in continental European countries and Japan. In the first half of the 20th century, top income shares decreased sharply in many countries because of wartime destruction and strongly redistributive economic policies. Economists investigate which factors determine the differences in the evolution of top income shares over time and across countries. Roine et al. (2009) use a panel of 16 countries over the 20th century and find that high economic growth and financial development disproportionately benefit the top percentile income share. Banking crises and the degree of tax progressivity reduce the top percentile income share. The level of government spending has a negative impact on incomes of the 90th to 99th percentile of the distribution.

Some studies focus on the very top end of the income distribution (99th percentile and above). Increasing inequality at the top of the distribution in the USA is driven by financial service sector employees rather than top executives from nonfinancial companies (Kaplan and Rauh 2010, Philippon and Reshef 2012). Firm size can explain the increase of CEO pay (Gabaix and Landier 2008). Neal (2013) applies panel cointegration methods and identifies economic openness, size and ideology of government, development of financial markets, top marginal tax rates, technological progress and the strength of unions as important determinants of the top 1% income share.

4.2.2. Government Ideology and Inequality

The partisan theory (Hibbs 1977, Alesina 1987) describes that leftwing governments appeal to the labor base of the population while rightwing governments rather appeal to capital owners. Leftwing governments will hence implement economic policies that mainly benefit the lower part of the income distribution. Such policies include increasing size and scope of government interventions and more income redistribution.[2] Hence, top income shares would decrease more under leftwing governments. Scheve and Stasavage (2009) investigate how federal government ideology and top income shares relate. Using data from 12 OECD countries since as early as 1900 they find that top percentile income shares are lower under leftwing governments, but the magnitude of the effect is small. Decentralized wage bargaining was associated with higher inequality after 1980.

Government ideology also plays a role in the relationship between inequality and other economic outcomes. The inequality-growth association, for example, is positive under rightwing governments and negative under leftwing governments (Bjørnskov 2008).

4.2.3. Globalization and Inequality

The relevant theoretical framework for the relationship between the level of globalization and inequality is the Heckscher-Ohlin model (Ohlin 1933), which explains how countries specialize in international trade. The Stolper-Samuelson theorem (Stolper and Samuelson 1941) states that when a country opens up to trade, the relatively abundant production factor will benefit. As skilled labor is relatively abundant in rich countries, income gaps are expected to widen and inequality to increase in pace with economic globalization. The empirical evidence is mixed (see Potrafke, 2015, for a comprehensive survey of the literature).[3] Some scholars examine subcategories of globalization such as

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[2] Doerrenberg and Peichl (2012) show that redistributive policies can reduce inequality. Results regarding the effectiveness of different tax benefit instruments to reduce inequality are sensitive on whether a sequential accounting approach or a factor source decomposition approach is chosen for the analysis (Fuest et al. 2010).

[3] For evidence from low and middle income countries, see e.g. Milanovic (2005).

trade openness (Spilimbergo et al. 1999, Dollar and Kraay 2004, Bigsten and Munshi 2014); others use composite indices like the KOF index of globalization.

Some studies using the KOF index of globalization and Gini indices to measure inequality find that globalization increased inequality in high-income countries (Dreher and Gaston 2008, Bergh and Lindsson 2010). In contrast, Roine et al. (2009) find no clear impact of trade openness on the income distribution. Aspects of globalization differ in their effect on inequality: trade globalization decreases inequality and financial globalization increases inequality (International Monetary Fund 2007).

The compensation hypothesis (e.g. Rodrik 1998) describes that citizens want governments to compensate them for the risks of globalization and demand more public spending. On the contrary, the "race-to-the-bottom" theory (e.g. Sinn 2003) describes that globalization gives rise to lower tax rates and lower government spending. The size and composition of government spending could in turn affect inequality outcomes. Empirical studies do not find evidence that globalization decreased government expenditures (Dreher et al. 2008b, Meinhard and Potrafke 2012).

The available theories and empirical evidence give rise to four hypotheses that I will test in the empirical section:

1) *Top income shares are lower under leftwing governments.*

2) *Top income shares are positively associated with the pace of globalization.*

3) *The effect of government ideology on top income shares increases when globalization is proceeding rapidly.*

4) *The effects of government ideology and globalization on income shares differ across percentiles of the top decile of the income distribution.*

4.3. Data

I use data on top income shares from the World Top Incomes Database (Alvaredo et al. 2013). The database provides pre-tax income shares of various percentiles of the income distribution based on evidence from tax records. I focus on two widely used measures: the share of income accruing to the top 1% (often called the "rich") and the share of income accruing to the next 9% of the income distribution (the "upper middle class").[4] The two groups have different characteristics: one can expect mainly executives with a high share of capital incomes in the top percentile, whereas the next 9% rather consist of people who earn high but stable wages. I focus on OECD countries because government ideology is difficult to measure in non-OECD countries. For 16 OECD countries yearly data on the top 10% and top 1% is available for at least some years over the 1970 to 2010 period.[5] The panel is unbalanced.

To measure government ideology I use the index by Potrafke (2009), updated until the year 2010. The index takes on values between 1 (powerful rightwing cabinet) and 5 (powerful leftwing cabinet). The KOF index of globalization (2013 version; see Dreher 2006 and Dreher et al. 2008a) measures globalization based on a great variety of variables. In particular, it encompasses economic, social and political dimensions of globali-

[4] The income share of the next 9% is computed as the difference of the top 10% income share and the top 1% income share.

[5] The countries are Australia, Canada, Denmark, Finland, France, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, the United Kingdom, and the United States (see Table 4.4). Yearly data for Switzerland is available from 1995 to 2009 but the country is dropped since there were no changes in government ideology. The series for Canada, Finland, and the United Kingdom have structural breaks. When data based on two different computation methods are available for the same year I use data based on the method that is available until more recently.

zation.[6] The sample starts in 1970 when the KOF index of globalization is first available.

The average income share of the top 1% increased from 7.4% in 1970 to 9.7% in 2010. The average income share of the next 9% moved less: it increased from 24.1% in 1970 to 24.6% in 2010. The level of globalization increased a great deal: the KOF index increased from 59 index points in 1970 to 80.5 index points in 2010. The economic globalization subindex increased from 49.3 to 73.8 index points, the social globalization subindex increased from 53.7 to 78.9 index points, and the political globalization subindex increased from 80.1 to 91.9 index points.

4.4. Empirical Approach

The panel data model has the following form:

$$s\ \ are_{p,i,t} = \alpha_p + \beta_p\ \ s\ \ are_{p,i,t-1} + \gamma_p ideology_{i,t} + \theta_p\ \ kof_{i,t}$$
$$+\rho_p ideology_{i,t}\quad kof_{i,t} + \sum_m \delta_{p,m}\ \ X_{m,i,t} + \eta_i + \varepsilon_t + u_{i,t}$$

with i =1,…, 16; m =1,…, 4; p =1, 2; t =1,…, 39.

The dependent variable $s\ \ are_{p,i,t}$ denotes the percentage points change of the income share of group p, $ideology_{i,t}$ describes the government ideology variable, $kof_{i,t}$ describes the change of the KOF index of globalization, and $X_{m,i,t}$ are m control variables. η_i denotes a fixed country effect, ε_t is a fixed period effect, and $u_{i,t}$ describes the error

[6] Economic globalization includes trade flows, foreign direct investment, portfolio investment, income payments to foreign nationals, hidden import barriers, the mean tariff rate, taxes on international trade, and capital account restrictions. Social globalization includes data on telephone traffic, transfers, international tourism, foreign population, international letters, internet users, television, trade in newspapers, number of McDonald's restaurants, number of Ikea stores, and trade in books. Political globalization includes embassies, membership in international organizations, participation in UN Security Council missions, and international treaties (Dreher 2006).

term. Following Roine et al. (2009) I include the growth rate of real GDP, population growth, government spending as a share of GDP, and the top marginal income tax rate as main control variables. Table 4.5 shows descriptive statistics and the data sources.

I include all variables except for the government ideology variable in first differences to avoid spurious regression that may arise because of unit roots in the variables in levels.[7] To control for potential autocorrelation in the residuals, I include the lagged dependent variable as a regressor. I estimate an Ordinary Least Squares (OLS) fixed effects model with heteroskedasticity-robust standard errors (Huber/White/sandwich standard errors; see Huber 1967, and White 1980 and 1982). By controlling for variables that scholars have shown to be other determinants of top income shares, I avoid omitted variable bias. I include time fixed effects to exclude other confounding factors that affect all countries simultaneously. By including country fixed effects I exploit the within-country variation to identify the effect of the explanatory variables on top income shares, ignoring country-specific characteristics that are constant over time. It is conceivable that income shares in year *t-1* affect the explanatory variables in year *t*. I deal with this issue by including the lagged dependent variable as a regressor. Nickell bias occurs in a fixed effects panel data model with lagged dependent variables (Nickell 1981). Yet, the bias is $1/T$ and should thus be small with $T = 39$.

I use yearly data to identify the determinants of top income shares, like Neal (2013) and unlike Roine et al. (2009), Scheve and Stasavage (2009), and Bergh and Nilsson (2010) who all use 5-year averages in their studies. First, average government ideology over a 5-year period is an imprecise measure when government ideology changed in the meantime.[8] Second, results based on 5-year averaged data may be sensitive to the choice of

[7] Im-Pesaran-Shin (2003) panel unit root tests (including a trend and lag length determined by the AIC criterion) do not reject the null hypothesis that all country series contain unit roots for the top 1% income share, the KOF index, and the top marginal income tax rate.

[8] Changes in government ideology are expected to have immediate effects on income shares via different channels. Stock markets may react to changes in government ideology and affect capital incomes in the same year (Füss and Bechtel 2008). Wage agreements may also be affected by changes in government ideology (Falch and Rattsø 1997). Government ideology has changed frequently in some countries (e.g. in Denmark, Ireland, and Norway; see Figure 4.3).

the starting year. Third, income shares of top percentiles show less cyclical fluctuations than income shares of bottom percentiles (Castañeda et al. 1998). Including the GDP growth variable controls for remaining business-cycle related fluctuations in the data.

4.5. Results

Table 4.1 and Table 4.2 show the main regression results. Government ideology turns out to be statistically significantly associated with top 1% income shares (Table 4.1). Under leftwing governments, the year-on-year change of the income share is 0.1 percentage points lower than under coalition governments (column (6), note that the ideology variable is coded such that a change from rightwing to leftwing implies an effect of twice this magnitude). The size of the effect is economically relevant, and the result is robust to including or excluding the KOF index and other control variables. The coefficient of the top marginal income tax rate is statistically significant and negative: when the top marginal income tax rate increases by one percentage point, the top 1% income share decreases by 0.02 percentage points. The other control variables lack statistical significance.

Table 4.1: Regression results – top 1% income shares

	(1) top 1% income share	(2) top 1% income share	(3) top 1% income share	(4) top 1% income share	(5) top 1% income share	(6) top 1% income share
Ideology (left)	-0.083**	-0.099**			-0.084**	-0.101**
	(0.032)	(0.037)			(0.030)	(0.036)
KOF index			0.010	0.019	0.015	0.024
			(0.042)	(0.042)	(0.041)	(0.041)
GDP growth		0.026		0.023		0.026
		(0.017)		(0.016)		(0.017)
Population growth		0.082		0.092		0.088
		(0.064)		(0.069)		(0.064)
government spending		-0.031		-0.039		-0.032
		(0.038)		(0.038)		(0.038)
top marginal income tax rate		-0.021*		-0.021*		-0.021*
		(0.010)		(0.010)		(0.010)
Lagged dependent variable		-0.317***		-0.310***		-0.319***
		(0.064)		(0.065)		(0.063)
Time and country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	516	516	516	516	516	516
Countries	16	16	16	16	16	16
R2 (within)	0.125	0.226	0.115	0.212	0.126	0.227
R2 (overall)	0.122	0.217	0.111	0.202	0.122	0.217

Notes: OLS estimations; robust standard errors in parentheses (Huber/White/sandwich standard errors); * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 4.2 shows the results for the income shares of the next 9%. Government ideology has a negative coefficient but it lacks statistical significance.[9] The KOF index also lacks statistical significance. GDP growth has a negative and statistically significant coefficient, even though it is smaller than in the specification using 5-year averages. A one percentage points increase of annual GDP growth is associated with a 0.03 percentage points average yearly decrease of the next 9% income share. The results confirm the first and the forth hypothesis. The second hypothesis is rejected.

[9] Since the effects of ideology on the income share of the top 1% and on the next 9% do not compensate each other, the income share of the bottom 90% of the income distribution is positively associated with the government ideology variable (results not shown).

Table 4.2: Regression results – next 9% income shares

	(1) next 9% income share	(2) next 9% income share	(3) next 9% income share	(4) next 9% income share	(5) next 9% income share	(6) next 9% income share
Ideology (left)	-0.029	-0.025			-0.032	-0.028
	(0.023)	(0.021)			(0.023)	(0.022)
KOF index			0.037	0.037	0.038	0.038
			(0.032)	(0.029)	(0.032)	(0.029)
GDP growth		-0.026*		-0.027**		-0.026*
		(0.013)		(0.012)		(0.013)
Population growth		-0.038		-0.027		-0.028
		(0.056)		(0.047)		(0.047)
government spending		0.015		0.012		0.014
		(0.034)		(0.037)		(0.036)
top marginal income tax rate		-0.003		-0.002		-0.002
		(0.005)		(0.006)		(0.006)
Lagged dependent variable		0.173**		0.175**		0.174**
		(0.067)		(0.068)		(0.069)
Time and country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	516	516	516	516	516	516
Countries	16	16	16	16	16	16
R2 (within)	0.130	0.170	0.134	0.174	0.137	0.176
R2 (overall)	0.130	0.173	0.128	0.174	0.136	0.180

Notes: OLS estimations; robust standard errors in parentheses (Huber/White/sandwich standard errors); * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

The effect of government ideology on top income shares may depend on the level of globalization, and vice versa.[10] I therefore include an interaction term in the model. Table 4.3 shows the results. The results remain qualitatively unchanged with respect to the results shown in columns (5) and (6) in Table 4.1 and Table 4.2. The interaction terms lack statistical significance in all specifications. Figure 4.2 (a) and Figure 4.2 (b) show the marginal effects that correspond to the full specification in columns (2) and (4) of Table 4.3. Government ideology has a negative effect (at the 5% significance level) on the top 1% income share when the KOF index increases between 0 and 2.5 percentage points. The effect becomes marginally stronger as the year-on-year change in the KOF index increases. Government ideology does not have an effect on the next 9% income

[10] See Potrafke (2009) on how the effect of partisanship on social expenditures depends on the pace of globalization.

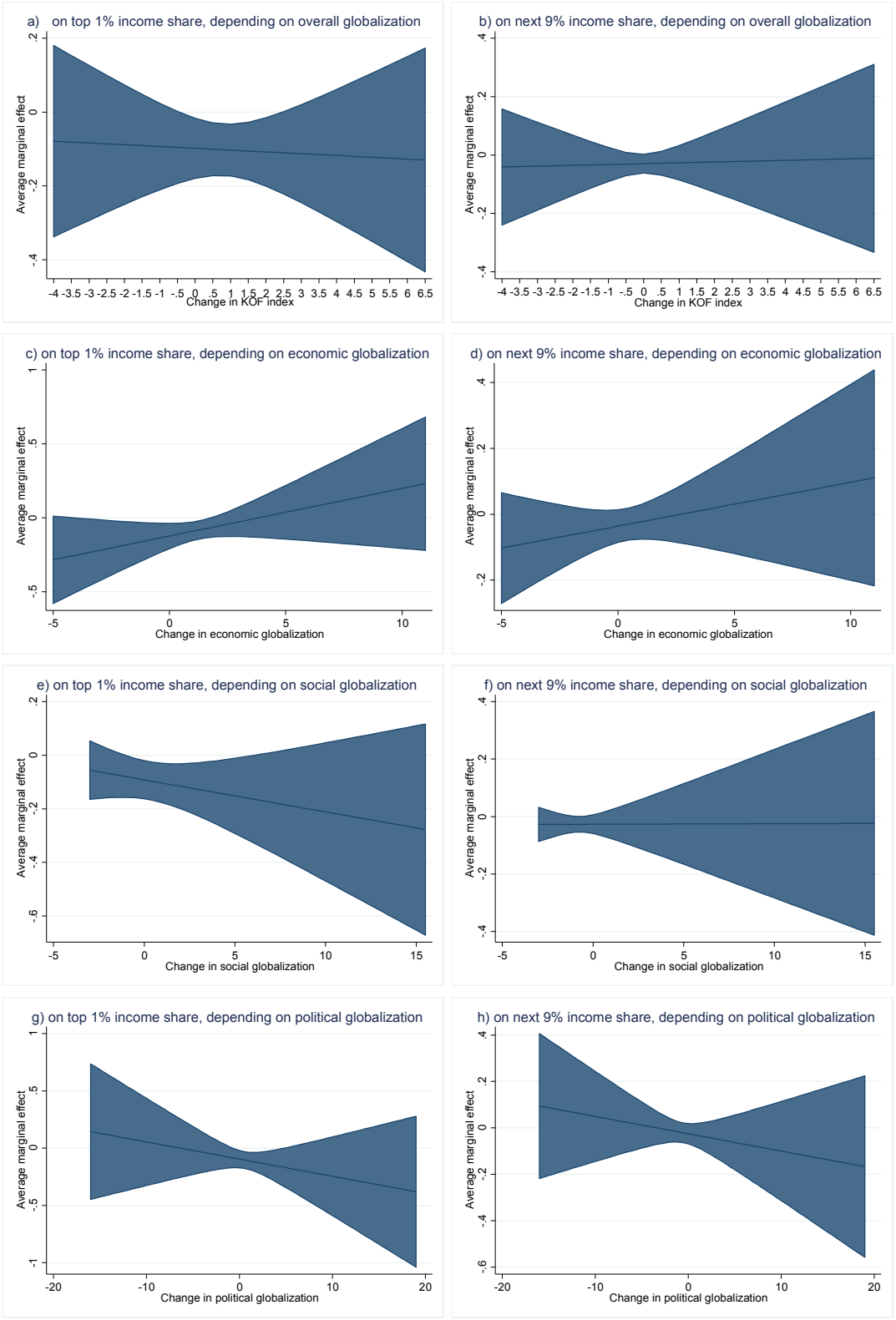
share (regression coefficients are negative but not statistically significant). The results confirm the third hypothesis.

Table 4.3: Regression results – interaction models

	(1) top 1% income share	(2) top 1% income share	(3) next 9% income share	(4) next 9% income share
Ideology (left)	-0.079**	-0.098**	-0.035*	-0.030*
	(0.036)	(0.042)	(0.018)	(0.016)
KOF index	0.043	0.038	0.024	0.030
	(0.114)	(0.099)	(0.104)	(0.098)
Ideology * KOF index	-0.010	-0.005	0.005	0.003
	(0.032)	(0.026)	(0.026)	(0.025)
GDP growth		0.026		-0.026*
		(0.017)		(0.013)
Population growth		0.087		-0.028
		(0.062)		(0.051)
government spending		-0.032		0.014
		(0.039)		(0.037)
top marginal income tax rate		-0.021*		-0.002
		(0.010)		(0.006)
Lagged dependent variable		-0.318***		0.174**
		(0.063)		(0.069)
Time and country fixed effects	Yes	Yes	Yes	Yes
Observations	516	516	516	516
Countries	16	16	16	16
R2 (within)	0.126	0.227	0.137	0.176
R2 (overall)	0.123	0.217	0.136	0.180

Notes: OLS estimations; robust standard errors in parentheses (Huber/White/sandwich standard errors); * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Figure 4.2: Average marginal effects of government ideology (left)



Note: Bands show 95% confidence intervals. The range on the abscissa is determined by the maximum and minimum values.

4.6. Robustness Checks

I replaced the overall KOF index by its subindices in the interaction model to investigate whether the effect of globalization on top income shares differs across subcategories. Table 4.7 shows the results. The regression results are similar across the different subindices and do not differ from the results for the composite index in Table 4.3. The coefficient of government ideology is negative and statistically significant for the top 1% income share but not for the next 9% income share. The coefficients of the globalization indices and of the interaction term lack significance in all specifications. The inference regarding the control variables does not change.

Figure 4.2 (c) shows that the negative effect of government ideology on the top 1% income share becomes smaller as the year-on-year change in the economic globalization index increases. Furthermore the effect is statistically significant at a wider range, i.e., between a decrease of the economic globalization index by 4 percentage points and an increase of the index by 1.5 percentage points. The results for the social globalization index (Figure 4.2 (e)) and the political globalization index (Figure 4.2 (g)) are similar to those for the composite index: The negative effect of government ideology on the top 1% income share increases in the change of the social globalization and the political globalization index, and the effects are statistically significant mostly in the positive range (-1 to 6 for the social globalization index, -0.5 to 4.5 for the political globalization index). The results for the composite index are mostly driven by social and political globalization and less by economic globalization. It is conceivable that governments of different partisanship where most able to influence the top 1% income share in the desired way when economic globalization was moderate or even negative, but social and political globalization moderate or even rapid.

As to the income share of the next 9%, the marginal effects of government ideology are never statistically significant.

It is conceivable that top income shares and their determinants in Anglo-Saxon countries differ from those in continental Europe and Japan (Roine et al. 2009).[11] Table 4.8 and Figure 4.4 show the results when the sample is split between Anglo-Saxon countries and other countries. The subsamples are indeed different. The marginal effect of government ideology on the top 1% income share is not statistically significant for Anglo-Saxon countries (Figure 4.4 (a)), but for other countries Figure 4.4 (c)). The marginal effect of government ideology on the next 9% income share is statistically significant for Anglo-Saxon countries (Figure 4.4 (b)), but not for other countries (Figure 4.4 (d)). However, the average marginal effect on the top 1% income share in other countries (-0.13 at KOF index = 1) is larger in absolute value than the average marginal effect on the next 9% income share in Anglo-Saxon countries (-0.05 at KOF index = 1).

I checked whether single countries drive the results for the full sample. Leaving out single countries does not change the main inferences. However, I find two additional effects in subsamples. When I drop Italy or Sweden from the sample, the marginal effect of ideology on the next 9% income share becomes statistically significant when the KOF index does not change. When I drop Norway from the sample, the coefficient of the KOF index becomes positive and statistically significant in the main specification for both the top 1% and the next 9% income share. It is left for future research to uncover institutional differences between countries that may explain why such effects arise.

The results may be sensitive to the inclusion of other control variables. Technological change and financial development may also influence top income shares. I have included the growth rate of the number of patents by residents and nonresidents in the baseline regressions. I have also included the first difference of the ratio of private credit to GDP in the baseline regressions. The sample size decreases slightly (to 477 and 488 observations), but neither the number of patents nor the private credit variable turns out to be

[11] Anglo-Saxon countries include Australia, Canada, New Zealand, the United Kingdom, and the United States.

statistically significant. Inferences regarding the other explanatory variables do not change.

The results may also be sensitive on how government ideology is coded. I replaced the continuous variable by a dummy variable which assumes the value one when a government is considered as leftwing. Inferences do not change.

I ran fixed effects regression models using 5-year averages of the data. Table 4.9 shows the results for the income share of the top 1%. Neither the government ideology variable nor the KOF index has a statistically significant coefficient in any specification. The control variables GDP growth, population growth, government spending and the top marginal income tax rate do not turn out to be statistically significant in any specification. Table 4.10 shows the results for the income share of the next 9%. Again, the government ideology variable and the KOF index do not turn out to be statistically significant in any specification. The coefficients of GDP growth and the top marginal income tax rate are negative and statistically significant. The results show that yearly data is better suited to identify partisan effects than 5-year averaged data.

When top income shares increase/decrease, voters may elect a new national government (Meltzer and Richard 1981, Milanovic 2000, Burgoon 2013),[12] which would give rise to reverse causality in the empirical model. In a similar vein, top income shares may affect globalization outcomes, e.g. if top income earners spend large shares of additional income on imported goods. I do not establish causation but correlations. To identify a causal effect I would need a valid instrumental variable. Such instruments remain yet to be found in the literature. An alternative approach would be a regression-discontinuity approach (Pettersson-Lidbom 2008).

[12] The demand for equal incomes also depends on perceived fairness in the population (Bjørnskov et al. 2013).

4.7. Conclusion

Economists examine whether government ideology matters for economic outcomes. In some policy areas, policy platforms have converged between rightwing and leftwing parties (for example regarding health spending, see Potrafke 2010). My results show that government ideology shapes distributional outcomes, especially the income share of the top 1% of the income distribution. Voters and observers of public policy can anticipate that changes in government ideology are likely to have distributional consequences.

My results also show that globalization does not have a clear impact on top income shares. However, waves of globalization seem to provide a window of opportunity in which leftwing governments can compensate their electorate for the risks of globalization and increase the income share of the bottom 90% of the income distribution. Rightwing governments may use waves of globalization to implement policies that in large parts benefit the top of the income distribution. Contrary to the 'race-to-the-bottom' hypothesis, it is conceivable that globalization did not deprive governments of policy instruments to design distributive outcomes.[13]

[13] This result is in line with Potrafke (2009, 2013).

