

Sommer, Eric

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DISCUSSION PAPER SERIES

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ABSTRACT

Wealth Transfers and Tax Planning: Evidence for the German Bequest Tax*

The rising importance of bequests as a source of personal income lead to renewed interest in the taxation of wealth transfers. Empirical evidence on distortionary effects of bequest taxation is relatively scarce. On the basis of administrative data for Germany, this paper assesses the extent to which taxable bequests are targeted to the tax code. I investigate bunching at discrete jumps in the marginal tax rate. While there is evidence for tax planning in case of inter-vivo gifts, inheritances do not exhibit bunching. Further heterogeneity analyses demonstrate that tax planning is highest for gifts between close relatives. While the overall tax base responsiveness is rather low, the findings suggest that bequest tax planning almost exclusively occurs for donors rather than recipients of wealth transfers. Beyond, tax planning is more prevalent for close relatives and large estates.

JEL Classification: D91, H26, H31

Keywords: bequest tax, tax planning, bunching, administrative data

Corresponding author:

Eric Sommer
IZA - Institute of Labor Economics
P.O. Box 7240
53072 Bonn
Germany
E-mail: sommer@iza.org

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1 Introduction

For the past one hundred years, private wealth in developed economies has largely been a result of business and labor market activities. According to recent findings, this trend has been reversing as inheritances are becoming an increasingly important source of income (Piketty, 2011; Piketty and Zucman, 2014). A recent rise in the capital-to-income ratio has been confirmed for a number of countries.¹ This is explained by decades of stable capital accumulation in times of peace, along with shrinking fertility rates, which causes more wealth to be distributed among fewer individuals.

Moreover, the wealth distribution is typically much more skewed than the income distribution. In particular, Germany is found to display one of the highest wealth inequality levels in the EU (Carroll et al., 2014). According to Corneo et al. (2016), private wealth in Germany stems to about one third from bequests, this share being rather constant across the wealth distribution. This gives rise to equity concerns, as inherited affluence is not associated with individual labor market effort. As a consequence, the taxation of wealth transfers in order to reduce wealth inequality has re-appeared in the policy debate.² Around three quarters of OECD countries currently levy some form of wealth transfer tax. Their overall importance is however low with revenues of 0.13 percent of GDP in average, or 0.36 percent of total tax revenues.³ Bequest tax revenues have been steadily increasing in recent years, reflecting the rising trend in overall bequests.

Empirical evidence on the behavioral reactions to bequest taxation is scarce for countries outside the US. This paper aims at closing this gap by exploiting the design of the German bequest tax schedule. I build on previous literature that identifies the elasticity of taxable income (ETI) from taxpayers' bunching at discrete jumps in the tax schedule (Saez, 2010). This paper applies a bunching approach to the taxation of wealth transfers. The findings can be summarized as follows. I find differential evidence for tax planning for inheritances and inter-vivo gifts. While inheritances are distributed rather smoothly around kink points, there is sharp bunching for inter-vivo gifts. This suggests that only a subset of conceivable tax planning channels are effectively used. The tax schedule hence seems to imply limited behavioral distortions, presumably due to the presence of optimization frictions. It is donors rather than receivers of bequests who seek to minimize their tax burden. Further heterogeneity analyses show that tax planning is most prominent for transfers to close relatives. Beyond, I find evidence that tax planning

¹ See Piketty (2011) for France, Schinke (2012) for Germany, Ohlsson et al. (2014) for Sweden and Atkinson (2013) for the UK.

² Whether inheritances amplify or dampen wealth inequality is an empirical question. Apart from the wealth distribution of bequest receivers and recipients, it depends on the volatility of the tax base, i. e., on the extent to which taxpayers are able to circumvent the tax. Several recent studies find an equalizing role of intergenerational transfers. See Elinder et al. (2015) and the literature overview therein and Bönke et al. (2016).

³ Germany: 0.16 percent of GDP, 0.45 percent of tax revenue. See Boadway et al. (2010) for an illustration of the historical development of wealth transfer taxation.

increases with the value of transferred wealth. Quantitatively, the overall welfare costs of bequest taxation are however estimated to be rather low; the elasticity of taxable bequests amounts to 0.02 at the highest. Two recent studies also investigate bunching with inheritance taxes. Goupille-Lebret and Infante (2016) exploit time and age notches in the tax treatment of French life insurance schemes to estimate inter-temporal substitution in the accumulation of assets. Close to this paper, Glogowsky (2016) also analyzes bunching for the German bequest tax. Relying on an older data base, he finds bunching in particular for predefined inheritances, i.e. inheritances whose exact value (as opposed to the share) is defined by a descendant's last will.

The normative literature on how to solve the trade-off between equity and efficiency in the context of wealth transfer taxation is controversial. The classic approach (Atkinson and Stiglitz, 1976) delivers no reason to tax bequests separately, if the utility of bequest receivers is not regarded. By allowing for altruism of parents, Farhi and Werning (2010) argue for negative optimal marginal tax rates on estates. The optimal pattern of these subsidies is progressive, i. e. higher estates are taxed at a higher (negative) rate. In their model, the amount of bequests are fully determined by individual ability. This assumption is relaxed by Piketty and Saez (2013). They allow for multiple sources of inequality, reflecting the fact that the distribution of bequests received is typically more skewed than the earnings distribution. They thus find a substantial role for bequest taxation, yielding optimal inheritance tax rates well above 50%.

My findings are relevant for tax policy in at least two aspects. If transferred wealth is found to be very responsive to taxation, taxpayers might avoid bequest taxation. Apart from lowering tax revenue, this might harm the intended effects of higher bequest taxation, such as lowering wealth inequality.

Behavioral responses to taxation can broadly be classified as *real* or *shifting* responses (Kopczuk, 2013). In the context of bequest taxation, one example for a real response is the effect on investment decisions. If future transfers are anticipated, individual saving might be discouraged by bequest taxation (Kopczuk and Slemrod, 2001). Another example are labor supply responses to bequest taxation. If wealth shocks reduce individual labor supply, higher bequest taxes could prevent this.⁴ Pure shifting responses might affect timing and volume of intended wealth transfers. These channels have been studied extensively, albeit with an almost exclusive focus on the US estate and gift tax. Previous cross-sectional studies find inter-vivo gifts to be very responsive to gift tax rates in the short run (Page, 2003), in particular for wealthy households (Bernheim et al., 2004; Joulfaian, 2005). This holds both for the decision between gifts and inheritances and for the timing of wealth transfers. Exploiting pre-announced increases in the taxation of gifts, Joulfaian (2004) reports substantial effects on gift tax revenues just before the reform. In Germany, an individual may receive tax-free inter-vivo gifts up to the exemption over the