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Appendix: Additional Tables and Figures

Table 4.4: Availability and sources of top incomes data (after 1970)

Country	Years	Source
Australia	1970-2010	Atkinson and Leigh (2007a)
Canada	1970-2010	Saez and Veall (2007), Veall (2012)
Denmark	1970-1972, 1974-2010	Atkinson and Søgaard (2013)
Finland	1990-2009	Jäntti et al. (2010)
France	1970-2009	Piketty (2001, 2007), Landais (2007)
Ireland	1975-2009	Nolan (2007)
Italy	1974-1995, 1998-2009	Alvaredo and Pisano (2010)
Japan	1970-2010	Moriguchi and Saez (2010)
Netherlands	1989-1999	Salverda and Atkinson (2007)
New Zealand	1970-2010	Atkinson and Leigh (2007b, 2007c)
Norway	1970-2008	Aaberge and Atkinson (2010)
Portugal	1976-1982, 1989-2005	Alvaredo (2009)
Spain	1981-2010	Alvaredo and Saez (2009)
Sweden	1970-2010	Roine and Waldenström (2010)
United Kingdom	1970-1979, 1981-2007	Atkinson (2007)
USA	1970-2010	Piketty and Saez (2007)

Table 4.5: Descriptive statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max	Source
Top 1% income share	555	7.91	2.55	3.97	18.33	Alvaredo et al. (2013)
Next 9% income share	555	23.58	2.90	14.45	31.48	Alvaredo et al. (2013)
Ideology (left)	555	2.87	0.97	1	4	Own compilation
KOF index of globalization	555	73.77	11.49	33.95	91.67	Dreher (2006; version 2013)
Economic globalization	555	67.75	15.85	21.07	96.83	Dreher (2006; version 2013)
Social globalization	555	70.00	13.12	28.78	91.25	Dreher (2006; version 2013)
Political globalization	555	87.49	9.40	58.09	98.43	Dreher (2006; version 2013)
Real GDP per capita growth rate	555	2.03	2.36	-8.63	9.56	Bolt and van Zanden (2013)
Population growth rate	555	0.71	0.56	-0.43	4.96	World DataBank (7-10-13)
Government spending (share of GDP)	555	19.58	4.02	7.44	30.14	World DataBank (7-10-13)
Top marginal income tax rate	555	54.06	13.17	28	91.3	Piketty et al. (2014)
Number of patents	523	50042.19	101837	146	490226	World DataBank (15-2-14)
Private credit (share of GDP)	525	88.21	46.04	9.66	237.58	Beck et al. (2000; version November 2013)

Table 4.6: Correlations of main variables

	Top 1% income share	Next 9% income share	Ideology (left)	KOF index	Econ. glob.	Social glob.	Political glob.	GDP growth	Population growth	Government spending
Next 9% income share	0.645									
Ideology (left)	-0.038	-0.077								
KOF index	0.201	-0.065	0.205							
Economic glob.	0.091	-0.147	0.169	0.921						
Social glob.	0.265	0.018	0.198	0.922	0.756					
Political glob.	0.197	0.005	0.166	0.671	0.448	0.542				
GDP growth	-0.016	-0.003	0.075	-0.080	0.005	-0.126	-0.134			
Population growth	0.223	0.104	-0.032	-0.047	-0.042	0.069	-0.260	-0.051		
Government spending	-0.326	-0.409	0.167	0.608	0.497	0.532	0.612	-0.259	-0.378	
Top marginal income tax rate	-0.613	-0.428	0.053	-0.365	-0.348	-0.403	-0.084	0.123	-0.118	0.134

Table 4.7: Regression results – interaction models with KOF subindices

	(1) top 1% income share	(2) top 1% income share	(3) top 1% income share	(4) next 9% income share	(5) next 9% income share	(6) next 9% income share
Ideology (left)	-0.123**	-0.091**	-0.095**	-0.036	-0.027	-0.025
	(0.044)	(0.036)	(0.038)	(0.025)	(0.017)	(0.022)
economic globalization	-0.073			-0.034		
	(0.100)			(0.051)		
Ideology * economic globalization	0.032			0.013		
	(0.023)			(0.015)		
social globalization		0.040			0.018	
		(0.040)			(0.045)	
Ideology * social globalization		-0.012			0.000	
		(0.013)			(0.012)	
political globalization			0.047			0.027
			(0.055)			(0.037)
Ideology * political globalization			-0.015			-0.007
			(0.018)			(0.010)
GDP growth	0.028	0.025	0.026	-0.028*	-0.029*	-0.029*
	(0.019)	(0.017)	(0.018)	(0.016)	(0.015)	(0.016)
Population growth	0.088	0.084	0.075	-0.035	-0.027	-0.040
	(0.065)	(0.062)	(0.056)	(0.075)	(0.066)	(0.070)
government spending	-0.025	-0.032	-0.032	0.021	0.014	0.018
	(0.049)	(0.037)	(0.038)	(0.038)	(0.038)	(0.037)
top marginal income tax rate	-0.022**	-0.021*	-0.021*	-0.001	-0.001	-0.001
	(0.010)	(0.010)	(0.010)	(0.006)	(0.006)	(0.006)
Lagged dependent variable	-0.323***	-0.316***	-0.318***	0.021	0.024	0.021
	(0.059)	(0.064)	(0.065)	(0.035)	(0.036)	(0.034)
Time and country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	516	516	516	516	516	516
Countries	16	16	16	16	16	16
R2 (within)	0.231	0.227	0.228	0.144	0.149	0.144
R2 (overall)	0.220	0.218	0.218	0.139	0.146	0.140

Notes: OLS estimations; robust standard errors in parentheses (Huber/White/sandwich standard errors); * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 4.8: Regression results – Anglo-Saxon countries vs. other countries

	(1) top 1% income share	(2) top 1% income share	(3) next 9% income share	(4) next 9% income share
Ideology (left)	-0.030	-0.139*	-0.046*	-0.025
	(0.030)	(0.066)	(0.020)	(0.033)
KOF index	0.260	-0.052	0.041	0.039
	(0.221)	(0.109)	(0.053)	(0.135)
Ideology * KOF index	-0.055	0.013	-0.001	0.003
	(0.056)	(0.031)	(0.021)	(0.036)
GDP growth	0.052	0.032	-0.006	-0.029
	(0.053)	(0.027)	(0.033)	(0.020)
Population growth	0.108*	0.013	-0.001	-0.022
	(0.047)	(0.123)	(0.042)	(0.051)
government spending	-0.021	-0.021	-0.022	0.038
	(0.071)	(0.044)	(0.044)	(0.035)
top marginal income tax rate	-0.034	-0.003	-0.015	0.000
	(0.020)	(0.010)	(0.008)	(0.007)
Lagged dependent variable	-0.273***	-0.356***	-0.093*	0.272***
	(0.055)	(0.063)	(0.035)	(0.066)
Time and country fixed effects	Yes	Yes	Yes	Yes
Sample	Anglo-Saxon countries	other countries	Anglo-Saxon countries	other countries
Observations	189	327	189	327
Groups	5	11	5	11
R2 (within)	0.385	0.242	0.343	0.262
R2 (overall)	0.372	0.235	0.327	0.270

Notes: OLS estimations; robust standard errors in parentheses (Huber/White/sandwich standard errors). Anglo-Saxon countries: Australia, Canada, New Zealand, United Kingdom, United States. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 4.9: Regression results – top 1% income shares, 5-year averages

	(1) top 1% income share	(2) top 1% income share	(3) top 1% income share	(4) top 1% income share	(5) top 1% income share	(6) top 1% income share
Ideology (left)	-0.068	-0.073			-0.065	-0.071
	(0.059)	(0.061)			(0.056)	(0.056)
KOF index			-0.044	-0.057	-0.036	-0.048
			(0.108)	(0.131)	(0.102)	(0.125)
GDP growth		0.036		0.029		0.034
		(0.025)		(0.019)		(0.022)
Population growth		-0.079		-0.084		-0.078
		(0.097)		(0.110)		(0.099)
government spending		0.204		0.203		0.215
		(0.232)		(0.246)		(0.256)
top marginal income tax rate		-0.018		-0.015		-0.016
		(0.017)		(0.016)		(0.018)
Time and country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	114	114	114	114	114	114
Countries	16	16	16	16	16	16
R2 (within)	0.250	0.276	0.238	0.264	0.252	0.280
R2 (overall)	0.226	0.223	0.211	0.210	0.229	0.229

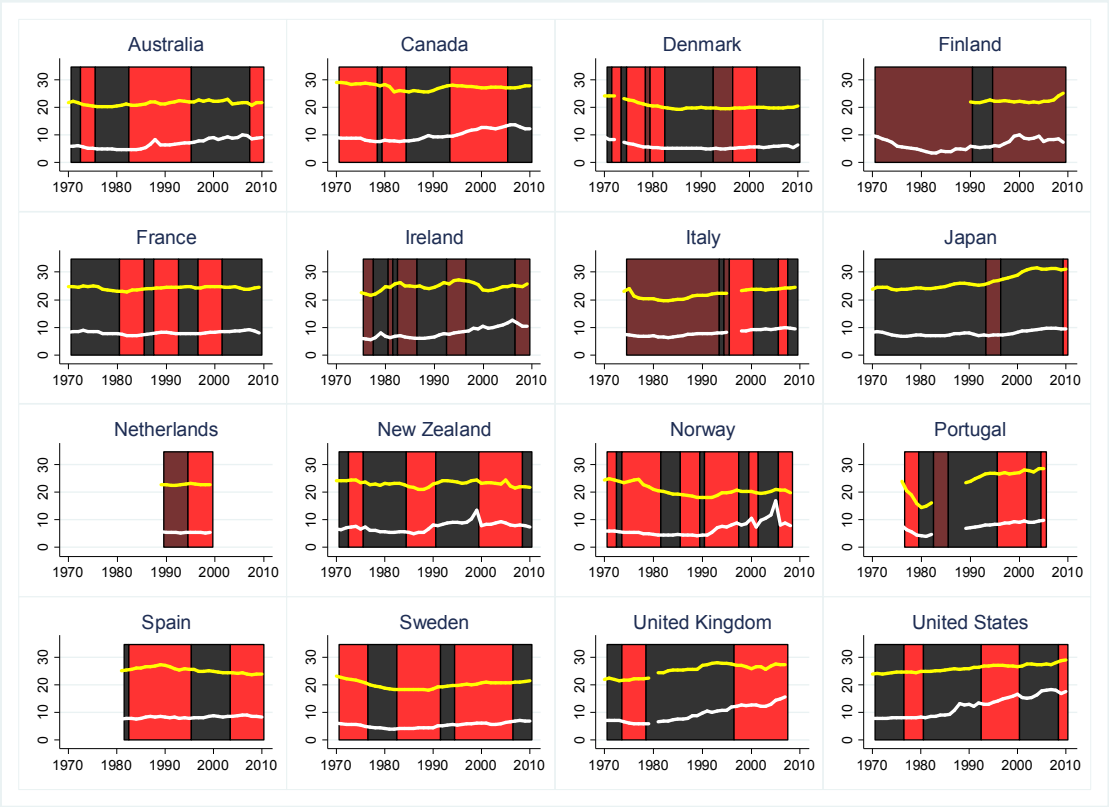
Notes: OLS estimations; robust standard errors in parentheses (Huber/White/sandwich standard errors); $^{*}\ p < 0.10$, $^{**}\ p < 0.05$, $^{***}\ p < 0.01$.

Table 4.10: Regression results – next 9% income shares, 5-year averages

	(1) next 9% income share	(2) next 9% income share	(3) next 9% income share	(4) next 9% income share	(5) next 9% income share	(6) next 9% income share
Ideology (left)	-0.054	-0.045			-0.056	-0.046
	(0.047)	(0.042)			(0.049)	(0.043)
KOF index			0.027	0.010	0.033	0.016
			(0.081)	(0.055)	(0.081)	(0.056)
GDP growth		-0.072***		-0.075***		-0.072***
		(0.023)		(0.021)		(0.023)
Population growth		-0.237		-0.241		-0.237
		(0.209)		(0.220)		(0.209)
government spending		0.078		0.066		0.074
		(0.115)		(0.107)		(0.110)
top marginal income tax rate		-0.048**		-0.048**		-0.049**
		(0.022)		(0.022)		(0.023)
Time and country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	114	114	114	114	114	114
Countries	16	16	16	16	16	16
R2 (within)	0.190	0.367	0.180	0.359	0.192	0.367
R2 (overall)	0.189	0.306	0.164	0.285	0.192	0.307

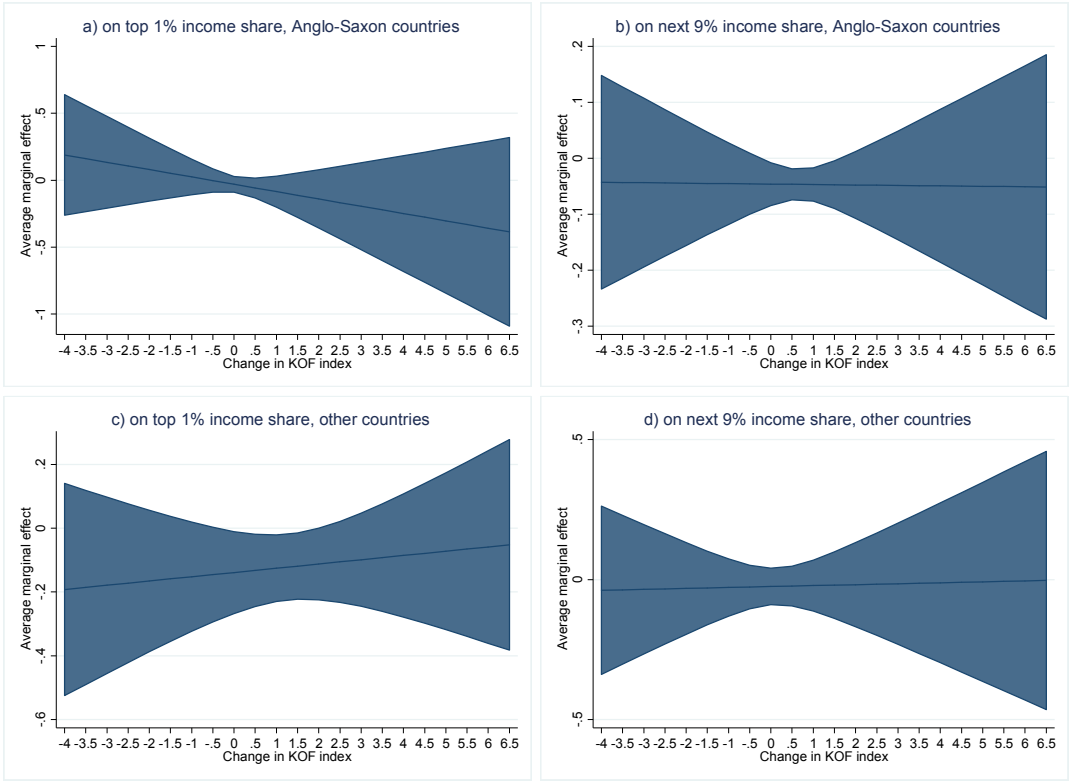
Notes: OLS estimations; robust standard errors in parentheses (Huber/White/sandwich standard errors); * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Figure 4.3: Top income shares and government ideology by country



Note: Top 1% income share in white, next 9% income share in yellow. Government ideology in red shades (red=leftwing).

Figure 4.4: Average marginal effects of government ideology (left), Anglo-Saxon countries vs. other countries



Note: bands show 95% confidence intervals. The range on the abscissa is determined by the maximum and minimum values.

5. Debt Brakes in the German States: Governments' Words and Actions[1]

5.1. Introduction

Since the financial crisis 2008/2009, experts have stepped up efforts in discussing whether governments pursue sustainable fiscal policies (e.g. Alesina et al. 2015). In the course of demographic change, sustainable fiscal policies are an important case in point for industrialized societies. An issue is whether constitutional restrictions are needed to constrain excessive debt. Balanced-budget rules have been used by most US states, Spanish regions, and Swiss Cantons. In Germany, a balanced-budget rule, the 'debt brake', was included in the federal constitution in 2009. The new rules restrict the structural deficit of the federal government to a maximum of 0.35% of GDP from 2016 on. The German states are not allowed to run any structural deficit from 2020 onwards. The states, however, decide on the fiscal adjustment path until 2020. After 2019 the financial ties between the federal government and the states have to be reorganized. The debt brake is also an important issue in the negotiations between states regarding the fiscal equalization system after 2019.[2] Both the debt brake and the fiscal equalization system influence state budgets. In 2014, there were almost 9 billion Euros horizontal transfers between the states. The fiscal equalization system provides incentives for states to incur debt instead of generating revenues which would get redistributed. When the debt brake is in full force and forbids deficit financed spending, highly indebted states may demand higher fiscal transfers to comply with the debt brake.

Many studies investigate how government ideology influences public expenditures and borrowing. The partisan theories predict that leftwing governments increase size and scope of government more than rightwing governments. Only few studies examine

[1] The chapter is joint work with Niklas Potrafke and Marina Riem (Potrafke et al. 2016).

[2] On fiscal transfers and fiscal sustainability in the German states see Potrafke and Reischmann (2015).

whether leftwing and rightwing governments pursue different strategies to consolidate budgets.

The German federal government consisting of the conservative Christian Democratic Union (CDU/CSU) and the leftwing Social Democratic Party (SPD) initiated to introduce the debt brake. When the German lower house (Bundestag) decided to introduce the debt brake in May 2009, 19 out of 220 members of Parliament (MPs) of the SPD voted against introducing the debt brake (and against the party line), compared to just one out of 216 MPs of the CDU/CSU. In six German states, rightwing governments implemented debt brakes at the state level (Bavaria, Hesse, Lower Saxony, Saxony, Schleswig-Holstein, and Thuringia), while only three leftwing governments did so (Baden-Wuerttemberg, Hamburg, and Rhineland-Palatinate).[3] Newspaper coverage also suggests that rightwing governments were more active in budget consolidation than leftwing governments. For example, the *Frankfurter Allgemeine Zeitung* wrote on June 22, 2014 that "Social Democrats do not want to save".

We describe to what extent government ideology predicts how state governments consolidate budgets in the German states. During the financial crisis 2008/2009 public debt in European countries drastically increased. In Germany the debt-to-GDP ratio increased from 74.5% in 2009 to 82.5% in 2010 (Monthly Report of the Federal Ministry of Finance, March 2013). Against the background of high deficit levels in 2010, the federal and state governments need to consolidate their budgets. German states decide on how to comply with the debt brake requirements. We examine which states included new fiscal rules in their legislation and whether government ideology influenced deficits. We asked senior officials in the state ministries of finance which consolidation strategies state governments pursued.

[3] As a leftwing government we consider SPD or SPD/Greens. A mixed coalition government is between SPD and CDU/CSU, CDU and Greens or CDU/FDP/Greens. A rightwing government is CDU/CSU or CDU/CSU/FDP.

Anecdotal evidence corroborates that political parties in the public debate differ considerably in their attitudes towards fiscal consolidation strategies. Descriptive statistics indicate that leftwing governments ran on average higher structural deficits than rightwing governments between 2010 and 2014. The average primary balance, however, did not differ significantly between rightwing and leftwing governments. In 2014, at the end of the observation period, all states ran primary surpluses. Revenues of federal taxes were much higher than expected. Leftwing governments did not need to run deficits to design generous budgets. Parties differed in their use of individual policy measures to consolidate budgets.

5.2. Public Debt and Government Ideology

The partisan theories describe that leftwing governments appeal more to wage earners and promote expansionary fiscal and monetary policies (Hibbs 1977, Alesina 1987).[4] With tax revenues being constant, leftwing governments are therefore expected to run deficits to finance high expenditures.[5] Rightwing governments appeal more to capital owners, are more concerned with reducing inflation and run lower deficits.[6]

Strategic borrowing may also explain why government ideology influences deficits. If governments face the threat of being replaced by the opposition after the next election they may change their borrowing behavior.[7] There are two theories. Alesina and Tabellini (1990) assume that incumbents increase deficit-financed expenditures on the preferred type of public goods before elections to reduce the room for maneuver of successors. Accordingly, rightwing and leftwing governments would both increase deficits before elections. Persson and Svensson (1989) assume that rightwing governments cut taxes before elections to force successors into low expenditure levels and hence run

[4] See Eslava (2011) and Kirchgässner (2013) on political economic approaches describing why politicians run fiscal deficits.

[5] German state governments have little discretionary power over their revenues. State governments mainly adjust their budgets on the expenditure side.

[6] See also Heinemann and Hennighausen (2012) and Stix (2013) on what predicts public opinion towards public debt.

[7] De Haan (2013) shows that electoral cycles are more pronounced in young democracies.

deficits. Leftwing governments increase taxes before elections to force successors into high expenditure levels and hence run surpluses. Many empirical studies do not support the theories on strategic use of deficits (Grilli et al. 1991, Crain and Tollison 1993, Franzese 2000, Lambertini 2003, Brender and Drazen 2009, Aidt and Mooney 2014). Petterson-Lidbom (2001) finds evidence in support of the Persson and Svensson theory using data from Swedish local governments.[8]

Many studies on budget consolidation investigate the determinants of a successful consolidation. Consolidations are defined as successful if the debt-to-GDP ratio or the budget deficits are permanently reduced. Alesina et al. (1998) find that coalition governments are less likely to succeed in budget consolidation than single party governments. Fiscal decentralization makes successful fiscal consolidation more likely (Schaltegger and Feld 2009). Consolidation strategies differ by government ideology: leftwing governments tend to reduce the deficit by raising tax revenues while rightwing governments rely mostly on expenditure cuts (Mulas-Granados 2003, Tavares 2004). Consolidations may even be more successful under leftwing governments if the commitment to budget consolidation is perceived as more credible (the "Nixon goes to China" argument, see Ross 2000). Leftwing governments may also abstain from expansionary fiscal policies if voters are fiscal conservatives. Empirical evidence shows that voters do not reward politicians who increase public expenditure (Peltzman 1992).

Experts examine what predicts the probability that a fiscal adjustment takes place. Mierau et al. (2007) find that upcoming elections influence the chance for a rapid fiscal adjustment to occur, whereas government ideology does not affect the probability of fiscal adjustments.

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[8] Empirical studies have also shown that budget deficits are higher under fragmented governments (Volkerink and De Haan 2001, Perotti and Kontopoulos 2002). Strong budgetary institutions can, however, mitigate the effect of fragmented governments on budget deficits (De Haan et al. 2013). Strong budgetary institutions such as politically independent state supervisory authorities may also limit budget deficits that arise when local governments and state supervisory authorities belong to the same party (Roesel 2014). Fiscal policies may also depend on fiscal decentralization. Fiscal autonomy gives rise to lower local public debt (Feld et al. 2011, Foremny 2014). At the local level, municipalities increased debt when neighboring municipalities increased debt (Borck et al. 2015).

Some studies focus on governments' fiscal policies in the German states. Jochimsen and Nuscheler (2011) use a panel dataset from 1960 to 2005. The results show that coalition governments borrowed more than single party governments and that borrowing was lower in pre-election years. Coalition governments with a finance minister of the same party as the prime minister did, however, not increase debt as compared to single party governments. Government ideology has not been shown to influence borrowing. The authors describe that electoral motives dominated the partisan effect: in a repeated game where governments offer voters' preferred platforms on election day, no government wants to deviate since it may be punished by voters at the next election.[9] Jochimsen and Thomasius (2014) find that the professional background of the finance minister had a significant effect on the budget deficit in the German states between 1960 and 2009, whereas the finance minister's party affiliation had not. Public spending and deficits were higher when prime ministers of the German states had low socio-economic backgrounds, as measured by the Standard International Occupational Prestige Scale and International Socio-Economic Index of Occupational Status (Hayo and Neumeier 2014).

Support for the debt brake was highest among CDU voters, followed by voters of the Greens, the SPD, the FDP and Die Linke (Hayo and Neumeier 2015). High personal incomes, knowledge about the costs of deficit spending, and low trust in politicians' fiscal competence gave rise to high support of fiscal consolidation (Hayo and Neumeier 2015). There is no study yet that empirically investigates how government ideology is related to budget consolidation in the German states after the financial crisis and after the debt brake was introduced.

5.3. German Debt Brake

A balanced-budget rule was included in the German constitution in 2009, which requires state budgets to be balanced without borrowing (Art. 109(3) GG).[10] Exceptions

[9] In a similar vein, electoral motives influenced active labor market policies that promote (short term) job-creation in the German states (Mechtel and Potrafke 2013).

[10] Berlin, Mecklenburg-Western-Pomerania and Schleswig-Holstein voted against the new debt brake in the federal council in June 2009. See Table 5.2.

can only be made for emergencies such as severe economic crises or natural disasters, or according to the development of the economic cycle on a symmetrical basis (Art. 109 (3) sentence 2 GG). It is unclear, however, whether there will be sanctions if a state fails to consolidate the budget until 2020 (Fuest and Thöne 2013). The federal government established a new Stability Council consisting of the state finance ministers and the federal ministers of finance and economic affairs. The council monitors whether the federal government and the state governments pursue sustainable fiscal policies. Five highly indebted states (Berlin, Bremen, Saarland, Saxony-Anhalt and Schleswig-Holstein, see Table 5.2) have agreed on a consolidation path, are monitored on their compliance, and receive transfers to consolidate the budgets. The Stability Council evaluates the budgets based on four performance figures (structural deficit, credit financing ratio, debt level and interest-tax-ratio) which are compared to the state average. There is, however, no common concept on how to calculate the structural deficit at the state level. The Stability Council uses the deficit per capita instead (Brügelmann and Schaefer 2013).

The federal debt brake does not make any prescriptions for the states' fiscal policies until 2019. States are autonomous in their fiscal policy, and state governments (except for the five states with consolidation assistance) can decide on whether they want to comply with the debt brake earlier and how a balanced budget is to be reached. Since state governments have little discretionary power regarding their tax revenues, states are most likely to adjust budgets by decreasing expenditures. Expenditures that are not predetermined by the federal legislation include current employment, operating expenditures, and allowances and benefits. The states may include new laws concerning the debt brake in their constitutions. For example, the states may specify rules regarding the required approval of escape clauses in parliament, the amortization plan, the legal form of the control account, and adjustments of financial transactions.

The fiscal equalization scheme redistributes revenues across states and between the federal level and the state level. The federal government and state governments are negotiating the design of the fiscal equalization scheme after 2020. Feld (2010) and Burret and

Feld (2013) describe that state governments have incentives to not balance the budgets until 2019 to negotiate higher transfers from other states or the federal level.[11]

States can include balanced-budget rules in the constitutions (as did Bavaria, Hamburg, Hesse, Mecklenburg-Western-Pomerania, Rhineland-Palatinate, Saxony, and Schleswig-Holstein) or in their state budget code (as did Baden-Wuerttemberg, Saxony-Anhalt, Lower Saxony, Thuringia, see Table 5.2). The rules in the state budget code can, however, easily be circumvented (Burret and Feld 2013).[12] If state governments change the constitution to comply with the debt brake, they indicate that they seriously want to consolidate their budgets.[13] Constitutional debt brakes may, however, still contain loopholes, for example by leaving out special funds and public enterprises (Ciaglia and Heinemann 2012, Heun 2013, Reischmann 2014, 2015).

Experts describe how the German debt brake is designed and whether it serves its purpose. Janeba (2012) investigates a political agency problem where policy reforms such as a previously passed new budget or debt rule are implemented with a delay. The results show that a suitable debt ceiling is more effective to restrain borrowing than a budget deficit rule. Since the debt brake will only become effective in 2020, future state governments are likely to challenge the new rules before the rules become effective (Janeba 2012). Schleswig-Holstein, Saxony-Anhalt, and Saarland, some of the states which receive consolidation assistance, have the strictest rules. The states lack fiscal discipline because German federalism provides bailout guarantees (Ciaglia and Heinemann 2012). Mause and Groeteke (2012) conclude that the German debt brake is not a credible commitment. Whether a debt brake is effective depends on the individual design (independent political control, sanctions etc.) and on the institutional setting. If, for example, a government can expect a bailout or poor fiscal policy is not punished by the

[11] See Herwartz and Theilen (2014) on what type of state government is keen to collect taxes.

[12] Rules in the state budget code can be changed by simple majority, whereas the constitution is more difficult to change. Bohn and Inman (1996) show that stricter budget rules gave rise to lower deficits in the US states.

[13] We tested whether the level of debt influences the likelihood to introduce a debt brake at the state level. Regression coefficients in probit regressions are statistically significant and indicate that more indebted states were less likely to introduce debt brakes.

capital markets, a debt brake rule would not change a government's incentives. The German fiscal equalization scheme renders the debt brake less effective.

5.4. Governments' Words

Policy preferences of parties can be described by politicians' words in the public debate or in party manifestos (Osterloh 2012). Politicians reveal their attitudes towards the debt brake in the media. In Schleswig-Holstein, the leftwing government wanted to weaken the debt brake: finance minister Heinhold "budges from the debt brake" (Schleswig-Holsteinische Zeitung, June 4, 2015). In North-Rhine Westphalia, the socialdemocratic finance minister Norbert Walter-Borjans maintained that the debt brake is somewhat self-incapacitating (dapd Nachrichtenagentur, October 13, 2011). In Hesse, the member of the state parliament Janine Wissler (leftwing party Die Linke), said that the debt brake is equivalent to cuts in social welfare (Gelnhäuser Tageblatt, March 9, 2011). Saarland's Prime Minister Annegret Kramp-Karrenbauer (CDU) questioned the debt brake by stating that a positive economic environment is needed to cope with the debt brake. Her own party and the market-oriented FDP strongly criticized her view (Berliner Morgenpost, September 28, 2011).

During the plenary debate before voting on the federal debt brake in the lower house in May 2009, MPs revealed differences in attitudes towards budget consolidation across parties.[14] Volker Wissing (FDP) stressed how the interest that has to be paid on the debt burden reduces the scope of action available to politicians, and that his party strongly advocates an effective debt brake. Antje Tillmann (CDU) maintained that a debt brake implies intergenerational justice. By contrast, Bodo Ramelow (Die Linke) claimed that the debt brake will render some states incapable of action, and demands higher taxes instead, for instance on wealth and financial transactions. Fritz Kuhn (Greens) criticized that the debt brake will not be effective, because state governments are autonomous in designing their budgets until the year 2019. Peer Steinbrück (SPD), the then finance

[14] See plenary minutes No. 16/225.

minister, claimed that a signal to the financial markets is needed, that Germany pursues sound budgetary policies.

Party manifestos in individual states since 2009 also contain the party position regarding debt brakes. There were 23 state elections between 2009 and 2014, and party manifestos were published before each election. We examined whether manifestos contained crystal-clear statements in favor or against debt brakes at the state or federal level. Table 5.1 shows the results. Parties clearly differed in their attitudes towards debt brakes. While the conservative CDU/CSU and the market-oriented FDP advocated the debt brake in 20 and 18 out of 23 party manifestos, the leftwing SPD only advocated the debt brake in 9 party manifestos. The leftwing Green party advocated the debt brake in 15 party manifestos, and dismissed it in 3 party manifestos. The leftwing party Die Linke never advocated the debt brake and dismissed it in 13 party manifestos.

Table 5.1: Attitudes towards debt brake in individual party manifestos (years 2009 – 2014)

	CDU/CSU	SPD	FDP	Greens	Die Linke
Attitudes towards the debt brake:					
Number of party manifestos with positive attitude	20	9	18	15	0
Number of party manifestos with negative attitude	0	0	0	2	13
Total number of party manifestos	23	23	23	23	23

Note: Only clear statements are recorded. Consequently the sum of negative and positive statements does not necessarily correspond to the total number of investigated party manifestos. Source: Own collection based on party manifestos.

Anecdotal evidence corroborates that political parties in the public debate differed considerably in their attitudes towards debt brakes. We now examine whether the expressed differences in attitudes towards fiscal consolidation of the political parties were also reflected in the data.

5.5. Governments' Actions

5.5.1. Voting Behavior

Political alignment mattered when the German lower house decided to introduce the debt brake at the federal level in May 2009. Political alignment also mattered for voting

behavior when a bill concerning the debt brake at the state level was introduced. Table 5.3 shows the results of parties' roll call votes in the state parliaments. MPs of the CDU/CSU always voted in favor of the debt brake. MPs of the FDP always voted in favor of the debt brake, except for Saxony-Anhalt where they abstained from voting. In Saxony one MP of the SPD voted against the debt brake, in Lower-Saxony and Thuringia all MPs of the SPD voted against the debt brake. In the other states all MPs of the SPD voted in favor of the debt brake. In Bavaria and Lower Saxony all MPs of the Greens voted against the debt brake. In Saxony one MP of the Greens voted against the debt brake. MPs of Die Linke never supported the debt brake, except in Saxony where 11 MPs voted in favor of the debt brake.

5.5.2. Policy Measures

State governments have little discretionary power designing taxes. One of the few taxes that federal states decide on and collect is the land transfer tax. Expenditures that are not predetermined by the federal legislation include current employment, operating expenditures, and allowances and benefits. The highest share of expenditures is personnel expenditures. Aggregate data on expenditure types do not capture all facets of consolidation strategies. For example, personnel expenditures can be reduced by hiring fewer teachers or fewer administrative senior government officials. It is worthwhile to examine whether government ideology influences consolidation strategies. In July 2014 we asked experts in the Ministries of Finance of all German states which consolidation strategies state governments pursued after the federal debt brake had been introduced. The experts work in the units dealing with issues such as the budget, federal relationships, tax revenue forecasting or fiscal planning. Table 5.4 portrays the results. We describe three states with particularly interesting anecdotal evidence in some more detail.

Schleswig-Holstein was the first state to include a debt brake in the state constitution in May 2010. Including a debt brake in the constitution was among the first decisions of the new rightwing government. The debt brake had been a major issue in the election campaign. In 2009, Schleswig-Holstein, still governed by a mixed coalition government, had been among the three states that voted against the debt brake at the federal

level in the Federal Council. When the state parliament decided to file a suit against the debt brake, the rightwing CDU was the only party that did not support the lawsuit. Attitudes concerning the debt brake clearly differed between leftwing and rightwing governments/parties, and so do the attitudes regarding consolidation strategies. The rightwing government decided to reduce public employment between 2010 and 2020. The leftwing government which came into office in June 2012 approved the agreed deficit targets, but had different priorities on how to consolidate the budget. For example, the government wanted to cut fewer teacher positions than planned.[15] Instead, more jobs in the public administration would be cut.

Saxony has the lowest debt per capita level of all states. The rightwing CDU has been in power since 1990 (over the period 2004-2009 in a coalition with the leftwing SPD). The state government ran budget surpluses since 2006. The debt brake, included in the state constitution in July 2013, forbids public borrowing starting in 2014. The debt brake also includes provisions to cover implicit debt arising from pension liabilities. Public employment was forecast to be cut by 18%.

North Rhine-Westphalia did not include a debt brake in its constitution or state budget code. Public employment needs, however, to be reduced to comply with the debt brake in 2020. The leftwing government froze wages of civil servants in higher service instead of cutting positions in the inner administration. The wage freeze of civil servants only in higher service was declared to be not in line with the constitution. The government of North Rhine-Westphalia will thus have to pay back a high amount of foregone payment to the civil servants. Instead of cutting expenditures, the leftwing government increased investive expenditures for schooling, child care and universities hoping for lower expenditures in the future. As a consequence, expenditures for allowances and benefits have increased strongly in North Rhine-Westphalia since 2012. It is not yet clear how North Rhine-Westphalia will finance the increasing expenditures without increasing

[15] The leftwing government wants to cut only half of the originally planned teacher positions and provide the third year of nursery school free of charge. See Frankfurter Rundschau, May 9, 2012.

debt. Since 2012 North Rhine-Westphalia has no concrete plans for retrenchment of personnel. Some departments are required to cut back their expenditures by 1.5% until 2016, but the most personnel intense departments are excluded from the requirement. Some journalists conjectured that the land transfer tax would increase further or a municipality solidarity surcharge would be introduced.[16]

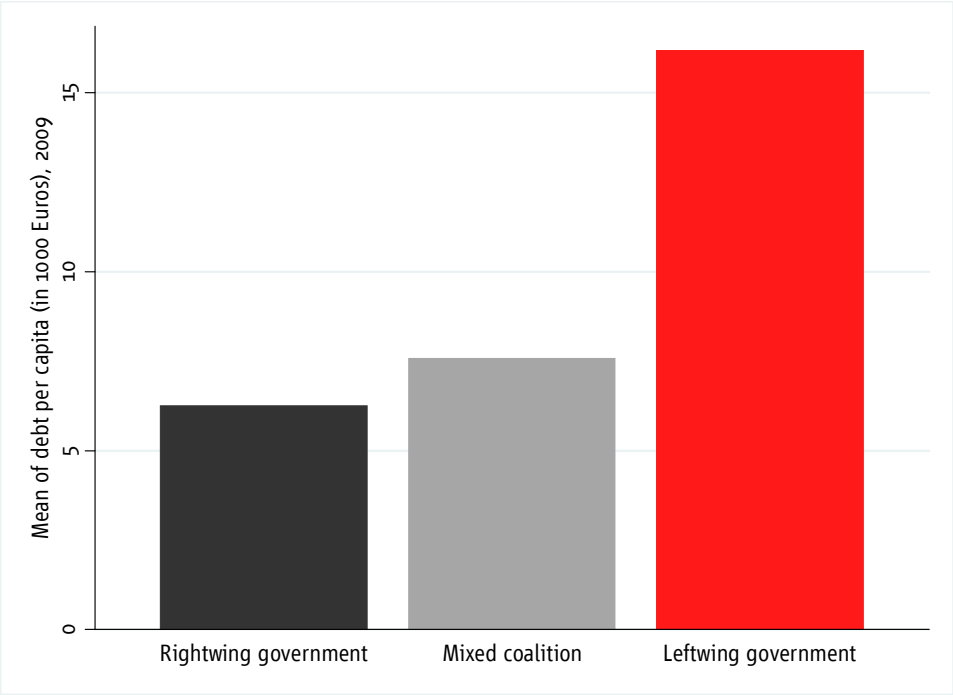
5.5.3. Aggregate Outcomes

When the new debt brake law was passed in 2009 public debt differed considerably between the states. States such as Bremen, Berlin, Hamburg and Saarland had high debt per capita levels between €10,000 and €24,000 in 2009, whereas states such as Saxony, Bavaria and Baden-Wuerttemberg had debt per capita levels between €1,000 and €5,000 in 2009. Figure 5.1 shows the average level of debt per capita for the year 2009 by the type of government. Leftwing governments had higher debt per capita in 2009 than rightwing and mixed coalition governments. Voters in states with poor economic performance and high debt are more prone to vote for leftwing parties because they favor a large size and scope of government and high social spending. The consolidation path needed to achieve zero structural deficits by 2020 hence differs considerably between states. Simulations by Detemple et al. (2013) foreshadow, for example, that Saarland, Saxony-Anhalt and Bremen would only achieve zero structural deficits by 2020 if their spending after provisions and interest payments nominally shrank relative to the 2012 level. Mecklenburg-Western-Pomerania, Thuringia, Hesse, Brandenburg, Rhineland-Palatinate, Saxony, and North Rhine-Westphalia have to cut their budgets in real terms. Berlin, Schleswig-Holstein, Hamburg and Lower Saxony can moderately increase yearly budgets in real terms. Bavaria and Baden-Wuerttemberg would even be allowed to increase their spending and could still have balanced budgets in 2020. Against the background that the population is shrinking especially in East German states, in per capita terms the budgets of Bremen and Saarland have to decrease in nominal terms. Deubel et al. (2015) describe that the Saarland, Saxony-Anhalt, Thuringia, Bremen, and Mecklen-

[16] See e.g. Rheinische Post, Juli 3, 2014 and Aachener Nachrichten, September 26, 2013.

burg-Western-Pomerania still need to reduce real spending (excluding interest and state pensions) by 2020, relative to their 2014 level.

Figure 5.1: Debt per capita level in 2009



Source: Federal Statistical Office, own calculations.

We use data on the structural budget deficit per capita as computed by the Stability Council. The data is available for the years 2010-2014. The structural deficit is obtained by netting out financial transactions from the deficit. Business-cycle fluctuations are not eliminated in the data, because members of the Stability Council had not yet agreed on the methodology. We also use data on the deficit per capita and the primary deficit per capita for the years 2009-2014 from the monthly reports of the Federal Ministry of Finance. The primary deficit excludes interest expenditures.[17] We use debt per capita variables from the Federal Statistical Office.

[17] The federal states faced low interest expenditure over the period 2010-2014. Under leftwing governments the lagged debt per capita was on average €12,677 compared to €5,082 under rightwing governments. The highly indebted leftwing states hence benefit most from the low interest rates.

Figure 5.6 shows three deficit measures for the German states over the time period 2009-2014. The solid line describes the structural deficit per capita, the dashed line the deficit per capita and the dotted line the primary deficit per capita. The shaded areas show the type of government in power: red describes a leftwing government; black describes a rightwing government and gray describes a mixed coalition government. There were six changes of state government ideology in the years 2010 to 2014, four changes occurred from a rightwing to a more leftwing government (Baden-Wuerttemberg, Lower Saxony, North Rhine-Westphalia and Schleswig-Holstein). In Hamburg, a leftwing government took over from a mixed coalition government in 2011, and in Berlin, a mixed coalition government took over from a leftwing government in 2011.[18] We expect that deficits increased after a leftwing government took over from a rightwing government. In all states deficits declined over time. Negative deficits correspond to budget surpluses.

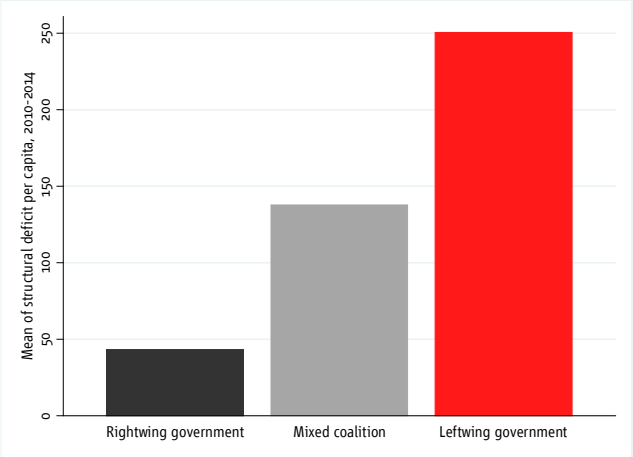
In 2014, at the end of the observation period, all states ran primary surpluses. Five states with leftwing governments (Bremen, Lower Saxony, North Rhine-Westphalia, Rhineland-Palatinate, Schleswig-Holstein), one state with a rightwing government (Hesse), and one state with a mixed coalition government (Saarland) still ran overall deficits.

Figure 5.2 shows the average structural deficit per capita for different types of governments. The average structural deficit per capita between 2010 and 2014 was €43 under rightwing governments and €250 under leftwing governments. A t-test indicates that structural deficits per capita were significantly higher under leftwing governments than under rightwing governments (significant at the 5% level). The average deficit per capita between 2009 and 2014 was €136 under rightwing governments and €292 under leftwing governments. The difference between average deficit per capita run by rightwing and leftwing governments was statistically significant at the 10% level. The relation between government ideology and primary deficits was different. The average primary deficit per capita between 2009 and 2014 was €-48 (i.e., a surplus) under rightwing

[18] In the fall 2014, elections took place in Saxony, Thuringia and Brandenburg. The new governments did not change the budgets for 2014.

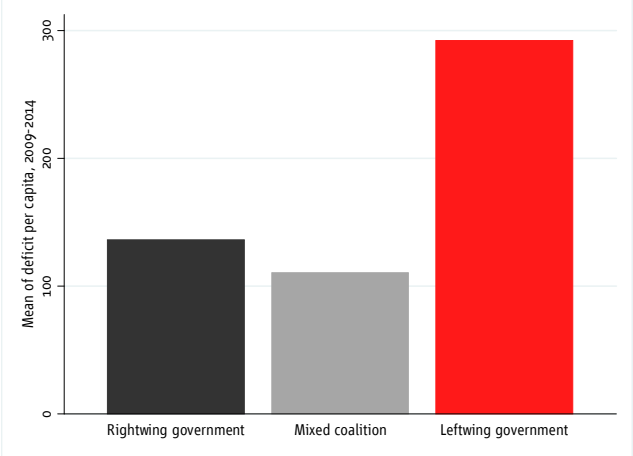
governments, €-107 under leftwing governments and €-237 under mixed coalition governments. The average primary balance did not differ significantly between rightwing and leftwing governments. Mixed coalition governments, however, run significantly lower primary deficits than governments of one party or of parties sharing similar ideologies.

Figure 5.2: Average structural deficit per capita by government ideology (2010-2014)



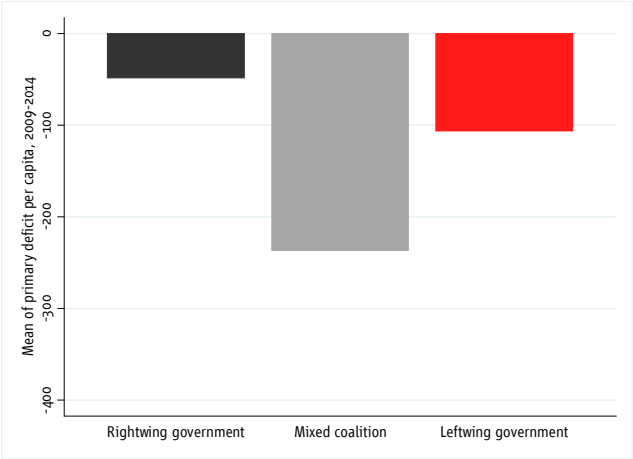
Source: Stability council, own calculations.

Figure 5.3: Average deficit per capita by government ideology (2009-2014)



Source: Monthly Reports of the Federal Ministry of Finance, own calculations.

Figure 5.4: Average primary deficit per capita by government ideology (2009-2014)



Source: Monthly Reports of the Federal Ministry of Finance, own calculations.

So why did especially leftwing politicians dismiss budget consolidation in the public debate, while in fact implementing budget consolidation when they were in office? The economic conditions were quite favorable and have helped the states to consolidate their budgets since 2010. Tax income was high and interest expenses low. Figure 5.5 shows the average difference between the actual tax revenues and the projected tax revenues in the last fiscal plan for a given year over the period 2009-2014.[19] During the financial crisis in 2009 tax revenues were lower than expected. In the years 2010 and 2011 the states received on average large unexpected additional tax revenues. Between 2012 and 2014 expectations of the amount of tax revenues were gradually adjusted upwards, but the states still received more tax revenues than expected.[20] With the additional tax income and low interest expenses, the states had an opportunity to finance their expenses without issuing too much new debt. The favorable economic conditions explain the low level of primary deficits per capita in the last years. The economic environment spared state governments – the political alignment notwithstanding – to implement rigorous

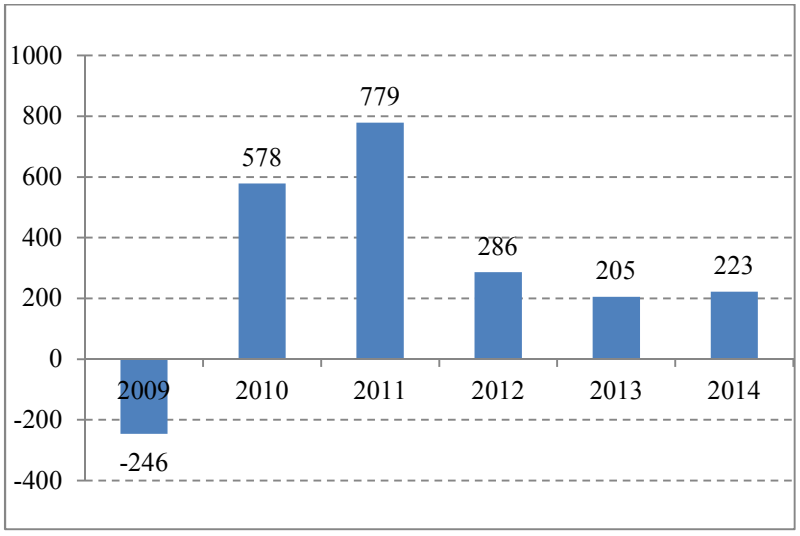
[19] There were no projected tax revenues published for the same year in Rhineland-Palatinate (2009, 2012, 2014), Schleswig Holstein (2009), Mecklenburg-Western-Pomerania (2010, 2012, 2014), Bavaria (2011), and Bremen (2011, 2014). We instead used projections that were made the previous year in those cases.

[20] On political manipulation of tax revenue forecasts see, for example, Buettner and Kauder (2015) and Kauder et al. (2015).

consolidation programs. A reduction of deficits was possible without having to cut back benefits.

We do not estimate an econometric model because we cannot identify a causal effect of government ideology on consolidation strategies. The number of observations is not sufficient to use, for example, a regression discontinuity approach. We cannot solve the reverse causality problem by using an instrumental variable for government ideology either. Such an instrumental variable for government ideology in macro panel data models does not yet exist. Future research needs to examine whether government ideology influenced fiscal deficits. An identification strategy for a causal effect should also consider the initial debt-to-GDP ratio.[21] New research for the German states may, of course, include data for the years that are yet to come.

Figure 5.5: Unexpected additional tax income (state average, in 1 million €)



Description: The graph describes the average difference between the actual tax revenues and the projected tax revenues in the last fiscal plan for a given year. Sources: "Mittelfristige Finanzplanung der Länder", Monthly Report of the Federal Ministry of Finance, February 2015.

[21] See, for example, Bohn's (1998) fiscal reaction function that describes how the debt-to-GDP-ratio predicts the primary surplus.

5.6. Conclusion

Against the background of the new German debt brake we described to what extent government ideology influences how state governments consolidate budgets. Anecdotal evidence corroborates that political parties in the public debate differed in their attitudes towards fiscal consolidation strategies. Descriptive statistics indicate that leftwing governments ran on average higher structural deficits than rightwing governments between 2010 and 2014. The findings also suggest that government ideology influenced fiscal policies, especially consolidation strategies. Anecdotal evidence based on expert interviews affirms that parties differed in using individual policy measures to consolidate budgets.

Using data over the period 1960-2009 previous studies did not show that government ideology influenced deficits in the German states (Jochimsen and Nuscheler 2011, Jochimsen and Thomasius 2014). Other studies have shown evidence for ideology-induced policies in the German states since the 1990s: rightwing governments hired more policemen than leftwing governments; rightwing governments were active in introducing tuition fees while leftwing governments abolished tuition fees; rightwing governments spent more on universities; rightwing governments promoted economic freedom (Oberndorfer and Steiner 2007, Potrafke 2011, Kauder and Potrafke 2013, Tepe and Vanhuysse 2013, Potrafke 2013). We conjecture that also budget consolidation was somewhat ideology-induced in the German states over the period 2010-2014 because government ideology retired to the background at the federal level and parties now employ ideology-induced policies at the state level (Potrafke 2012). Since 2010, however, revenues of federal taxes were much higher than expected. Leftwing governments hence did not need to run deficits to design generous budgets.

Why is it that many socialdemocratic politicians dismissed the debt brake in the public discourse but did not run deficits when in office? It is conceivable that political parties used expressive rhetoric to confirm their ideological identities (Hillman 2010). Our results are in line with Debus (2008) who describes that the SPD adopted leftist positions on economic policy issues to gratify its core voter clientele. However, when participat-

ing in government, the SPD implemented more market-oriented economic policies than originally promised before elections. In the course of the financial crisis, the SPD might have responded to shifts in public opinion and pursued more sustainable fiscal policies (Adams et al. 2004, Bräuninger 2009).

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Appendix: Additional Tables and Figures

Table 5.2: Debt brake law in the German states

State	Voting decision on federal debt brake in federal council (June 12, 2009)	Means of state debt brake implementation	Date of parliamentary vote	Government ideology at parliamentary vote	Date of popular vote on change of constitution
Baden-Wuerttemberg	Yes	state budget code	December 2012	Leftwing	-
Bavaria	Yes	Constitution	June 2013	Rightwing	September 2013
Berlin*	No	-	-		-
Brandenburg	Yes	-	-		-
Bremen*	Yes	Constitution	January 2015	Leftwing	-
Hamburg	Yes	Constitution	June 2012	Leftwing	No
Hesse	Yes	Constitution	December 2010	Rightwing	March 2011
Mecklenburg-W.-Pomerania	No	Constitution	June 2011	Mixed Coalition	No
Lower Saxony	Yes	state budget code	September 2012	Rightwing	-
North Rhine-Westphalia	Yes	-	-		-
Rhineland-Palatinate	Yes	Constitution	December 2010	Leftwing	No
Saarland*	Yes	-	-		-
Saxony	Yes	Constitution	July 2013	Rightwing	No
Saxony-Anhalt*	Yes	state budget code	November 2010	Mixed Coalition	-
Schleswig-Holstein*	No	Constitution	May 2010	Rightwing	No
Thuringia	Yes	state budget code	July 2009	Rightwing	-

* State receives consolidation assistance. Source: own collection.

Table 5.3: Voting behavior of individual parties

Parliament (federal or state level)	Draft proposed by	CDU	SPD	FDP	The Greens	Die Linke
Germany (Bundestag)	CDU/CSU, SPD	1 no / rest yes	19 no / rest yes	1 yes / 3 no / rest abstained	1 abstained / rest no	no
Bavaria	various MPs from CSU, SPD, FDP and FW	yes	yes	yes / 1 abstained	no / 1 abstained	-
Bremen	CDU SPD, Greens	yes	yes	yes	yes	no
Hesse	CDU, FDP	yes	yes	yes	yes	no
Mecklenburg-Western-Pomerania	CDU, SPD	yes	yes	yes	-	no
Lower Saxony	CDU, FDP (Draft law to change state budget code)	yes	no	yes	no	no
Rhineland-Palatinate	CDU, SPD, FDP	yes	yes	yes	-	-
Saxony	CDU, SPD, FDP, Greens	yes	1 no / rest yes	yes	1 no / rest yes	11 yes / 11 no / 5 abstained
Saxony-Anhalt	state government (Draft law to change state budget code)	yes	yes	abstained	-	no
Schleswig-Holstein	CDU, SPD, FDP, Greens, SSW	yes	yes	yes	yes	no
Thuringia	state government (Draft law to change state budget code)	yes	no	-	-	no

Note: Exact voting behavior in Baden-Wuerttemberg and Hamburg is unknown (no recorded roll call vote). Source: minutes of parliamentary meetings.

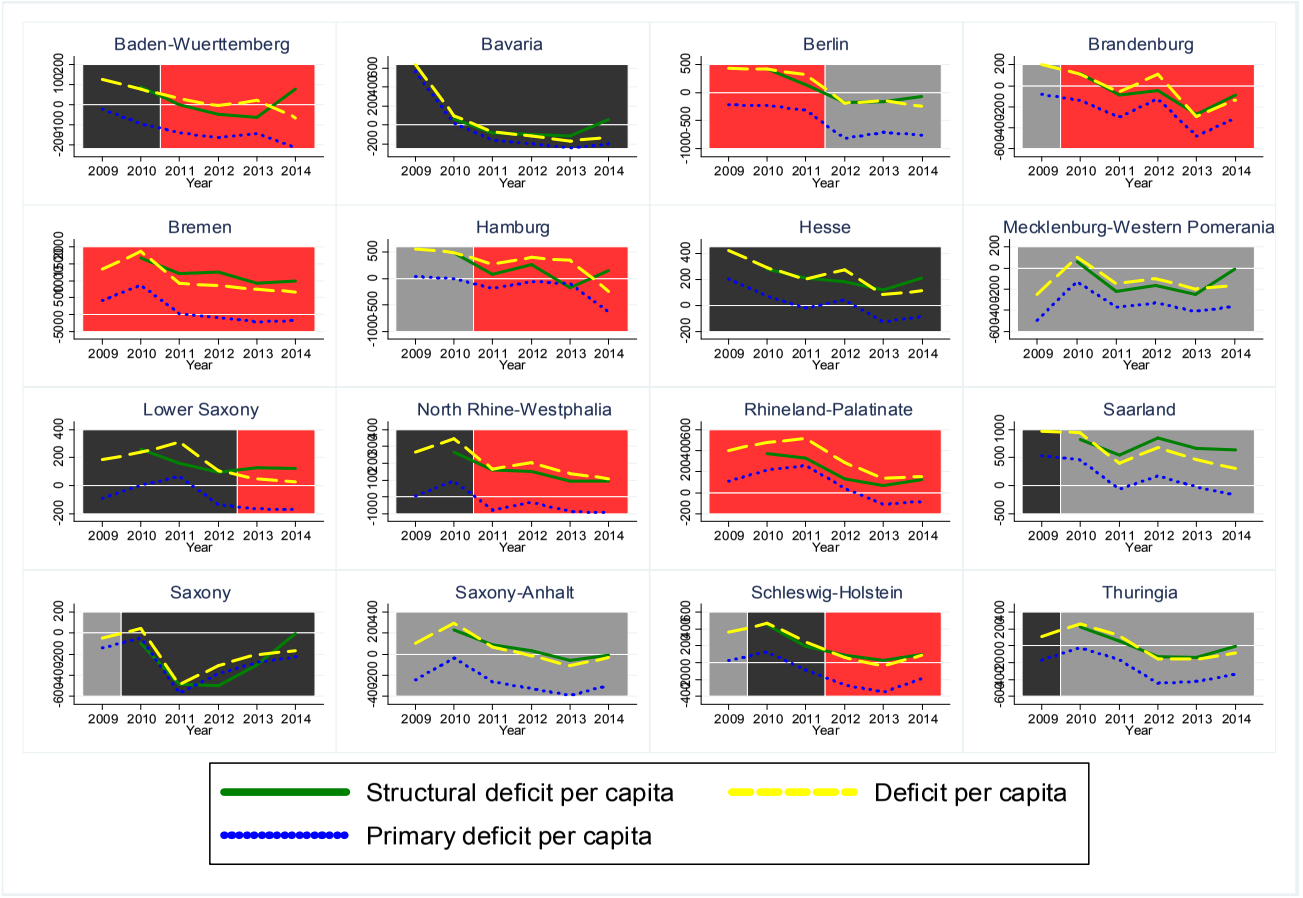
Table 5.4: Consolidation strategies

State	Structural deficit** per capita 2014 (in €)	Government ideology	Planned achievement of (structural) zero-deficit target	Expenditure cutting measures (esp. personnel expenditure)	Revenue enhancing measures (esp. land transfer tax)
Baden-Wuerttemberg	77	2008-2010: Rightwing 2011-2014: Leftwing	2016	Reducing public employment, including teachers, but less than originally planned	Increase land transfer tax from 3.5% to 5% (5.11.2011)
Bavaria	58	2008-2014: Rightwing	2015	Reducing public employment (cutting 384 jobs between 2014 and 2016) while increasing employment in tax administration, security and education, limited wage increases	No increase
Berlin*	-66	2008-2010: Leftwing 2011-2014: Mixed coalition	2015	Reducing employment in public administration by 2.7% between 2013 and 2016	Increase land transfer tax from 4.5% to 5% (1.4.2012), from 5% to 6% (1.1.2014), additional accommodation tax since 2014
Brandenburg	-91	2008-2009: Mixed coalition 2010-2014: Leftwing	already achieved	Overall expenditures forecast to decrease by 1.8% between 2012 and 2016, cutting 20,000 jobs until 2016.	Increase land transfer tax from 3.5% to 5% (1.1.2011)
Bremen*	999	2008-2014: Leftwing	2020	Reducing public employment, deferring expenditures on public transport, reducing grants to universities, increased pension age for civil servants, wage freeze of civil servants in higher service	Increase land transfer tax from 3.5% to 4.5% (1.1.2011), from 4.5% to 5% (1.1.2014), additional tourism tax since 2013, increased local business tax since 2014
Hamburg	147	2008-2010: Mixed coalition 2011-2014: Leftwing	2019	Planned reduction of public employment, but effectively public employment increased	Increase land transfer tax from 3.5% to 4.5% (1.1.2009)
Hesse	208	2008-2014: Rightwing	2017	Reducing public employment in administration, not teachers	Increase land transfer tax from 3.5% to 5% (1.1.2013), from 5% to 6% (1.8.2014)
Mecklenburg-Western-Pomerania	-10	2008-2014: Mixed coalition	already achieved	Reducing public employment by 20% between 2003 and 2013	Increase land transfer tax from 3.5% to 5% (1.7.2012)

Lower Saxony	120	2008-2012: Rightwing 2013-2014: Leftwing	Rightwing government: 2017 Leftwing government: 2020	Programs to cut administration substantially, more hesitant with cutting teacher positions, but reductions are planned	Increase land transfer tax from 3.5% to 4.5% (1.1.2011), from 4.5% to 5% (1.1.2014)
North Rhine-Westphalia	93	2008-2009: Rightwing 2010-2014: Leftwing	after 2017	No clear concept of personnel expenditure cuts, some departments are required to cut back their expenditures by 1,5% until 2016, but the most personnel intense departments are excluded, unconstitutional wage freeze of civil servants in higher service	Increase land transfer tax from 3.5% to 5% (1.10.2011)
Rhineland-Palatinate	123	2008-2014: Leftwing	after 2017	Reducing public employment, being conservative with teachers until 2016	Increase land transfer tax from 3.5% to 5% (1.3.2012)
Saarland*	632	2008-2009: Rightwing 2010-2014: Mixed Coalition	after 2017	Reducing employment in public administration, education sector excluded	Increase land transfer tax from 3.5% to 4.5% (1.1.2012), from 4.5% to 5.5% (1.1.2013)
Saxony	-6	2008-2009: Mixed Coalition 2010-2013: Rightwing 2014: Mixed Coalition	already achieved	Public employment is forecast to be cut by 18%	No increase
Saxony-Anhalt*	-10	2008-2014: Mixed Coalition	already achieved	Reducing employment in public administration	Increase land transfer tax from 3.5% to 5% (1.3.2012)
Schleswig-Holstein*	96	2008-2009: Mixed Coalition 2010-2011: Rightwing 2012-2014: Leftwing	2016	Reduce public employment by 10% until 2020, administration and teachers, left-wing government wants to cut only half of the originally planned teacher positions and provide the third nursery school year free of charge	Increase land transfer tax from 3.5% to 5% (1.1.2012), from 5% to 6.5% (1.1.2014)
Thuringia	-8	2008-2009: Rightwing 2010-2013: Mixed Coalition 2014: Leftwing	already achieved	Reducing employment in public administration	Increase land transfer tax from 3.5% to 5% (7.4.2011)

* State receives consolidation assistance and has an austerity program which is monitored by the Stability Council until 2016. ** A negative deficit describes a surplus. Sources: Stability Council, Fiscal Planning Reports, own collection based on personal interviews and newspaper articles.

Figure 5.6: Fiscal deficits per capita (structural, primary, and overall, in €) by states 2009-2014



Sources: Stability Council and Monthly Reports of the Federal Ministry of Finance, own calculations.

6. Manipulating Fiscal Forecasts: Evidence from the German States[1]

6.1. Introduction

Governments prepare forecasts on tax revenues, spending and deficits. Most realizations do, of course, not meet the forecasted values. A pertinent question is whether fiscal forecast errors simply result from unforeseeable circumstances, or whether forecast errors are tantamount to manipulation by governments. There are political incentives towards manipulation. In times of an approaching election, for example, governments may use fiscal forecasts to boost re-election prospects (the political business cycle theory describes that politicians use expansionary policies before elections).[2] By manipulating revenue or spending forecasts, parties that champion tax cuts or increased spending wish to convey the impression that individual policies are fundable. Voters endorsing such reforms may then be inclined to reconsider their vote. Against the background of the political business cycle theories, the hypothesis to be tested is clear-cut: governments are over-optimistic and sugarcoat fiscal forecasts before elections.

Scholars examine whether electoral motives and government ideology influence fiscal forecasts. We discuss related studies in section 2 and for now focus on Germany. Fiscal forecasts at the German *federal* level were biased towards over-optimism in the period 1968-2003: deficit forecasts were lower before elections; deficit, tax, and spending forecasts were lower under rightwing governments (Heinemann 2006). For short-term tax revenue forecasts in the period 1971-2013, the results of Buettner and Kauder (in press) are not indicative of a bias, electoral cycles or an influence of government ideology; the government influenced the revenue forecasts, however, by providing the underlying GDP forecast and revenue estimates of tax law changes. Medium-term tax revenue forecasts between 1968 and 2012 were biased upwards, in particular after the Ger-

[1] The chapter is joint work with Björn Kauder and Niklas Potrafke.

[2] On how electoral motives influence fiscal policy, see, for example, Berger and Woitek (1997), de Haan and Klomp (2013), Efthyvoulou (2012), Katsimi and Sarantidis (2012), Klomp and de Haan (2013), Lane (2003), Seitz (2000), and Shi and Svensson (2006). See Debrun et al. (2009) and Wyplosz (2008) on fiscal councils.

man reunification (Breuer 2015). For the West German *states* in the period 1992-2002, the results of Bischoff and Gohout (2010) do not give rise to the conclusion that electoral motives and government ideology influenced tax projections. Tax projections increased, however, the more voters disliked incumbent parties.

Our contribution is twofold. We examine whether politicians manipulated spending, tax revenue, and net lending forecasts at the German state level. We also investigate differences in strategic manipulation of fiscal variables between East and West German state governments. It is well known that the communist experience in Eastern Germany between 1949 and 1990 influenced social norms and attitudes towards government differently than the market-based system in the West (Alesina and Fuchs-Schündeln 2007, Brosig-Koch et al. 2011). Many studies describe differences between East and West Germans regarding cooperation and solidarity behavior (Ockenfels and Weimann 1999, Brosig-Koch et al. 2011), individual preferences for social policies and redistribution (Corneo 2004, Alesina and Fuchs-Schündeln 2007), and inequality of wages, income, and consumption (Fuchs-Schündeln et al. 2010).

The results show that in pre-election years East German state governments underestimated spending by about 0.20 percent of GDP, tax revenues by 0.36 percent of GDP, and net lending by 0.30 percent of GDP. Predicting low levels of spending and tax revenues, East German state governments thus underestimated the size of government. The results do, by contrast, not show that electoral motives influenced fiscal forecasts in West German states.

6.2. Related Literature

Experts investigate the quality of forecasts in terms of precision and accuracy, as measured, for example, by the standard deviation of the forecast error. In OECD countries, the timing of forecasts, uncertainty about GDP growth rates, and independence of forecasting institutions from government were shown to influence accuracy of revenue forecasts (Buettner and Kauder 2010). In US states, forecast accuracy increased with inde-

pendent forecasting agencies and decreased when there was a dominant political party (Deschamps 2004, Bretschneider et al. 1989). Revenue forecast accuracy also increased when states employed politically appointed and merit-selected forecasters (Krause et al. 2006).

Testing the precision and accuracy of forecasts refers to the forecasting techniques. To test whether governments manipulate forecasts before elections, experts examine the rationality of forecasts in terms of unbiasedness and efficiency, as measured, for example, by the relative forecast error (see Keane and Runkle 1989 and 1990, Nordhaus 1987, and Holden and Peel 1990). Do individual factors give rise to overly optimistic or overly pessimistic (and hence *biased*) forecasts? Do forecasters incorporate all relevant information available at the time of the forecast preparation (*efficiency*)?

Many empirical studies investigated the rationality of fiscal forecasts in cross-country analyses or in individual countries.[3] In member states of the European Union, budget balance forecasts were over-optimistic before elections (Brück and Stephan 2006, Merola and Pérez 2013, Pina and Venes 2011). The results of von Hagen (2010), however, do not corroborate election-year effects. Budget forecasts were also too optimistic during boom periods and when the budget deficit was high (Frankel 2011, Frankel and Schreger 2013). Jonung and Larch (2006) portray the nexus between growth forecasts and budget balances and suggest that having independent forecasts may avoid political biases (see also Beetsma et al. 2009). In OECD countries, electoral motives do not appear to have influenced fiscal balance revisions (Cimadomo 2012, Jong-A-Pin et al. 2012). Leftwing governments, however, produced more optimistic revenue forecasts than rightwing governments (Jochimsen and Lehmann 2015).

In the United States (federal level), evidence suggests that revenue forecasts of the Office of Management and Budget (OMB) and the Congressional Budget Office (CBO)

[3] See Kyobe and Danninger (2005) and Schroeder and Wasylenko (1989) for revenue forecasting in low-income countries. Leal et al. (2008) discuss "lessons and challenges" from fiscal forecasting in the European Union.

were not biased, spending and thus deficits were underestimated, and forecast revisions were serially correlated; biases were larger under Republican administrations (Auerbach 1999, Blackley and DeBoer 1993, Campbell and Ghysels 1995, Plesko 1988). In US states, revenue forecasts were shown to be unbiased but inefficient (Mocan and Azad 1995). Revenue forecasts for election years, however, were shown to be overly optimistic (Boylan 2008). Conservatives were over-optimistic in forecasting sales tax revenues in years without tax increases (Bretschneider and Gorr 1992). The results of Cassidy et al. (1989) do not suggest that government ideology influenced forecast errors. In three US states, forecasts were shown to be downward biased (Feenberg et al. 1989).

In Belgian municipalities, two-party governments were more optimistic in forecasting tax revenues than single-party governments (Goeminne et al. 2008). In Swiss cantons, revenue forecasts were more pessimistic under leftwing finance ministers than under rightwing finance ministers (Chatagny 2015), and pessimistic revenue forecasts were shown to reduce spending and thus fiscal deficits (Chatagny and Soguel 2012).[4] Also in the United Kingdom, political factors influenced revenue forecasts (Paleologou 2005).

The mixed evidence on forecasting performance advanced by the individual studies corroborates that exploring political determinants of fiscal forecast errors is a worthwhile endeavor. Whether German state governments manipulated fiscal forecasts remains as an undetermined empirical question.

6.3. Institutional Backdrop

6.3.1. Budget Rules

The German constitution describes in Article 109 that the states are autonomous and independent from the federal level in setting up their budgets. In 2009, the so-called debt brake was introduced, describing that state budgets should in principle be balanced

[4] See Chatagny and Siliverstovs (2015) on the rationality of tax revenue forecasts under asymmetric loss functions.

without borrowing as of 2020. Exceptions can be made for business fluctuations, natural disasters, and other cases of emergency, if specific rules describe how credits are repaid. State governments can decide on whether they want to comply with the debt brake earlier and how a balanced budget is to be reached (see, for example, Potrafke et al. 2016). It is unclear, however, whether there will be sanctions if a state fails to consolidate the budget until 2020 (Fuest and Thöne 2013). To be sure, the federal debt brake does not make any prescriptions for the states' fiscal policies until 2019. Since 2009, 12 states have introduced debt brakes at the state level.

Most states' constitutions describe that borrowing has to be warranted by a law. Borrowing must moreover not exceed spending for investment; exceptions are only possible to maintain the "overall economic equilibrium". Many states however disregarded the law and borrowing exceeded investment.

6.3.2. Projections of Fiscal Figures

The Federal Minister of Finance Franz Josef Strauß (Christian Social Union – CSU) and his successor Alex Möller (Social Democratic Party – SPD) introduced medium-term planning in 1968 at both the federal and the state level. Medium-term plans are set up in the budgeting process and include fiscal forecasts for the current and the following four years (see also Lübke 2008). Forecasted figures include, among others, spending, tax revenues, and net lending. Even though states also receive transfers from the federal level and from the other states via the financial equalization scheme, tax revenues are the most important source of revenue. Tax revenue forecasts are prepared by the independent tax revenue forecast group (*Arbeitskreis Steuerschätzungen*) on the federal level. The subcommittee on regionalization calculates how much tax revenues may accrue to the individual states. The state governments adjust these figures for reasons such as the timing of the budgetary process, economic development of the state or tax reforms.

For some years in individual states, medium-term plans are not available, because in some cases state governments passed a budget for two years, and thus published medium-term plans only every other year. We focus on the most important figures referring

to year t and t+1 because governments' budget plans are based on the forecasts for the years t and t+1.

6.3.3. State Elections

Elections in the German states take place every five years. The only exceptions are Hamburg and Bremen, where elections take place every four years. In the past, even more states held elections every four years. Parliaments may also call early elections. Out of 109 elections in our sample, 11 were early elections. In most states, voters cast two votes in a personalized proportional representation system. The first vote determines which candidate is to obtain the direct mandate in one of the electoral districts with a relative majority. With the second vote, voters select an individual party. The parties obtain a number of the seats in parliament that corresponds to the party's second vote share. Candidates voted into the parliament with the first vote (direct mandate) obtain their seats first. Candidates from party lists obtain the remaining seats.

6.4. Empirical Analysis

6.4.1. Descriptive Statistics

We use the fiscal forecasts from 1980-2014 for West German states and from 1996-2014 for East German states as published by the ministries of finance in the individual states. We exclude fiscal forecasts from the East German states before 1996 and for Berlin between 1990 and 1995 because of the German reunification. Table 6.4 shows descriptive statistics for all states. A positive (negative) forecast error indicates that the expected value of a fiscal variable was overstated (understated) compared to the ex-post realization. Average forecast errors for total spending and tax revenues for the same year and the next year were less than 0.07 percent of GDP. Average forecast errors for net lending were larger: net lending for the same year and the next year was underestimated by 0.22 percent of GDP and 0.15 percent of GDP on average. The root mean squared error of forecasts for the same year is 0.38 percent of GDP for total spending, 0.40 for tax revenues, and 0.52 for net lending. Root mean squared errors increase as the

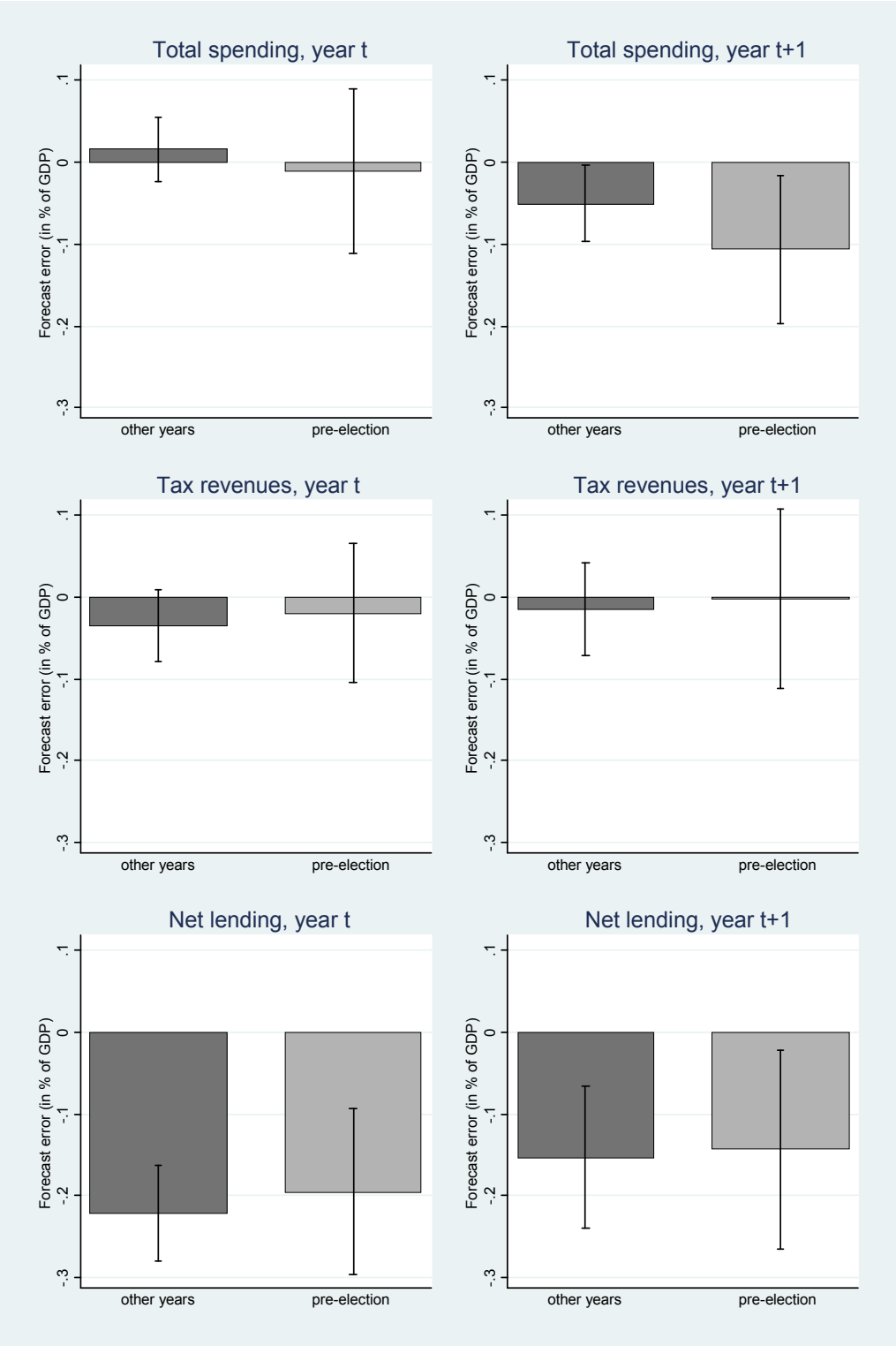
forecast horizon increases. Table 6.5 and Table 6.6 show descriptive statistics separately for East German states and West German states.

Figure 6.1 shows the forecast errors for three fiscal measures in year t and t+1. We distinguish between the last fiscal forecast before a state election (in light gray) and other forecasts (in dark gray). We call the last fiscal forecast before a state election "pre-election forecast" henceforth, as opposed to "other forecasts". Whiskers describe 95% confidence intervals. Total spending was always underestimated, except in forecasts for year t in other years. Forecasts of total spending before elections and in other years appear to differ. Tax revenue forecast errors were quite small and similar before elections and in other years. Net lending was always underestimated, i.e., deficits were lower than predicted. The difference of forecast errors before elections and in other years hardly ever attains statistical significance.

The results may differ between East and West German states because institutions have developed differently between 1949 and 1990, and institutional differences may influence fiscal forecasts after the reunification. Figure 6.2 shows the results separately for East and West German states. In many cases, the difference between pre-election forecast errors and other forecast errors was larger in East German states than in West German states.[5] In East German states, forecast errors were mostly lower before elections than in other years. Forecast errors of total spending in year t (t+1) were on average 0.11 percent of GDP (0.23 percent of GDP) lower before elections than in other years. The difference of total spending forecast errors before elections and in other years for the next year in the East attains statistical significance at the 10% level. Forecast errors of tax revenues in year t (t+1) were on average 0.01 percent of GDP (0.02 percent of GDP) lower (higher) before elections than in other years. Forecast errors of net lending in year t (t+1) were on average 0.01 percent of GDP (0.02 percent of GDP) higher (lower) before elections than in other years.

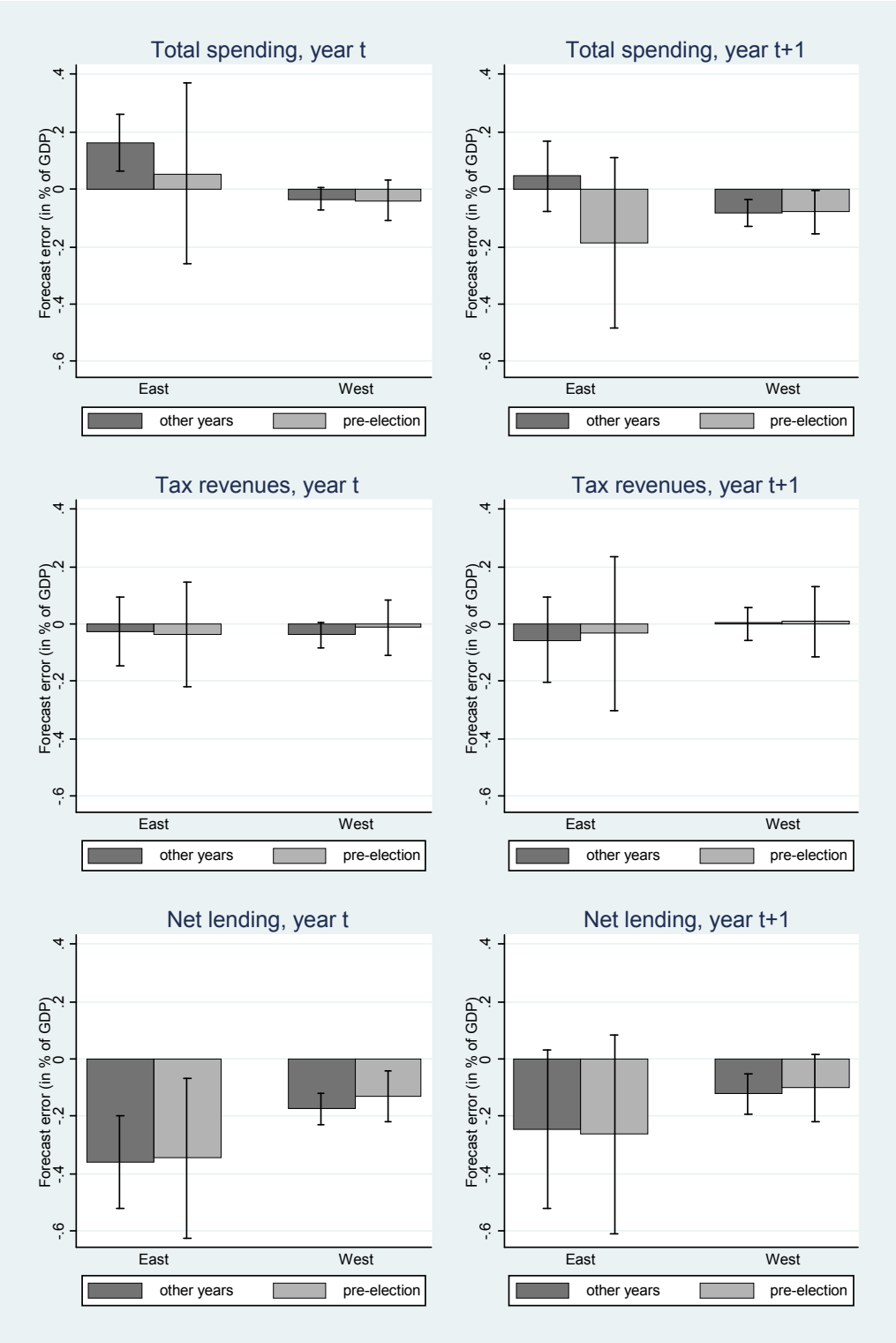
[5] East German firms also predict their productivity less accurately than West German firms (Triebs and Tumlinson 2013).

Figure 6.1: Forecast errors in pre-election years and other years



Note: The differences between pre-election and other years do not turn out to be statistically significant. Whiskers describe 95% confidence intervals.

Figure 6.2: Forecast errors by region in pre-election years and other years



Note: The difference between pre-election and other years is statistically significant at the 10% level for total spending in year t+1 in East German states. Whiskers describe 95% confidence intervals.

Figure 6.3, Figure 6.4, and Figure 6.5 show how the forecast errors for the three fiscal measures in year t and t+1 evolved over time. Because uncertainty differs, forecast errors for year t are in absolute values smaller than forecast errors for year t+1. Forecast errors in absolute values are larger in East German states, in particular for tax revenues and net lending.

6.4.2. Empirical Strategy

The basic empirical model has the following form:

$$Forecast\ error_{ijkt} = \beta_{jk} Pre\text{-}election_{it} + \Sigma_l \delta_{jkl} X_{ilt} + \varepsilon_{jk} Forecast\ error_{ijkt-1} + \eta_{ijk} + \tau_{jkt} + u_{ijkt}$$

$$\text{with } i=1,\ldots,16;\ j=1,\ldots,3;\ k=0,1;\ l=1,\ldots,3;\ t=1980,\ldots,2014$$

where $Forecast\ error_{ijkt}$ describes the difference between forecast and realized value for forecast type j (total spending, tax revenues, and net lending) relative to GDP with forecast horizon k (0 or 1) in state i in period t. The dummy variable $Pre\text{-}election_{it}$ assumes the value 1 when the forecast was the last forecast issued before a regular state election (predetermined elections are exogenous explanatory variables). $\Sigma_l X_{ilt}$ contains three control variables. We include the ideological orientation of the respective government.[6] We include the unemployment rate to account for different incentives to manipulate forecasts in economically good and bad times.[7] We also include the variable whose forecast error we consider as a share of GDP from one period ago to control for mean reversion. $Forecast\ error_{ijkt-1}$ describes the lagged dependent variable to control for au-

[6] We distinguish between leftwing and rightwing governments on a left-right scale by using the variable Left. The dummy variable Left takes on the value 1 in periods when a leftwing government was in office (SPD without a coalition partner, or SPD in a coalition with the Greens, the leftwing party Die Linke or the Free Democratic Party (FDP)), 0.5 when a center government (coalition of the Christian Democratic Union (CDU) with the SPD or the Greens, or with the Greens and the FDP), and 0 when a rightwing government was in office (CDU/CSU without a coalition partner or in a coalition with the FDP). On ideology-induced policy-making in the German states see, for example, Oberndorfer and Steiner (2007) and Potrafke (2011).

[7] Inferences do not change when we use the GDP growth rate instead of the unemployment rate.

tocorrelation of forecast errors. η_i describes a fixed state effect, τ_t is a fixed time effect, and u_{it} is the error term.

We estimate fixed-effects models with standard errors robust to heteroskedasticity (Huber/White/sandwich standard errors – see Huber 1967 and White 1980). Including the lagged dependent variable gives rise to Nickell bias (Nickell 1981), which is however small (1/T).

6.4.3. Regression Results

Table 6.1 shows the results for all states. Column (1) shows the coefficient estimates for the forecast of total spending for the same year (the pre-election year), and column (2) shows the results for the next year (the election year). The number of observations decreases as the forecast horizon increases. The coefficient of the election variable and the coefficient of the government ideology variable do not turn out to be statistically significant. The coefficient of the lagged forecast error is significant in columns (1) and (2). The numerical meaning of the coefficient in column (1) is that when the lagged forecast error increases by 1 percent of GDP, the current forecast error increases by 0.32 percent of GDP. The coefficient of the lagged unemployment rate lacks statistical significance. Columns (3) to (6) show the results for tax revenues and net lending. The coefficient of the election variable does not turn out to be statistically significant in any specification. The coefficient of the government ideology variable is statistically significant in column (5). The numerical meaning of the coefficient is that under leftwing governments, net lending forecast errors decrease by 0.6 percentage points of GDP compared to rightwing governments. The coefficient of the lagged realization of net lending is statistically significant in column (5).

Table 6.1: Fixed-effects regressions – all states

	(1) Total spending forecast error, year t	(2) Total spending forecast error, year t+1	(3) Tax revenue forecast error, year t	(4) Tax revenue forecast error, year t+1	(5) Net lending forecast error, year t	(6) Net lending forecast error, year t+1
Pre-election forecast	-0.083	-0.076	-0.029	-0.000	0.025	0.008
	(0.050)	(0.061)	(0.026)	(0.031)	(0.046)	(0.054)
State government ideology (left)	0.054	0.126	-0.007	-0.009	0.104*	0.066
	(0.043)	(0.093)	(0.038)	(0.050)	(0.058)	(0.086)
Realization of *j* (t-1)	0.009	0.015	0.019	-0.018	-0.060*	-0.025
	(0.025)	(0.030)	(0.053)	(0.053)	(0.034)	(0.059)
Unemployment rate (t-1)	0.010	-0.009	0.009	0.021	0.006	0.023
	(0.019)	(0.011)	(0.018)	(0.017)	(0.020)	(0.020)
Forecast error (t-1)	0.311***	0.188*	0.068	0.012	0.086	0.224
	(0.048)	(0.091)	(0.054)	(0.057)	(0.064)	(0.171)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	346	332	351	337	346	332
Groups	16	16	16	16	16	16
Within R^2	0.227	0.167	0.535	0.735	0.380	0.429
Overall R^2	0.270	0.149	0.483	0.697	0.355	0.404

Robust standard errors in parentheses (Huber/White/sandwich standard errors); * $p < 0.10$, *** $p < 0.01$.

We estimate our basic empirical model separately for the East and West German states. Table 6.2 shows the results for East German states (excluding Berlin). The coefficient of the pre-election variable is negative and statistically significant for total spending in year t and year t+1 (columns 1 and 2), tax revenues in year t (column 3), and net lending in year t (column 5). The numerical meaning of the coefficient in column (1) is that in pre-election years, total spending is underestimated by 0.20 percent of GDP. Tax revenues are underestimated by 0.36 percent of GDP in pre-election years (column 3); net lending is underestimated by 0.30 percent of GDP in pre-election years (column 5). The coefficient of state government ideology is statistically significant for total spending in year t and year t+1 and for tax revenues in year t. The numerical meaning of the coefficient in column (1) is that under leftwing governments, total spending is overestimated by 0.66 percent of GDP more than under rightwing governments.

Table 6.2: Fixed-effects regressions – East German states

	(1) Total spending forecast error, year t	(2) Total spending forecast error, year t+1	(3) Tax revenue forecast error, year t	(4) Tax revenue forecast error, year t+1	(5) Net lending forecast error, year t	(6) Net lending forecast error, year t+1
Pre-election forecast	-0.198*	-0.552***	-0.362**	-0.251	-0.296***	-0.099
	(0.083)	(0.102)	(0.114)	(0.209)	(0.059)	(0.202)
State government ideology (left)	0.660*	0.686**	0.254**	0.077	0.244	-0.222
	(0.307)	(0.243)	(0.091)	(0.070)	(0.533)	(0.390)
Realization of *j* (t-1)	-0.073	0.073	1.014**	-0.489	0.071	0.503
	(0.171)	(0.071)	(0.273)	(0.330)	(0.205)	(0.243)
Unemployment rate (t-1)	-0.097	-0.134	-0.256**	0.035	-0.221	-0.264***
	(0.063)	(0.063)	(0.061)	(0.064)	(0.133)	(0.020)
Forecast error (t-1)	0.113	0.054	0.052	-0.078	-0.064	0.445*
	(0.149)	(0.043)	(0.096)	(0.211)	(0.224)	(0.209)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	64	59	65	60	64	59
Groups	5	5	5	5	5	5
Within R^2	0.363	0.500	0.783	0.905	0.657	0.872
Overall R^2	0.311	0.507	0.402	0.808	0.406	0.509

Robust standard errors in parentheses (Huber/White/sandwich standard errors); * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 6.3 shows the results for West German states. The coefficient of the election variable lacks statistical significance in all specifications.

We also used forecast errors for total spending, tax revenues, and net lending in years t+2, t+3, and t+4 as dependent variables. The coefficient of the election variable does not turn out to be statistically significant in any specification, except for net lending at the t+3 years forecast horizon which in pre-election years is underestimated by 0.47 percent of GDP in East German states (results not shown).

Table 6.3: Fixed-effects regressions – West German states

	(1) Total spending forecast error, year t	(2) Total spending forecast error, year t+1	(3) Tax revenue forecast error, year t	(4) Tax revenue forecast error, year t+1	(5) Net lending forecast error, year t	(6) Net lending forecast error, year t+1
Pre-election forecast	-0.052	-0.016	-0.013	0.021	0.039	0.019
	(0.046)	(0.034)	(0.015)	(0.024)	(0.049)	(0.044)
State government ideology (left)	-0.009	0.098	-0.013	-0.003	0.151	0.062
	(0.043)	(0.062)	(0.038)	(0.049)	(0.092)	(0.072)
Realization of *j* (t-1)	0.072**	0.178***	0.041	-0.011	0.022	-0.007
	(0.028)	(0.033)	(0.060)	(0.071)	(0.034)	(0.050)
Unemployment rate (t-1)	0.038	-0.004	0.014	0.009	-0.022	-0.007
	(0.024)	(0.036)	(0.020)	(0.020)	(0.029)	(0.027)
Forecast error (t-1)	0.261***	0.133	0.029	0.039	0.179	-0.071
	(0.038)	(0.097)	(0.092)	(0.058)	(0.110)	(0.110)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	261	253	265	257	261	253
Groups	10	10	10	10	10	10
Within R^2	0.255	0.315	0.539	0.721	0.355	0.493
Overall R^2	0.126	0.0398	0.423	0.682	0.348	0.404

Robust standard errors in parentheses (Huber/White/sandwich standard errors); * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

6.4.4. Robustness Tests

We submitted all of our results to rigorous robustness tests. In our baseline model, we included fixed time effects. We tested whether inferences change when we do not include fixed time effects but the deviation between the GDP forecast of the Federal government as underlying the official revenue forecasts and actual GDP to measure economic uncertainty (at the national level). Inferences regarding the election variable do not change. When we do not include a lagged dependent variable in the regressions, inferences do not change either.

We have included other control variables. Inferences regarding the election variable do not change when we include variables measuring the level of education of voters (per-

cent of population above 15 years with university degree),[8] the state unemployment rate relative to the German average, or a variable that assumes the value one when a state has a fiscal rule (debt brake) included in the constitution or in the state budget code.

The results may depend on including irregular elections. The only irregular election in East Germany was in Berlin in 2001. Berlin is not included in the regressions reported in Table 3. There were 10 irregular elections in West Germany over the period 1980-2014. Inferences for West Germany do not change when we include the irregular elections.

Realizations of fiscal variables after changes in government may be less predictable than realizations after elections that did not give rise to changes in government. There were 43 regular elections that were followed by a change in government ideology and 61 regular elections that were not followed by a change in government ideology. Replicating the results for the 16 states (Table 6.1) confirms that before elections that induced changes in government ideology, total spending for the next year was underestimated by 0.20 percent of GDP, and tax revenues for the same year were underestimated by 0.07 percent of GDP (both coefficients are statistically significant at the 5% level). Replicating the results for West Germany (Table 6.3) confirms that before elections that induced changes in government ideology, tax revenues for the same year were underestimated by 0.05 percent of GDP (the coefficient is statistically significant at the 5% level). Because of the limited number of observations we cannot investigate subsamples in East Germany. We run placebo tests and replace the pre-election variable with dummy variables for other years. When we use a dummy variable for election years and re-estimate Table 6.2, the coefficient of the election-year variable is negative and statistically significant in columns (2) and (5). When we use a dummy variable measuring a two-year distance to the next election and re-estimate Table 6.2, the coefficient of the dummy variable always lacks statistical significance. When we use a dummy variable measuring a three year distance to the next election and re-estimate Table 6.2, the coefficient of the dummy variable is positive and statistically significant in columns (2) and (3).We re-

[8] Data on education levels in individual states is only available over the period 2005-2014.

estimated our regression models for the West German states for the period 1996-2014, i.e., the same period that we examine for the East German states. Inferences regarding the coefficients of the election variable do not change. In particular, the results still do not show a bias in forecasts before elections.

We re-estimated our regression models for the period 1992-2002 in the West German states to compare our results more closely with Bischoff and Gohout (2010). Our results also do not show (a) that tax revenue forecasts were biased in pre-election years and (b) that state government ideology influenced tax revenue forecast errors for the next year.

Forecast errors may have increased during the financial and debt crisis. When we exclude the crisis years 2008 and 2009 we find that in the full sample (replicating Table 6.1) spending for the same year was underestimated by 0.08 percent of GDP. The coefficient is significant at the 10% level. Replicating Table 6.2 (East Germany), inferences do not change, except for column (1), where the election variable lacks statistical significance. Replicating Table 6.3, the results still do not show that fiscal forecasts were biased in West Germany in pre-election years.

When we exclude individual years, one at a time, we find that the main findings for the East German states are robust. The election variable does not turn out to be statistically significant in column (1) when we exclude the years 1998, 2001, 2005, 2007, 2008, 2010 or 2013 and in column (1) and (3) when we exclude the year 2003. The coefficients of the election variable, however, remain negative throughout all specifications.

The city states Bremen and Hamburg may differ from other West German states. We re-estimated the regressions for all states and for the West German states, excluding Bremen and Hamburg. Inferences regarding the election variable do not change.

Jackknife tests in which we exclude an individual state, one at a time, corroborate that the main findings generalize to most states. In the sample including the East German states (replicating Table 6.2), the election variable lacks statistical significance in col-

umn (1) when we exclude Brandenburg or Saxony, in columns (1) and (5) when we exclude Mecklenburg-Western Pomerania, and in columns (1), (2), and (5) when we exclude Saxony-Anhalt. When we exclude Thuringia, the election variable does not turn out to be statistically significant in columns (1), (3), and (5). While standard errors increase when we exclude individual states, the coefficients of the election variable remain negative throughout all specifications.

6.5. Conclusion

Our findings do not indicate that electoral motives influenced fiscal forecasts in West German states, a result that corroborates previous findings of Bischoff and Gohout (2010). By contrast, in pre-election years East German state governments underestimated spending by about 0.20 percent of GDP, tax revenues by 0.36 percent of GDP, and net lending by 0.30 percent of GDP. Governments did thus *not* sugarcoat fiscal forecasts by being over-optimistic before elections. Predicting low levels of spending and tax revenues, East German state governments rather underestimated the size of government.

Why is it that East German state governments underestimated the size of government and West German state governments did not?[9] At the time of the reunification, Chancellor Helmut Kohl promised "blossoming landscapes" in East Germany, describing a quick convergence in economic prosperity. The size of government in East German states is however still larger than in West German states, some convergence since the 1990's notwithstanding (Figure 6.6 to Figure 6.8). We conjecture that East German state governments wanted to pretend convergence to the West German states by using forecasts in election years as a low-cost signaling device. East German politicians may well believe that promising a size of government similar to Western states is valued by voters. Whether voters reward such promises remains however as an open question for further research.

[9] Previous studies have shown that ideology-induced policies differed in East and West German states (Tepe and Vanhuysse 2014, Kauder and Potrafke 2013, Potrafke 2013).

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Appendix: Additional Tables and Figures

Table 6.4: Descriptive statistics for all states

Forecast errors (in % of ex-post state GDP)	**Obs.**	**ME**	**RMSE**	**Min.**	**Max.**
Total spending, year t	398	0.011	0.376	-1.916	1.601
Total spending, year t + 1	389	-0.062	0.415	-2.597	1.230
Total spending, year t + 2	374	-0.124	0.516	-2.728	1.380
Total spending, year t + 3	358	-0.148	0.674	-2.602	2.566
Total spending, year t + 4	343	-0.135	0.820	-2.690	2.271
Tax revenues, year t	405	-0.032	0.398	-1.549	1.217
Tax revenues, year t + 1	390	-0.012	0.508	-1.549	1.387
Tax revenues, year t + 2	375	0.111	0.728	-1.732	1.866
Tax revenues, year t + 3	359	0.268	0.867	-1.960	2.656
Tax revenues, year t + 4	344	0.443	0.965	-1.764	2.314
Net lending, year t	399	-0.216	0.517	-2.407	1.510
Net lending, year t + 1	390	-0.151	0.733	-2.358	6.281
Net lending, year t + 2	375	-0.096	0.908	-3.609	6.227
Net lending, year t + 3	359	0.012	0.910	-3.646	3.900
Net lending, year t + 4	344	0.114	0.886	-3.766	3.675
Ex-post realizations (in % of state GDP)	**Obs.**	**Mean**	**Std. Dev.**	**Min.**	**Max.**
Total spending	450	14.685	5.284	8.571	30.239
Tax revenues	450	8.505	1.258	6.363	11.821
Net lending	450	-1.013	1.130	-6.692	2.156
Unemployment rate	474	10.873	4.466	2.300	22.100
GDP growth rate (nominal)	474	3.168	2.637	-10.000	10.900
State government ideology (left)	474	0.525	0.453	0.000	1.000
Last forecast before election	474	0.207	0.405	0.000	1.000
Last forecast before election that induced regime change	474	0.084	0.278	0.000	1.000
Last forecast before election that did not induce regime change	474	0.122	0.328	0.000	1.000
Education level	144	13.285	3.452	8.096	25.876
Unemployment rate relative to state average	474	0.986	0.325	0.438	2.216
Fiscal rule	474	0.074	0.262	0.000	1.000

Note: ME = Mean Error; RMSE = Root Mean Squared Error.

Table 6.5: Descriptive statistics for East German states

Forecast errors (in % of ex-post state GDP)	**Obs.**	**ME**	**RMSE**	**Min.**	**Max.**
Total spending, year t	104	0.139	0.520	-1.916	1.601
Total spending, year t + 1	98	-0.002	0.562	-2.597	1.230
Total spending, year t + 2	92	-0.181	0.638	-2.728	1.380
Total spending, year t + 3	86	-0.243	0.830	-2.602	2.566
Total spending, year t + 4	79	-0.220	1.006	-2.690	2.271
Tax revenues, year t	106	-0.029	0.520	-1.549	1.217
Tax revenues, year t + 1	100	-0.050	0.648	-1.549	1.387
Tax revenues, year t + 2	94	0.092	0.939	-1.732	1.866
Tax revenues, year t + 3	88	0.260	1.147	-1.960	2.079
Tax revenues, year t + 4	81	0.514	1.296	-1.764	2.314
Net lending, year t	105	-0.357	0.720	-2.407	1.380
Net lending, year t + 1	99	-0.248	1.143	-2.358	6.281
Net lending, year t + 2	93	-0.187	1.453	-3.609	6.227
Net lending, year t + 3	87	-0.010	1.444	-3.646	3.900
Net lending, year t + 4	80	0.084	1.424	-3.766	3.675
Ex-post realizations (in % of state GDP)	**Obs.**	**Mean**	**Std. Dev.**	**Min.**	**Max.**
Total spending	124	22.255	3.537	16.095	30.239
Tax revenues	124	10.000	1.036	7.058	11.608
Net lending	124	-1.120	1.648	-6.692	2.156
Unemployment rate	124	16.088	4.024	4.300	22.100
GDP growth rate (nominal)	124	2.346	2.108	-4.400	8.200
State government ideology (left)	124	0.504	0.380	0.000	1.000
Last forecast before election	124	0.218	0.414	0.000	1.000
Last forecast before election that induced regime change	124	0.137	0.345	0.000	1.000
Last forecast before election that did not induce regime change	124	0.081	0.273	0.000	1.000
Education level	54	13.380	4.381	8.653	25.876
Unemployment rate relative to state average	124	1.345	0.164	0.963	1.671
Fiscal rule	124	0.113	0.318	0.000	1.000

Note: ME = Mean Error; RMSE = Root Mean Squared Error.

Table 6.6: Descriptive statistics for West German states

Forecast errors (in % of ex-post state GDP)	**Obs.**	**ME**	**RMSE**	**Min.**	**Max.**
Total spending, year t	294	-0.035	0.298	-1.596	1.511
Total spending, year t + 1	291	-0.082	0.351	-1.734	0.888
Total spending, year t + 2	282	-0.105	0.469	-2.065	1.262
Total spending, year t + 3	272	-0.117	0.615	-2.582	1.397
Total spending, year t + 4	264	-0.109	0.756	-2.646	1.524
Tax revenues, year t	299	-0.033	0.346	-1.330	1.077
Tax revenues, year t + 1	290	0.001	0.450	-1.330	1.264
Tax revenues, year t + 2	281	0.117	0.644	-1.619	1.814
Tax revenues, year t + 3	271	0.271	0.756	-1.678	2.656
Tax revenues, year t + 4	263	0.421	0.839	-1.641	2.299
Net lending, year t	294	-0.165	0.412	-2.106	1.510
Net lending, year t + 1	291	-0.118	0.524	-2.325	1.777
Net lending, year t + 2	282	-0.066	0.635	-2.883	1.962
Net lending, year t + 3	272	0.019	0.657	-2.626	2.628
Net lending, year t + 4	264	0.123	0.645	-2.366	2.488
Ex-post realizations (in % of state GDP)	**Obs.**	**Mean**	**Std. Dev.**	**Min.**	**Max.**
Total spending	326	11.805	1.911	8.571	18.032
Tax revenues	326	7.936	0.777	6.363	11.821
Net lending	326	-0.973	0.855	-4.784	1.008
Unemployment rate	350	9.025	2.869	2.300	18.300
GDP growth rate (nominal)	350	3.460	2.745	-10.000	10.900
State government ideology (left)	350	0.533	0.477	0.000	1.000
Last forecast before election	350	0.203	0.403	0.000	1.000
Last forecast before election that induced regime change	350	0.066	0.248	0.000	1.000
Last forecast before election that did not induce regime change	350	0.137	0.344	0.000	1.000
Education level	90	13.227	2.776	8.096	24.118
Unemployment rate relative to state average	350	0.858	0.268	0.438	2.216
Fiscal rule	350	0.060	0.238	0.000	1.000

Note: ME = Mean Error; RMSE = Root Mean Squared Error.

Figure 6.3: Total spending forecast errors, 1980-2014

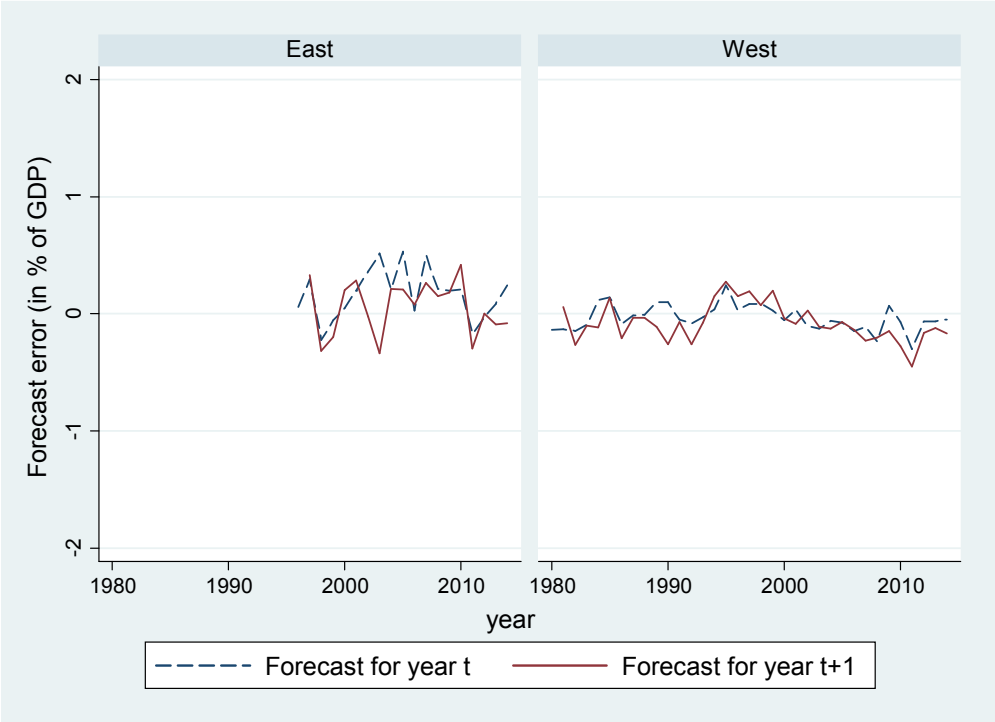


Figure 6.4: Tax revenue forecast errors, 1980-2014

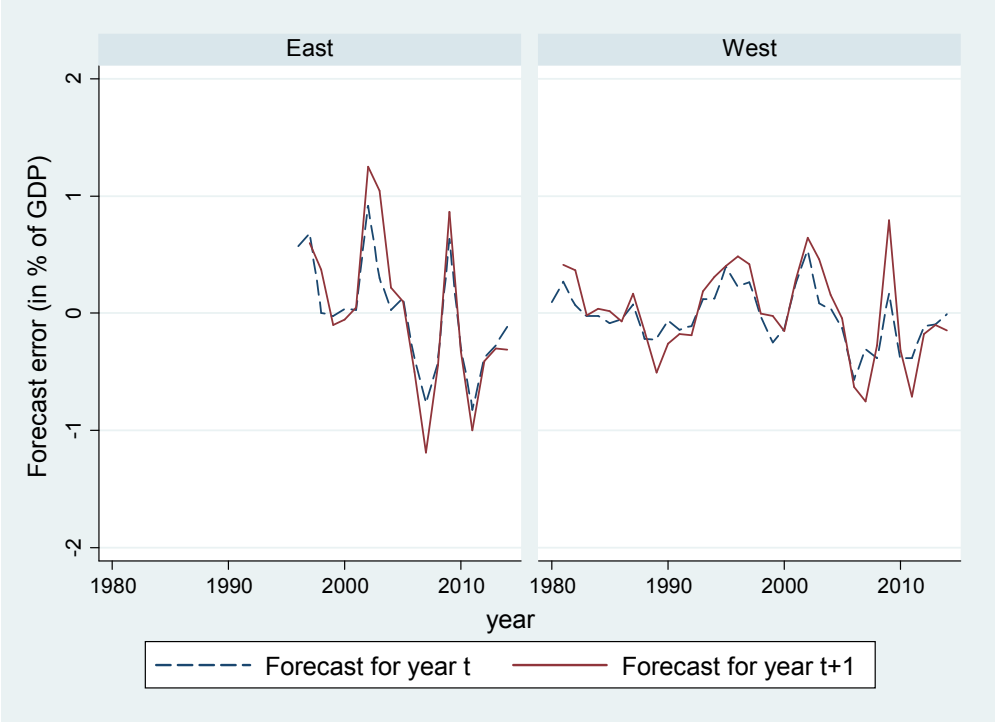


Figure 6.5: Net lending forecast errors, 1980-2014

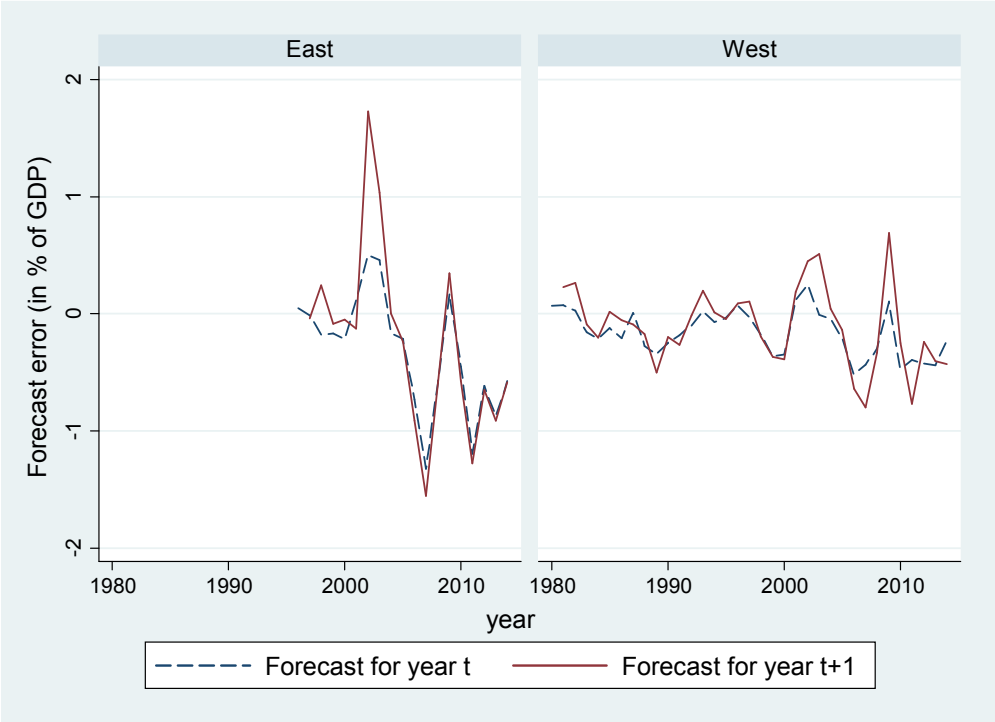


Figure 6.6: Total spending by state, East Germany, 1995-2014

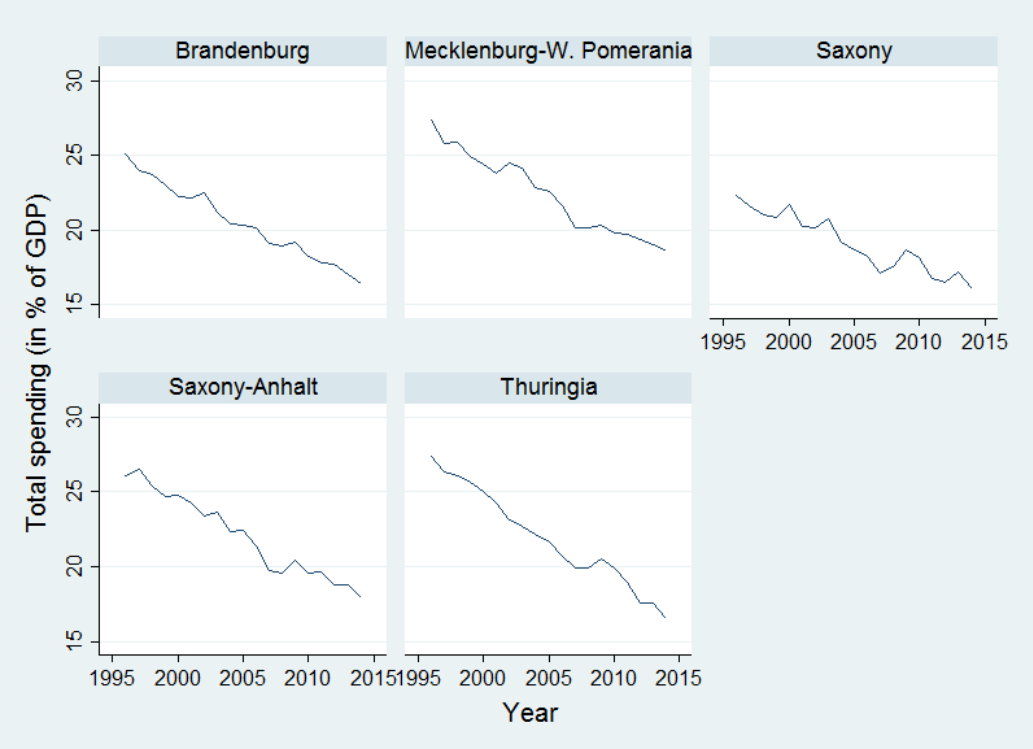


Figure 6.7: Total spending by state, West Germany, 1980-2014

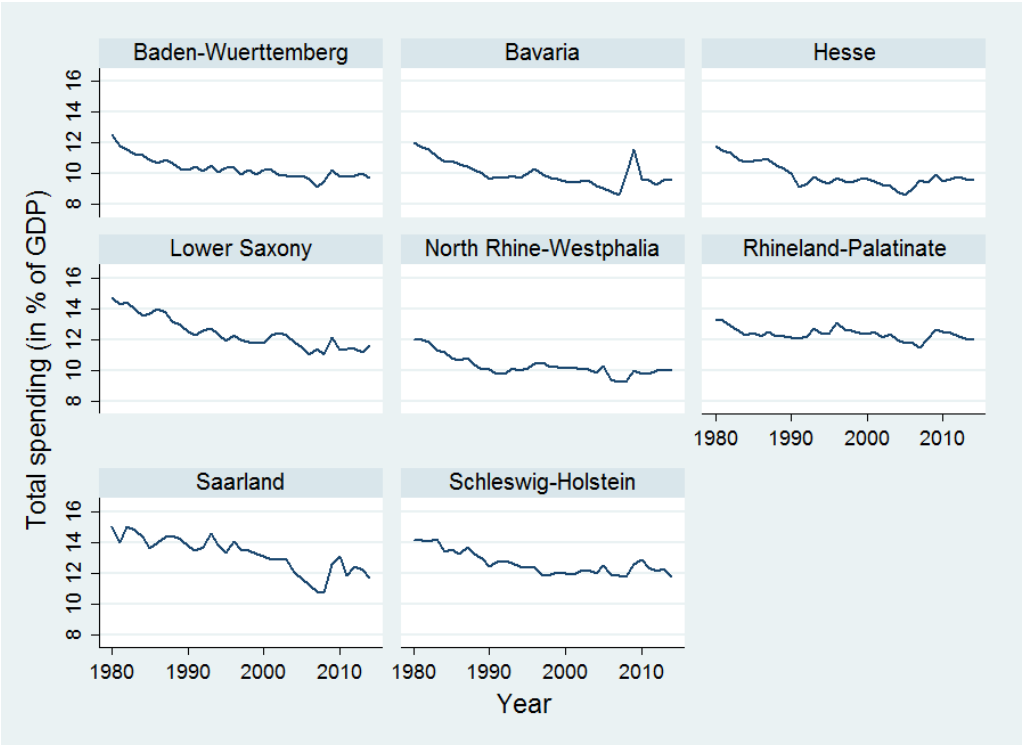
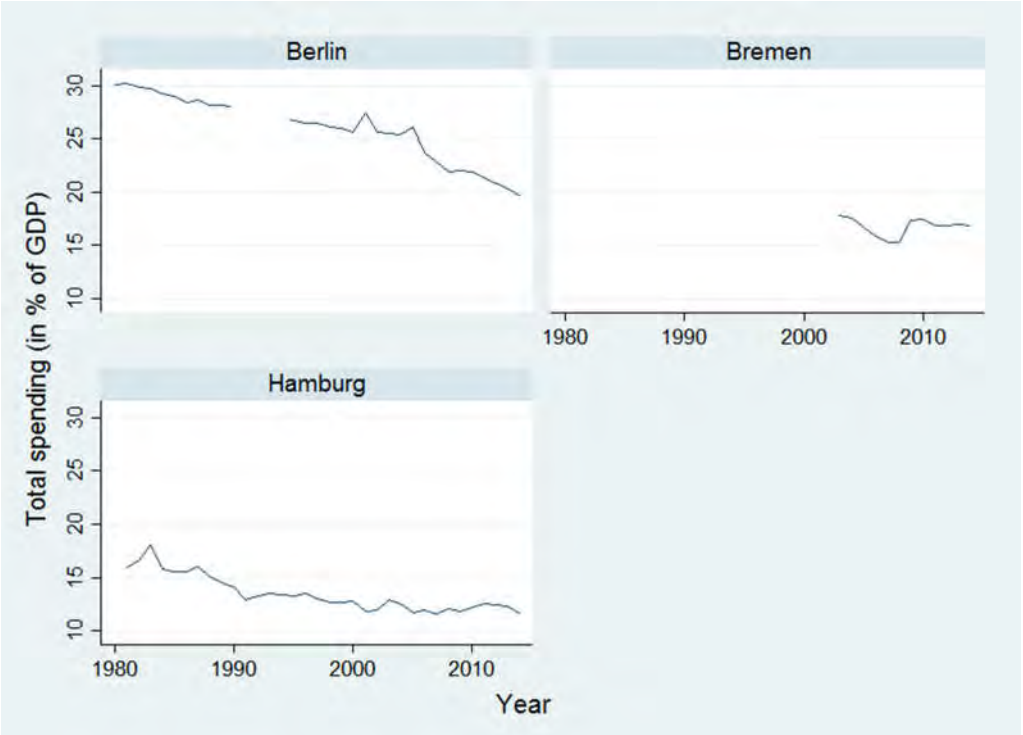


Figure 6.8: Total spending by state, city states, 1980-2014



7. Ideology and Dissent among Economists: The Joint Economic Forecast of German Economic Research Institutes[1]

7.1. Introduction

Economists in general claim to be independent researchers who search for "the truth". The truth is, however, often difficult to establish and there is room for value judgments. Value judgments in economic policies include, for example, the trade-off between equity and efficiency (Hillman 2009, Ch. 7). Economists' opinions may depend on value judgments associated with schools of thought (Hillman 1998, Prychitko 1998, De Benedictis and Di Maio 2011; 2015, Di Maio 2013). When economists give policy advice, the advice may therefore be ideologically biased (Coughlin 1989, Frisell 2005, Austin and Wilcox 2007, Kirchgässner 2014).[2] Advice is likely to be more effective when economists foreshadow how political ideologies influence the political process (Slembeck 2003). Ideological positions may be attached to individual economists and have a cumulative effect when economists with similar views work at the same institution. In the United States, it is well-known that think-tanks have ideological positions (McGann 2005). A question is whether this also holds true for other countries. We investigate whether German economic research institutes differ in economic policy positions and whether the differences in positions influence policy advice.

Leading German economic research institutes that advise the German government have prepared biannual reports on the German and the world economy since 1950. The reports are published in spring and autumn each year. Having independent economic research institutes that write joint reports to give policy advice is unique in industrialized

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[1] The chapter is joint work with Ha Quyen Ngo, Niklas Potrafke, and Marina Riem (Ngo et al. 2016).

[2] Ideology may influence recommended courses of action. Perceptions of economic-policy norms and political preferences seem to be correlated (Nelson 1987, Alston et al. 1992, Fuchs et al. 1998, Mayer 2001, Klein and Stern 2006, Saint-Paul 2012, Gordon and Dahl 2013). An area of potential conflict arises when policy advisors try to take into account the beliefs of the client and therefore are cautious with suggestions that may upset the client (Kirchgässner 1996; 1999; 2005; 2011; and 2013).

countries. The institutes do not always agree on their assessments of the current situation nor on economic policies that they recommend. An institute that disagrees with a majority position can submit a minority vote. Whether and what kind of minority votes an institute submits is an expression of identity on the ideological spectrum. An institute can express its identity through economic policy positions in public discourse. Submitting minority votes in the Joint Economic Forecast corroborates particular economic policy positions. The minority votes receive attention.[3] The media publicize minority votes and the government certainly recognizes that there is disagreement (Fritsche and Heilemann 2010). Media coverage and economists have assigned ideological labels to the economic research institutes (Langfeldt and Trapp 1988, Döpke 2000, Antholz 2005). The Kiel Institute for the World Economy (IfW), for example, has been labeled as neoclassical/supply-side, whereas the German Institute for Economic Research in Berlin (DIW) has been labeled Keynesian/demand-side. For institutes' given different ideological identities, the question is whether the institutes have disagreed in the Joint Economic Forecast.

We investigate minority votes and how macroeconomic variables influence minority voting.[4] We distinguish between the individual sections of the reports (forecasts vs. economic policy recommendations), specific fields of economic policy, whether minority votes were submitted in the main text or in footnotes, and whether votes favored demand-oriented policies. We have self-compiled a dataset on minority votes for the period 1950-2014. We also elaborate on participation in the Joint Economic Forecast since 2007, when the German government introduced procurement by tender for the Joint Economic Forecast.

[3] Confirming an institute's identity may well be expressive (Brennan and Lomasky 1993, Hillman 2010).

[4] Potrafke (2013) investigates minority votes in the German Council of Economic Experts. The results show that council members nominated by the trade unions took different positions than their colleagues.

7.2. Joint Economic Forecast and German Economic Research Institutes

7.2.1. Joint Economic Forecast

Leading economic research institutes have prepared the Joint Economic Forecast for the Federal Ministry of Economic Affairs since 1950. Establishing the Joint Economic Forecast was among the first actions of the Working Group of German Economic Research Institutes which was founded on March 15, 1949 (Marquardt 1979). Until 2006, the same institutes prepared the reports: the German Institute for Economic Research in Berlin (DIW), the Hamburg Archive of International Economics (HWWA, since the end of 1952), the ifo Institute in Munich, the Kiel Institute for the World Economy (IfW), and the Rheinisch-Westfälisches Institut für Wirtschaftsforschung in Essen (RWI). The Institute for Agricultural Market Research (today Johann Heinrich von Thünen Institute) participated until 1970.[5] The Halle Institute for Economic Research (IWH) has participated since 1993. The HWWA closed at the end of 2006 and does not participate any longer.

The Federal Ministry of Economic Affairs has put participation in the Joint Economic Forecast out to tender since 2007 to increase competition between the institutes.[6] Applicants do not need to be German but sound knowledge of German institutions is required and German is the working language. The Federal Ministry of Economic Affairs awards three-year contracts to four consortia. The DIW did not participate between autumn 2007 and spring 2013, and the IfW has not participated since autumn 2013. The following institutes temporarily acted as partners in consortia since 2007: the Center for European Economic Research in Mannheim (ZEW), the Institute for Advanced Studies in Vienna (IHS), the Austrian Institute of Economic Research in Vienna (WIFO), Kiel Economics, the KOF Swiss Economic Institute at ETH Zurich, and the Macroeconomic Policy Institute in Düsseldorf (IMK).

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[5] We exclude the Institute for Agricultural Market Research from our dataset because it did not submit any minority vote while participating.

[6] Competition between economic research institutes and with other organizations (e.g. consultants, OECD, central and commercial banks) has increased in recent years (Döhrn 2005, Döhrn and Schmidt 2011).

Drafting the Joint Economic Forecast lasts several weeks. Preparatory talks among business cycle department heads of each institute take place in the Federal Ministry of Finance, the Bundesbank or the European Central Bank.[7] The core meetings last about two and a half weeks nowadays.

The first part of the Joint Economic Forecast investigates international economic performance, fiscal policy, and the monetary policy framework. The second part on Germany contains forecasts of main economic aggregates such as real GDP growth. The institutes' individual growth forecasts are combined and made consistent.[8] The third part contains recommendations for economic policy.

The Joint Economic Forecast is a reference for the government's projections of economic trends. The institutes investigate and forecast the economic situation and give recommendations for economic policy.[9] The Joint Economic Forecast has a similar purpose as the yearly report of the Council of Economic Experts.[10] The federal government takes the results of the Joint Economic Forecast into account when it publishes its growth expectations one week after the Joint Economic Forecast.[11]

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[7] Representatives of the Council of Economic Experts and the Federal Statistical Office also participate in preparatory talks in autumn.

[8] A joint model was developed in the 1970s and each institute was responsible for different parts. Institutes however soon developed their own models (Marquardt 1979). Döpke (2001) shows that the German research institutes' expectations in the Joint Economic Forecast are not rational.

[9] See press release of the Federal Ministry of Economic Affairs, June 3, 2010. Bretschneider et al. (1989) show that forecast accuracy increases when independent forecasts from competing agencies are combined.

[10] The Council of Economic Experts though focuses less on forecasting but rather on discussing basic allocative and distributive issues (Schmahl 2000).

[11] The Joint Economic Forecast influences economic policy. For instance, when the exchange rate of the Deutsche Mark was floated in May 1971, the Joint Economic Forecast had recommended doing so.

The Joint Economic Forecast is helpful for policy-makers because its recommendations generally are based on a consensus among institutes with different identities.[12] But for a long time the institutes advocated different economic approaches and theories (Eichel 2000).[13] Minority votes show that the institutes did not always agree. Minority votes appear in the main text when central issues are touched upon, or in footnotes. Given high levels of uncertainty when making projections, e.g. of economic growth, it is conceivable that finding a consensus is easier regarding forecasts than regarding economic policy recommendations. Most minority votes are hence submitted in the sections on economic policy (Nierhaus 2002). When minority votes are submitted, politicians may delay economic policy reforms because experts tend to disagree on economic policy issues (Filusch 1992, Jones and Cullis 1993).[14] Investigating how institutes submitted minority votes is hence an important issue.

7.2.2. Ideological Identities of Economic Research Institutes

The leading German economic research institutes pursue scientific research and contract research and give policy advice. Contract research is applied research that aims to help contractors make decisions on economic policy.

Ideological identities are attributed to different institutes (Döpke 2000, Antholz 2005). We use three indicators to describe ideological identity: we examine news coverage to describe public opinion regarding institutes, we investigate the minority votes directly, and we describe what German economists have written about the ideological identities

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[12] The Federal Ministry of Economic Affairs explicitly demands results and recommendations that are supported by all participants (see notice of award 2013). Minority votes deviate from such a concept.

[13] For details on how econometric modeling differs across institutes, see the Joint Economic Forecast in spring 2008 (ifo Schnelldienst 8/2008, p. 50). Carstensen et al. (2011) show that the optimal choice of forecast indicators depends on the specific forecast situation.

[14] The news coverage of a minority vote in the Joint Economic Forecast in spring 2014 was: "The DIW did not want to join the other institutes in criticizing the government's policies and wrote a minority vote – which will most likely be heard, especially in the government" (Handelsblatt, April 10, 2014).

of individual institutes.[15] The content of minority votes often describes ideological beliefs. Ideological identities may well have changed over the years, yet the public debate still attributes ideological identities to institutes based on discussions in the last decades.[16] Ideological identities can be distinguished between Keynesian/demand-oriented and neoclassical/supply-oriented.

The DIW has a reputation as demand-oriented (Handelsblatt 2012: "The DIW traditionally stands in the left political corner."[17] Die Zeit 1988: "Traditionally the DIW is put somewhere close to the Social Democrats."[18]). Minority votes confirm this ideological identity. In autumn 2005 the DIW voted for more active fiscal policy "even though this may delay consolidation in the short-run".[19] In spring 1999 the DIW disagreed with the other institutes who deemed wage agreements as too high.[20]

Newspapers have called the IfW "liberal"[21] and representing "supply-side policy".[22] Minority votes confirm this ideological identity. In autumn 2001, for instance, the IfW wanted to continue fiscal consolidation whereas the other institutes found such fiscal policy too restrictive.[23]

The ifo Institute also has a supply-side identity: it has been called "business-friendly",[24] and sometimes proximity to the conservative CSU party is suggested.[25] In a minority

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[15] Yet, news coverage may well exaggerate ideological positions (Zimmermann 2008).
[16] Cf. "Institute im Umbruch", Frankfurter Allgemeine Zeitung, July 20, 2012.
[17] See "Deutschland hat einen schwierigen Part", Handelsblatt, August 10, 2012.
[18] See "Bonner Kulisse", Die Zeit, December 30, 1988.
[19] See DIW Wochenbericht 43/2005, p. 647.
[20] See Wirtschaft im Wandel 6/1999, p. 45.
[21] See "Schröders Regierungsprogramm bricht mit Tabus der Partei", Die Zeit, March 05, 1998.
[22] See "Das Kieler Debakel", Handelsblatt, May 28, 2013.
[23] See Wochenbericht des DIW 43/2001, p. 705.
[24] See "Gewinner ohne Mumm", Die Zeit, February 17, 1984.
[25] See "Das Kieler Debakel", Handelsblatt, May 28, 2013, and "DIW attackiert Ifo-Institut: `CSU-Nähe und fragwürdige Methoden´", Spiegel Online, April 25, 2001.

vote in spring 1981, the ifo Institute calls for more restrictive monetary policy to counteract the "danger that trade unions achieve higher wages".[26]

The RWI has also been called "close to business"[27] and as representing "supply-oriented economic policy".[28] This ideological identity is in line with the minority votes that were submitted: In autumn 1980, for instance, the institute advocated "limiting the increase of government spending".

The IWH does not have a clear ideological identity in the media.[29] The minority votes imply a demand-side identity. The reason may be that the IWH is the only participating institute in Eastern Germany and has advocated an active role for the state to accelerate economic convergence. In spring 1996 the institute favored a less restrictive fiscal policy to finance the East German catching-up process.[30] The IWH submitted all minority votes until 2006 together with the DIW. Further demand-oriented minority votes were submitted from 2007 to 2010 while in a consortium with the (Union related) IMK. In spring 2008, spring 2009 and autumn 2009 the consortium disagreed with the other institutes, which opposed a general minimum wage.

The HWWA did not have a clear ideological identity in the media either. The minority votes imply a supply-side identity. In 1955, the HWWA demanded more investment and lower taxes in a joint minority vote with the IfW.[31] In autumn 2003, the HWWA, the ifo Institute and the IfW rejected deficit-financed fiscal policy.[32]

Some economists have also commented on differences in identities of institutes. Döpke (2000) describes, for example, the Kiel Institute for the World Economy (IfW) as hav-

[26] See ifo Wirtschaftskonjunktur 1981, volume 4, p. 15.
[27] See "2009 droht Bundesrepublik schlimmste Rezession", Die Welt, December 10, 2008.
[28] See "Zur Prognose verdammt", Die Zeit, October 31, 1980.
[29] In a press article, the institute is called "close to the CDU party (see "Sieger heißt PDS", Die Zeit, July 28, 1995). Contents of minority votes do not confirm a rightwing position.
[30] See ifo Wirtschaftskonjunktur 1996, volume 4, p. 20.
[31] See Gemeinschaftsdiagnose der Bibliothek des IfW an der Universität Kiel, 1955/56, p. 10.
[32] See DIW Wochenbericht Nr. 43/2003, p. 682.

ing a reputation for monetarist views, whereas the German Institute for Economic Research in Berlin (DIW) has the reputation of having Keynesian/demand-side views. Langfeldt and Trapp (1988, p. 430) maintain "the DIW has a pronounced Keynesian orientation. The Ifo-Institute combines Keynesian analysis with surveys on business sentiments and on investment plans, while Essen, Hamburg, and Kiel have a neoclassical orientation in common."

Consequently, the DIW was for a long period the only demand-oriented institute that participated in the Joint Economic Forecast. Even after the IWH joined the group, the two institutes were the minority. From 2007 to 2010, the IWH/IMK consortium was the only demand-oriented participant. It is conceivable that, given their minority positions, the DIW and the IWH would have revealed their dissenting opinion in minority votes. All other institutes take a neoclassical/supply oriented approach to modeling the economy. The attitudes regarding economic policy clearly differed between DIW/IWH and the other institutes.

7.3. Data and Descriptive Analysis

To compile the data set on minority votes we examined the Joint Economic Forecasts over the period 1950-2014. Since the Joint Economic Forecast is published twice a year, our data set covers 129 reports. In 1964 only one report was issued, since in this year the publication dates changed from mid-year and end of the year to spring and autumn. For every Joint Economic Forecast we recorded the participating economic research institutes, and since 2007 the participating consortia. We counted the minority votes that were submitted by each participating institute. When two institutes jointly submitted a minority vote, we coded a vote for each of the participating institutes. "Split votes" (one half of the institutes has a different opinion than the other half) were not interpreted as minority votes.[33]

[33] Split votes occurred in autumn 2003 regarding the tax reform and in 2012 regarding the role of the ECB in the economic crisis.

We examined whether the minority vote is in the main text body or in the form of a footnote and thus distinguish whether the minority vote concerns a fundamental topic or a rather subordinate question (Nierhaus 2002). Footnotes referring to a minority vote in the text body of the same report were not counted as individual minority votes (this occurred several times in autumn 2011 concerning the role of the ECB and EFSF). For the reports starting in the second half of 2007, where a large and a small institute form a consortium, minority votes were counted for the bigger partner. Such coding is consistent since none of the cooperation partners participated in the Joint Economic Forecast before 2007 and there was no cooperation between two large institutes.[34] The year 2007 is however a turning point that we account for in the econometric analysis.

Table 7.1 shows that the DIW submitted the most minority votes, 0.54 votes on average per participation. The IWH submitted 0.34 minority votes on average per participation. The other institutes (RWI, ifo, IfW and HWWA) submitted much fewer minority votes. The Keynesian/demand-oriented institutes submitted more minority votes than the supply-oriented institutes.

Table 7.1: Number of minority votes of economic research institutes

Institute	Participations	Number of minority votes	Minority votes per participation
DIW	117 (1950/1 - 2007/1, 2013/1 – 2014/2)	63	0.54
HWWA	108 (1952/2 - 2006/2)	3	0.03
ifo	129 (1950/1 - 2014/2)	15	0.12
IfW	126 (1950/1 - 2013/1)	15	0.12
IWH	44 (1993/1 - 2014/2)	15	0.34
RWI	129 (1950/1 - 2014/2)	22	0.17

Source: own calculations.

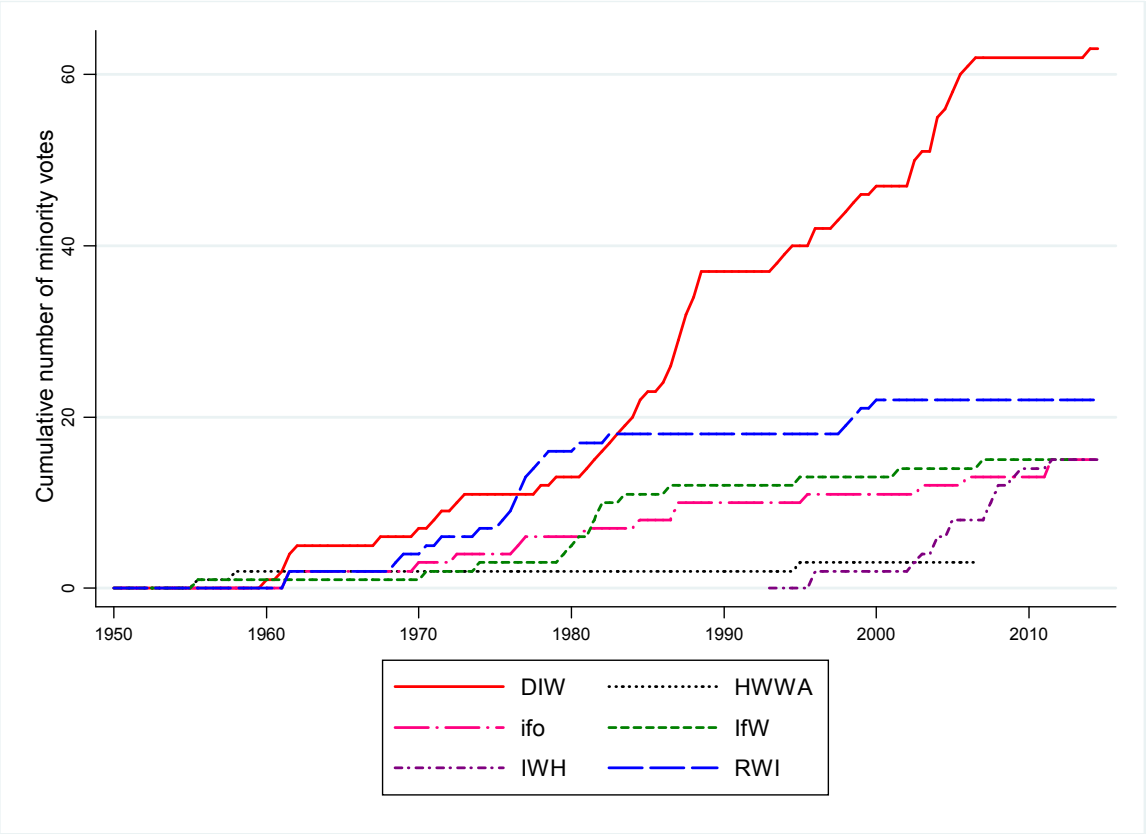
[34] The KOF has cooperated with the ifo Institute since autumn 2007, the ZEW cooperated from autumn 2010 until spring 2013 with the IfW, the IMK and the WIFO cooperated from autumn 2007 until spring 2010 with the IWH, Kiel Economics has cooperated since autumn 2010 with the IWH, the IHS has cooperated since autumn 2007 with the RWI and the WIFO has cooperated since autumn 2013 with the DIW.

Figure 7.1 shows how minority voting evolved over time. For every year we show the number of minority votes that were submitted up to that point. The DIW submitted most minority votes until 2007; the other institutes submitted much fewer minority votes. Especially before 1970 and during the German unification only few or no minority votes were submitted.

The DIW submitted many votes between 1981 and 1988 under Hans-Jürgen Krupp's presidency (1979-1988).[35] Minority votes dealt with manifold economic policy issues and show that the demand-oriented DIW and the supply-oriented IfW under Herbert Giersch had different economic-policy positions. The DIW submitted more minority votes since 2002 and promoted in many cases a more expansive fiscal policy. The IWH also submitted many votes since 2002, especially in favor of minimum wages and more expansive fiscal policies. During the short period from 1979 to 1983 the IfW submitted many minority votes concerning the then restrictive monetary policy. The voting behavior of the RWI stands out in the period between 1975 and 1978, when many votes concerned the problem of too high wage agreements.

[35] Hans-Jürgen Krupp, who was nominated by the trade unions to become a member in the German Council of Economic Experts, often expressed his differing opinion in the reports of the German Council of Economic Experts (Potrafke 2013).

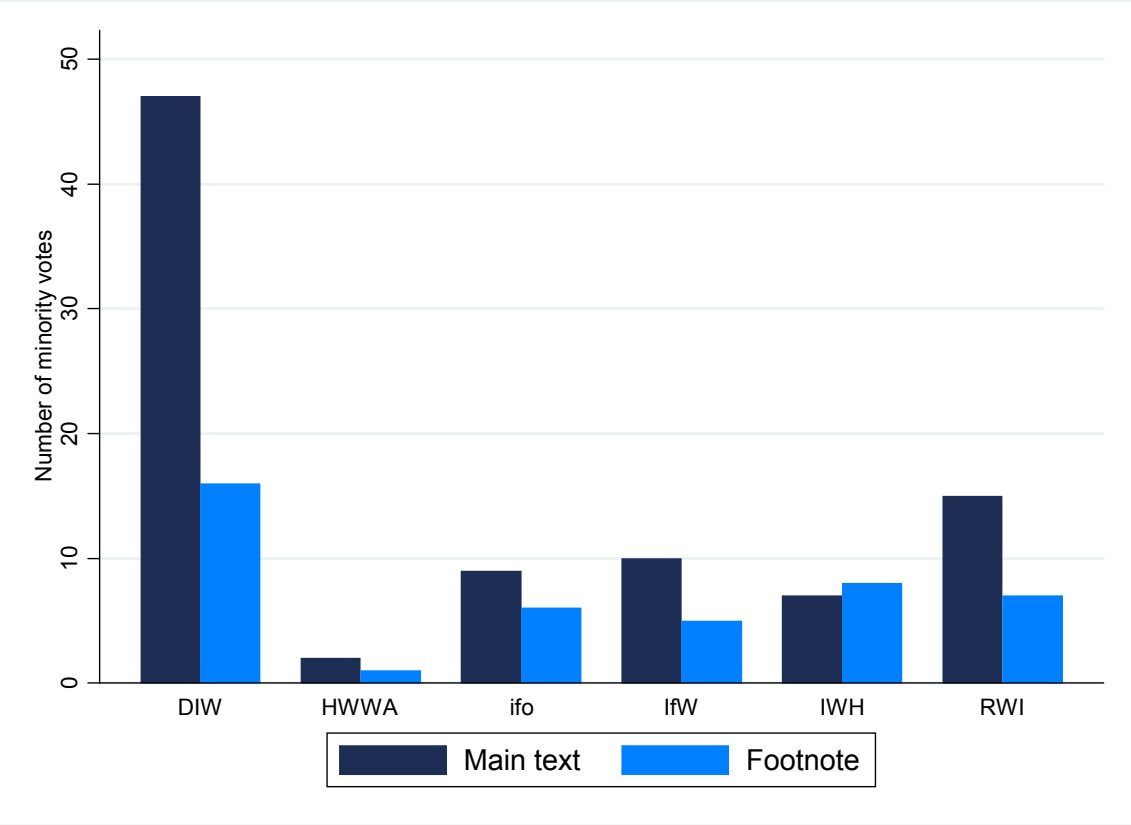
Figure 7.1: Cumulative number of minority votes



Source: own compilation.

We examine whether minority votes occurred in the text body or in footnotes. Figure 7.2 shows the results. Most institutes placed minority votes rather in the text body than in footnotes. Only the IWH submitted more minority votes in the footnotes than in the text body.

Figure 7.2: Distribution of minority votes between text body and footnotes



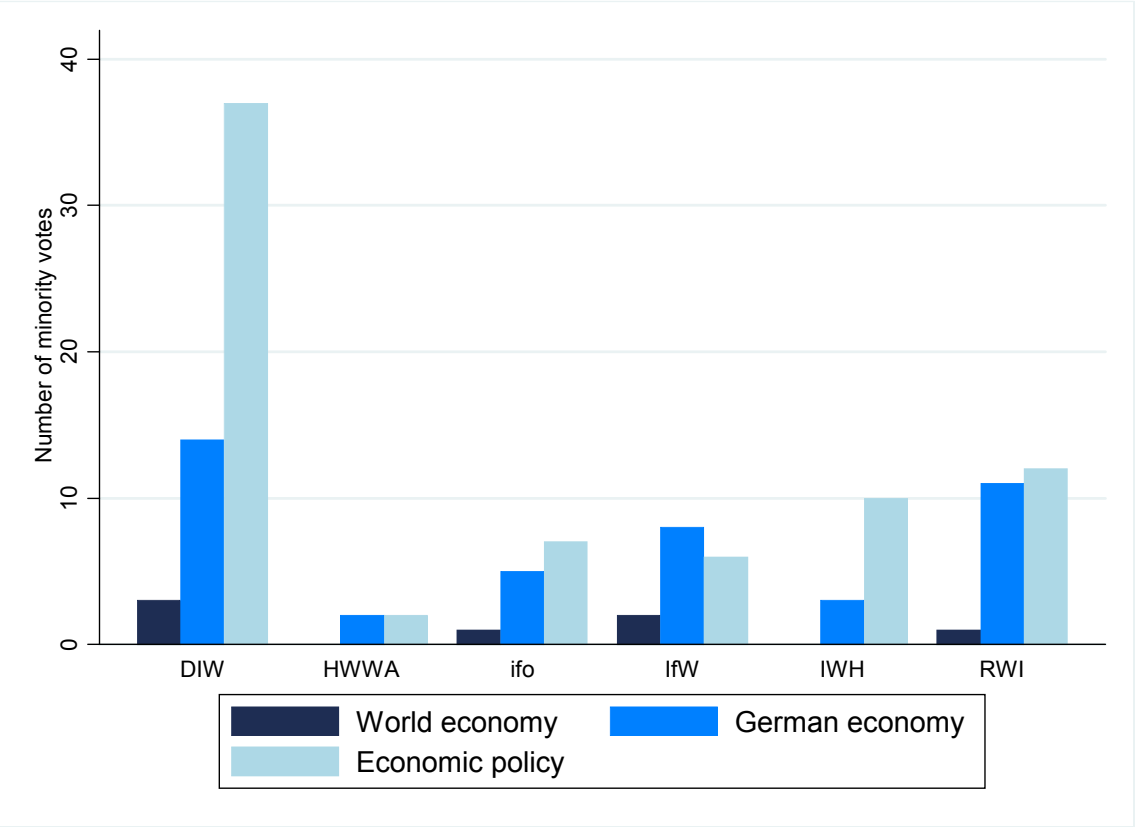
Source: own compilation.

We examine in which section of the Joint Economic Forecast minority votes appeared.[36] Most minority votes appeared in the economic policy section (see Figure 7.3). The forecasting sections (world economy / German economy) were less controversial.[37] Only the IfW submitted more minority votes in the forecast sections than in the economic policy section.

[36] In exceptional cases a minority vote refers to several sections of the report.

[37] All minority votes concerning forecasts are included in the section German economy. It is unclear whether minority forecasts are better than forecasts of the majority of institutes (Antholz 2005).

Figure 7.3: Distribution of minority votes between sections of the reports

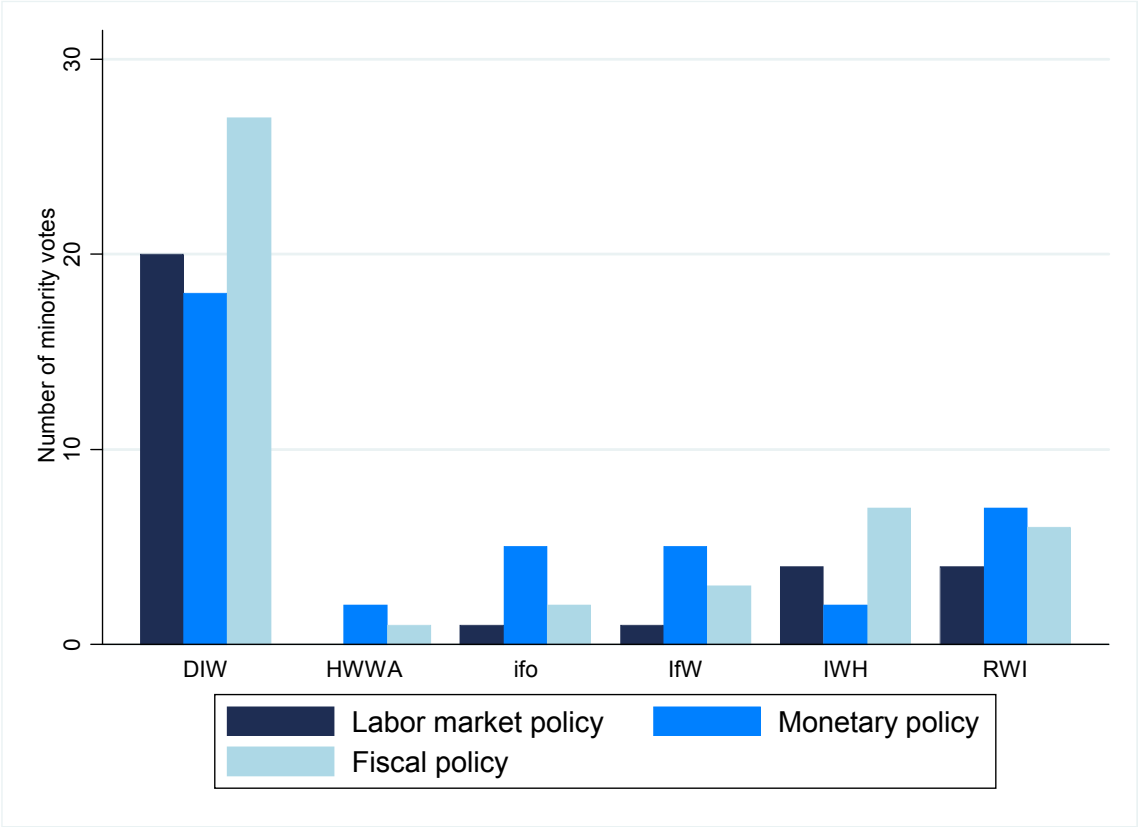


Source: own compilation.

Focusing on the economic policy section, the results show that the DIW and the IWH mostly addressed fiscal policy issues in their minority votes (see Figure 7.4).[38] The HWWA, ifo, IfW and the RWI submitted more minority votes on monetary policy issues than fiscal policy issues. The DIW, the IWH and the RWI submitted more minority votes concerning labor market policy than the other institutes.

[38] One minority vote can address two or three different economic policy fields.

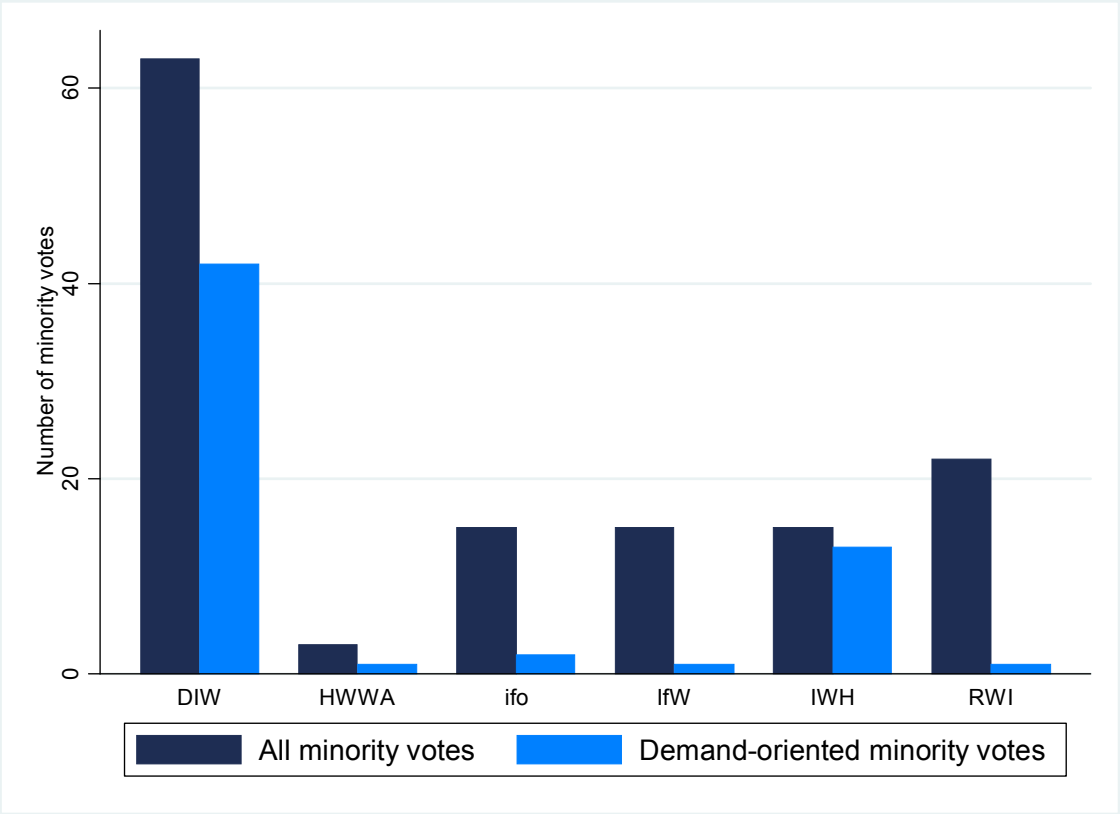
Figure 7.4: Distribution of minority votes between economic policy fields



Source: own compilation.

We also investigate the content of the minority votes in the economic policy section. We examine whether minority votes are demand-oriented. A minority vote is demand-oriented if it favors a larger size and scope of government, higher wages, or lower interest rates, or more fiscal stimulus. Figure 7.5 shows that the DIW and the IWH submitted nearly all demand-oriented minority votes.

Figure 7.5: Distribution of demand-oriented minority votes



Source: own compilation.

In the following section we investigate minority voting using an econometric model. Macroeconomic variables that could have influenced voting behavior are not part of our descriptive analysis.

7.4. Empirical Approach

Our basic count data model has the following form:

$$Minority\ vote_{it} = \alpha + \Sigma_j \delta_j\ Institute_{ijt} + \Sigma_k \zeta_k\ macro_{kt} + u_{it}$$

with i = 1,...,6; j = 1,…,5; k = 1,...,10; t = 1,…,129.

The dependent variable *Minority vote*$_{it}$ describes the number of minority votes that institute *i* submitted in report *t*. As explanatory variables we include a dummy variable for

each of the participating institutes. The reference institute in the estimations is the RWI, therefore the corresponding variable is not included in the model. Which reference institute we chose does not change the inferences. As macroeconomic control variables $macro_{kt}$ we use the annual inflation rate, unemployment rate and growth rate of real GDP (Source: Federal Statistical Office).[39] We also include a dummy variable which assumes the value one in recession years (years with negative annual real GDP growth), to account for systematic errors in growth expectations over the business cycle (Dovern and Jannsen 2015). We also control for the ideology of the federal government by including a variable in our model that takes the value zero for a leftwing government (SPD/FDP or SPD/Greens), the value one for a rightwing government (CDU/CSU or CDU/CSU/FDP) and the value 0.5 for a grand coalition government (CDU/CSU/SPD). We use decade dummy variables (the reference category are the years after 2010) to control for external shocks. Table 7.5 shows descriptive statistics of all variables.

We estimate a Poisson model with robust standard errors. Our data fulfills the distribution assumptions: mean (0.204) and variance (0.279) of our dependent variable are almost equal.[40]

7.5. Results

Table 7.2 shows the regression results as incidence rate ratios. In column (1) we only include the institute dummies. In columns (2) to (5) we include the recession variable, inflation rate, unemployment rate, and a variable for government ideology separately and jointly as control variables. In column (6) we also control for time-specific shocks with decade dummy variables. In column (7) we replace the recession variable by the growth rate of GDP. In column (8) we replace the decade dummy variables by a linear and quadratic time trend.

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[39] The data for GDP growth rate in the year 1950 is taken from the Maddison Project (http://www.ggdc.net/maddison/Historical_Statistics/horizontal-file_02-2010.xls, last accessed 18.05.2015).

[40] Goodness of fit tests do not reject the hypothesis that the distribution assumptions are fulfilled.

The regression results show that the DIW and the IWH (in some specifications) submitted more and the HWWA fewer minority votes than the RWI (reference institute). The incidence rate ratios of the DIW and the HWWA are always statistically significant at the 1% level. For the IWH the incidence rate ratio of the institute dummy is only significant at the 10% level in five specifications. The incidence rate ratio indicates the factor by which the rate of minority voting varies between the considered category and the reference category. The results show, for example, that the rate of minority voting of the DIW in column (6) corresponds to 306% of the rate of minority voting of the RWI. The ifo Institute submitted minority votes at a rate of 68% of the RWI's rate in each report, and the IfW 69% of the RWI's rate in each report. The IWH submitted minority votes at a rate of 206% and the HWWA at a rate of 15% of the RWI's rate in each report. The econometric results correspond with the results of the descriptive analysis.

The incidence rate ratios of the control variables show that the institutes submitted fewer minority votes when inflation was high. The incidence rate ratio of the inflation rate is statistically significant at the 10% and 5% level in columns (6) and (7). It is conceivable that the demand-oriented DIW advocated quite high inflation rates: The Phillips curve describes a tradeoff between unemployment and inflation. Blue collar workers, who are supposed to be positively disposed toward demand-oriented policies, benefit from low unemployment and care less about high inflation than, for example, wealthy entrepreneurs who are supposed to be positively disposed toward market-oriented policies. As a consequence, the DIW submitted fewer minority votes when inflation was high (see also Table 7.4). The incidence rate ratios of the recession variable, the unemployment rate, and the GDP growth rate do not turn out to be statistically significant. In columns (4), (5), and (8) the coefficient of government ideology is statistically significant at the 1% level. Under rightwing governments fewer minority votes were submitted. The rate of submitting minority votes follows an inverted U-shaped curve over time. The linear and quadratic time trends are statistically significant in column (8) and indicate that the incidence rate was highest in spring 1987.

We investigate the reasons of dissent, i.e., the content of the minority votes. We use a new dependent variable measuring the number of demand-oriented votes in the economic policy section. Table 7.3 shows the results of estimating our baseline regressions with the new dependent variable. The incidence rate ratios of the DIW and the IWH are larger than in the baseline regressions and statistically significant at the 1% level in all specifications. The incidence rate ratio of the inflation rate is smaller than one and statistically significant in column (2). The incidence rate ratio of the unemployment rate is larger than one and statistically significant in some specifications. The incidence rate ratios of the recession variable and the government ideology variable do not turn out to be significant in any specification. The incidence rate ratio of the GDP growth rate is smaller than one and statistically significant at the 1% level in column (7). Demand-oriented minority votes were hence less likely to occur when GDP was growing rapidly. The results show that the results in Table 7.2 are mainly driven by demand-oriented minority votes that favor a larger size and scope of government.

Table 7.2: Regression results – minority votes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
DIW	3.157***	3.150***	3.175***	3.110***	3.125***	3.057***	3.086***	3.044***
	(4.34)	(4.32)	(4.34)	(4.38)	(4.37)	(4.36)	(4.37)	(4.34)
HWWA	0.163***	0.162***	0.165***	0.158***	0.160***	0.150***	0.151***	0.149***
	(-2.96)	(-2.97)	(-2.93)	(-2.99)	(-2.96)	(-3.01)	(-2.99)	(-3.06)
ifo	0.682	0.682	0.682	0.682	0.682	0.682	0.682	0.682
	(-1.04)	(-1.04)	(-1.03)	(-1.05)	(-1.05)	(-1.05)	(-1.05)	(-1.06)
IfW	0.698	0.697	0.698	0.697	0.697	0.690	0.690	0.691
	(-1.01)	(-1.02)	(-1.00)	(-1.04)	(-1.03)	(-1.07)	(-1.07)	(-1.07)
IWH	1.999*	2.042*	1.775	1.935*	1.678	2.058*	2.027*	1.814
	(1.86)	(1.92)	(1.56)	(1.81)	(1.42)	(1.92)	(1.90)	(1.62)
Recession		1.013	1.017	0.860	0.827	0.807		0.849
		(0.05)	(0.06)	(-0.56)	(-0.71)	(-0.80)		(-0.61)
Inflation rate		1.027			1.011	0.904*	0.886**	0.904
		(0.65)			(0.26)	(-1.66)	(-1.97)	(-1.57)
Unemployment rate			1.036		1.043	1.046	1.033	0.995
			(1.41)		(1.64)	(0.71)	(0.52)	(-0.13)
Government ideology (rightwing)				0.500***	0.498***	0.638	0.686	0.552***
				(-3.28)	(-3.42)	(-1.56)	(-1.34)	(-2.84)
GDP growth rate							0.965	
							(-0.94)	
1950s						0.348	0.448	
						(-1.23)	(-0.87)	
1960s						2.194	2.191	
						(1.00)	(1.00)	
1970s						3.625*	3.975*	
						(1.80)	(1.88)	
1980s						4.774**	4.846**	
						(2.40)	(2.41)	
1990s						1.485	1.545	
						(0.58)	(0.64)	
2000s						2.051	2.114	
						(1.04)	(1.11)	
Linear time trend								1.062***
								(3.70)
Quadratic time trend								1.000***
								(-3.38)
Observations	653	653	653	653	653	653	653	653
Pseudo R2	0.116	0.116	0.119	0.134	0.138	0.189	0.189	0.162

z statistics in parentheses. Indicence rate ratios. Reference institute: RWI. Poisson model with robust standard errors (Huber/White/sandwich standard errors). Dependent variable: Number of minority votes per institute and report. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 7.3: Regression results – demand-oriented minority votes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
DIW	46.31***	46.84***	46.89***	46.09***	46.49***	46.35***	48.27***	46.39***
	(3.80)	(3.81)	(3.83)	(3.80)	(3.83)	(3.84)	(3.84)	(3.83)
HWWA	1.194	1.225	1.249	1.178	1.222	1.137	1.183	1.141
	(0.13)	(0.14)	(0.16)	(0.12)	(0.14)	(0.09)	(0.12)	(0.09)
ifo	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000
	(0.57)	(0.57)	(0.57)	(0.57)	(0.57)	(0.57)	(0.57)	(0.57)
IfW	1.024	1.025	1.020	1.022	1.019	1.014	1.015	1.016
	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
IWH	38.11***	35.28***	22.29***	36.93***	21.71***	24.61***	23.54***	21.07***
	(3.50)	(3.42)	(2.97)	(3.48)	(2.95)	(3.04)	(3.00)	(2.94)
Recession		1.555	1.404	1.303	1.240	1.226		1.268
		(1.52)	(1.10)	(0.87)	(0.65)	(0.62)		(0.68)
Inflation rate		0.914*			1.034	0.933	0.930	0.896
		(-1.83)			(0.59)	(-0.80)	(-0.92)	(-1.07)
Unemployment rate			1.239***		1.244***	1.221*	1.228**	1.089
			(5.59)		(5.62)	(1.84)	(2.04)	(1.17)
Government ideology (rightwing)				0.690	0.716	0.924	1.085	0.758
				(-1.27)	(-1.30)	(-0.22)	(0.24)	(-1.07)
GDP growth rate							0.850***	
							(-3.05)	
1950s						0.000***	0.000***	
						(-22.14)	(-18.19)	
1960s						0.854	1.314	
						(-0.11)	(0.19)	
1970s						1.790	2.539	
						(0.63)	(1.00)	
1980s						3.791*	3.989**	
						(1.89)	(1.98)	
1990s						1.042	1.029	
						(0.05)	(0.04)	
2000s						1.750	1.786	
						(0.63)	(0.68)	
Linear time trend								1.103***
								(4.30)
Quadratic time trend								0.999***
								(-3.75)
Observations	653	653	653	653	653	653	653	653
Pseudo R2	0.292	0.299	0.359	0.298	0.363	0.427	0.436	0.395

z statistics in parentheses. Indicence rate ratios. Reference institute: RWI. Poisson model with robust standard errors (Huber/White/sandwich standard errors). Dependent variable: Number of demand-oriented minority votes per institute and report. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 7.4: Regression results, separate regressions by institute

	DIW	ifo	IfW	IWH	RWI
Inflation rate	0.823**	0.883	1.259	1.286	0.752***
	(-2.37)	(-0.60)	(1.33)	(0.86)	(-2.58)
Unemployment rate	1.019	0.848	1.185	1.906**	1.011
	(0.25)	(-1.29)	(0.94)	(1.98)	(0.09)
Government ideology (rightwing)	0.744	0.952	0.331*	0.423	0.110***
	(-0.94)	(-0.08)	(-1.77)	(-0.97)	(-2.78)
Recession	0.863	0.688	0.667	1.601	0.713
	(-0.39)	(-0.35)	(-0.48)	(0.90)	(-0.58)
Linear time trend	1.081***	1.072	1.072	2.160	1.109***
	(3.31)	(1.21)	(1.19)	(1.02)	(2.71)
Quadratic time trend	1.000**	1.000	0.999	0.996	0.999***
	(-2.38)	(-0.72)	(-1.05)	(-1.07)	(-2.58)
Procurement by tender	0.898	0.985	0.000***	34.64***	0.000***
	(-0.08)	(-0.01)	(-5.63)	(3.44)	(-7.75)
Observations	117	129	126	44	129
Pseudo R2	0.131	0.0366	0.156	0.206	0.235

z statistics in parentheses. Incidence rate ratios. Poisson model with robust standard errors (Huber/White/sandwich standard errors). Dependent variable: Number of minority votes per institute and report. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

We estimate the count data model separately for each institute and test whether the control variables such as the economic situation or government ideology influenced minority votes. We also include a dummy variable which assumes the value one for reports after autumn 2007 when the federal government put participation out to tender, introduced the possibility to form consortia and limited the number of participants to four. We cannot consider the HWWA because the HWWA submitted too few minority votes. We control for time-specific effects with linear and quadratic time trends (as in column (8) in the standard specification) instead of decade dummies because of the lower number of observations. Column (1) in Table 7.4 shows that the DIW had a low rate of submitting minority votes in times of high inflation. The incidence rate ratio of the inflation rate is statistically significant at the 1% level. The numerical meaning of the incidence rate ratio is that when the inflation rate increased by one percentage point, the DIW's rate of submitting minority votes decreased by 18%. The rate of submitting minority votes of the RWI also decreased when the inflation rate was high. The rate of submitting minority votes of the IWH increased when the unemployment rate was high. Under rightwing governments the IfW and the RWI submitted fewer minority votes.

The incidence rate ratio is statistically significant at the 10% level for the IfW and at the 1% level for the RWI. The IfW and the RWI did not submit any minority votes in the procurement by tender period (the incidence rate decreased by 100%). The incident rate ratios are statistically significant at the 1% level. The IWH's rate of submitting minority votes increased by a factor of 35 in the procurement by tender period. The incidence rate ratio is statistically significant at the 1% level. It is conceivable that minority votes submitted from autumn 2007 until spring 2010 were attributed to the IMK which cooperated with the IWH in this time period. The result (Table 7.2) that the IWH submitted significantly more minority votes than the RWI may hence have been influenced by the participation of the Union related IMK. The effects of the inflation rate, GDP growth rate and government ideology are similar to the results in the baseline specification.

7.6. Robustness Checks

We test the robustness of our results in several ways. Since the Poisson model exhibits quite strict distribution assumptions, we also estimate a negative binomial model, a zero-inflated Poisson model, and a zero-inflated negative binomial model. Inferences regarding the institute variables do not change.

We test whether the results differ when we use real time data of macroeconomic variables, to account for the information set that was available to the participants at the time of writing the reports. We use inflation and real GDP growth data from the reports, referring to the year when the report was published. The sample starts in 1962, because no data on inflation and real GDP growth were included in the first reports.[41] Inferences regarding the voting behavior of the DIW do not change. The coefficient of the IWH loses statistical significance in some specifications. Inferences regarding other variables do not change.

Several minority votes by an institute in one report may be closely related and may well be treated as one vote. We replace the count variable with a binary variable, which as-

[41] Data for the unemployment rate is only included in the reports since 1984.

sumes the value one if an institute submitted a minority vote in a report and zero otherwise. We estimate a Probit model with robust standard errors. Except for the coefficient of the IWH which loses statistical significance, inferences do not change.

We test whether the results depend on whether minority votes occurred in the text body or in footnotes. The findings do not qualitatively change when we consider both types of minority votes separately. The voting behavior of the IWH did not differ from the voting behavior of the RWI when we only take into account minority votes in the text body.

We also test whether the voting behavior of the institutes changes when we examine the individual policy fields. We use Probit models to test whether institutes differed in submitting minority votes. The DIW submitted significantly more minority votes than the RWI, also when separately considering the section economic policy as a whole, as well as its subsections labor market, fiscal and monetary policy. The voting behavior of the IWH did not differ from the voting behavior of the RWI in the monetary policy subsection. The institutes do not differ significantly in the section world economy, which is probably because of the small number of minority votes in the section. In the German economy section only the voting behavior of the HWWA is significantly different from the RWI.

The voting behavior of the institutes may depend on the persons participating, even though no names are included in the reports. The ideological identity of participating persons could be expected to be highly correlated with their institutes' ideological identity, although this need not always be the case.[42] We therefore test whether the regression results of Table 7.4 vary, when we also include dummy variables for (i) the acting president of the individual institute or (ii) the head of the business cycle analysis department of the individual institutes. To compile the names of the persons involved we

[42] For example, Ulrich Blum, the president of the IWH over the period 2004-2011, is a member of the CDU party, whereas Udo Ludwig, the institute's head of the business cycle department over the period 1992-2009, received his education in the USSR.

asked the institutes directly and used the annual reports of the institutes. Inferences do not change when we include dummies for the presidents or department heads.

We include other control variables: neither gross wage growth, nor the length of the reports (measured by page numbers) is statistically significant. The budget balance is statistically significant at the 5% level when included separately, but lacks statistical significance when we include the variable jointly with other explanatory variables. Inferences regarding the other explanatory variables do not change. It is conceivable that the difference between the actual GDP growth rate and the forecasted GDP growth rate from the report, a measure of uncertainty, explains minority votes. We used the forecasts of the GDP growth rate from the respective reports. The observation period, however, shortens as in the 1950s no or only very rough growth forecasts were made. The forecasted GDP growth variable does not turn out to be significant and including it does not change the inferences of the other explanatory variables.

Econometric models can have the problem of reverse causality. In our model, however, reverse causality is unlikely. We rule out the number of minority votes of an institute influencing macroeconomic conditions in the same observation period. The composition of the participating institutes does not depend on the submitted minority votes, at least not until the year 2006, when the participating institutes did not change. But we cannot rule out that minority voting since 2007 played a role for the assignment of the forecasting task by the Federal Ministry of Economic Affairs. Minority votes are thus exogenous in the subsample until 2007. The fact that minority votes may affect future participation should be considered when assigning the forecasting task to the consortia.[43]

7.7. Conclusion

We have investigated minority voting in the Joint Economic Forecast of German economic research institutes. Our results show that the German Institute for Economic Re-

[43] Laux and Probst (2004) show that analysts may design forecasts strategically to increase the demand for future contracts.

search (DIW Berlin) submitted by far the most minority votes. In particular, the DIW expressed its distinct opinions in the economic policy part of the report, with the intent of seeking a more influential role of the state in the economy. This finding is in line with the popular belief that the DIW has expressed demand-oriented positions in economic policy-making for a long time and has differed from the other economic research institutes in this respect. The IWH also submitted many minority votes when the institute participated in the Joint Economic Forecast. The minority votes of the IWH mostly concerned demand-oriented positions in economic policy-making and reflect to a great extent the cooperation between the IWH and the Union related IMK from 2007 to 2010. In contrast, the economic policy positions of the HWWA, ifo, IfW and the RWI are similar.

The German economic research institutes have had different ideological identities over the last decades. The minority votes in the Joint Economic Forecast portrayed indicate the extent to which positions of institutes were polarized. The peak of the disagreement between the demand- and supply-oriented institutes occurred in the 1980s. Since then the ideological identities of the institutes seem to have been established in the public debate and have been taken as given from that time on. Minority votes declined over the last years. Polarization of the institutes has become less pronounced. The institutes themselves claim that they do not represent specific economic-policy positions.

Decision-makers realize when policy advice is driven by a perceived motivation underlying recommendations and the perceived motivation of the adviser determines how decision makers react (Kuang et al. 2007). The declining polarization of the institutes notwithstanding, when economic research institutes are known to be associated with particular ideological identities, politicians, clients and voters well understand how to assess the policy advice given by the different institutes.

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Appendix: Additional Table

Table 7.5: Descriptive statistics

Variable	Observations	Mean	Std. Dev.	Min	Max	Source
Minority votes (number per institute and report)	653	0.204	0.528	0	4	Joint Economic Forecasts/ own compilation
Minority votes in main text (number per institute and report)	653	0.138	0.425	0	3	Joint Economic Forecasts/ own compilation
Minority votes in footnote (number per institute and report)	653	0.066	0.288	0	2	Joint Economic Forecasts/ own compilation
Minority vote on world economy (=1 if minority vote on world economy was submitted)	653	0.011	0.103	0	1	Joint Economic Forecasts/ own compilation
Minority vote on German economy (=1 if minority vote on German economy was submitted)	653	0.066	0.248	0	1	Joint Economic Forecasts/ own compilation
Minority vote on economic policy (=1 if minority vote on economic policy was submitted)	653	0.115	0.319	0	1	Joint Economic Forecasts/ own compilation
Minority vote on fiscal policy (=1 if minority vote on fiscal policy was submitted)	653	0.070	0.256	0	1	Joint Economic Forecasts/ own compilation
Minority vote on monetary policy (=1 if minority vote on monetary policy was submitted)	653	0.060	0.237	0	1	Joint Economic Forecasts/ own compilation
Minority vote on labor market policy (=1 if minority vote on wage policy or labor market policy was submitted)	653	0.046	0.210	0	1	Joint Economic Forecasts/ own compilation
Demand-oriented minority vote (number per institute and report)	653	0.092	0.343	0	2	Joint Economic Forecasts/ own compilation
Recession	653	0.095	0.293	0	1	Federal Statistical Office
Inflation rate	653	2.463	2.057	-6.19	7.75	Federal Statistical Office
Unemployment rate	653	6.862	3.941	0.7	13	Federal Statistical Office

Real GDP growth rate	653	3.463	3.408	-5.1	18.9	Federal Statistical Office
Government ideology (rightwing)	653	0.615	0.457	0	1	Own compilation
Inflation rate (real time)	538	2.917	1.843	-0.5	8	Joint Economic Forecasts/ own compilation
GDP growth rate (real time)	538	2.275	2.213	-6	9.5	Joint Economic Forecasts/ own compilation
Budget balance	653	-1.889	1.526	-6.17	1.41	Federal Statistical Office
Gross wage growth	637	5.829	4.599	-0.3	19.6	Federal Statistical Office
Number of pages	645	27.358	19.245	6	79	Joint Economic Forecasts/ own compilation
Forecast GDP growth rate	538	2.228	2.124	-6	7.9	Joint Economic Forecasts/ own compilation

8. Concluding Remarks

I have described what predicts inter vivos transfers, and how political ideologies influence outcomes (income inequality and budget consolidation) and political processes (fiscal planning and policy advice). Much more research can be done in these directions. The results that I presented are relevant for policymakers and the public debate. I will briefly describe some highlights.

In Chapter 3 I have examined the effects of the 2009 transfer tax reform, which was intended to benefit the core family. The results did not show that the tax reform influenced inter vivos transfer behavior towards offspring. It appears that for the largest part of the population, taxation does not influence transfer decisions within the core family. Curiously, although many people are unlikely to be affected by transfer taxes, many people oppose transfer taxation. Surveys have shown that disapproval increases as the education background worsens.[1] Investigating individual determinants of attitudes towards transfer taxation appears to be promising for future research.

To family firms, by contrast, transfer taxation matters a great deal. The government and the judiciary want to ensure a certain degree of equal taxation across different types of assets, thus avoiding the tax-free transfers of large business assets to the next generation. But governments also have an interest in maintaining a strong private sector. Family firms provide employment and make investments, which may be reduced if firms have to pay much inheritance or gift tax following ownership succession. Politicians face a trade-off between equity and efficiency. Economists can give policy advice and provide empirical evidence about how transfer taxation affects individuals and firms. In Chapter 2 we have contributed to the policy debate by showing that transfer taxes par-

[1] In a survey conducted in Germany in October 2008, 37% of respondents with a college degree and 51% of respondents with a low education background (*Hauptschulabschluss)* were in favor of abolishing transfer taxation altogether (http://www.familienunternehmen.de/media/public/pdf/publikationen-studien/studien/Studie_Stiftung_Familienunternehmen_Forsa-Erbschaftsteuerreform.pdf).

ticularly jeopardize underperforming firms. If policymakers want to increase planned ownership transfers, which for firms' business operations may be superior to transferring ownership on the occasion of the original owner's death, then tax incentives for underperforming firms may be necessary. New tax incentives could be implemented in Germany as soon as July 2016, by which date the government has to reform the tax treatment of transferred business assets.

My co-authors and I have also shown that political ideologies may matter in many settings. Admittedly, political ideology cannot always be measured on a one-dimensional left-right scale (consider for instance John Stuart Mill who championed personal freedom and a small state, while advocating high tax rates on inheritances). In any event, some bias can often be detected easily. Knowing these biases may help voters and citizens to better understand political processes and to predict outcomes. Regarding income inequality (Chapter 4) and strategies of budget consolidation (Chapter 5), voters should know that when governments have leeway to design these outcomes, governments are likely to use it. Regarding fiscal planning (Chapter 6), East German voters should take tax and spending paths projected in election years with a grain of salt. Regarding policy advice (Chapter 7), politicians and the public can assess pieces of advice better if they are aware of the ideological leaning of a consultant or his institution. The results from Chapter 7 notwithstanding, economists can provide ideologically unbiased analyses. To give an example, the 2015 Nobel laureate in economics, Angus Deaton, who worked on controversial issues including consumption, poverty, and welfare, "is acknowledged by all sides both as authoritative and as having no ideological axe to grind" (*The Economist,* March 11, 2004).

Curriculum Vitae

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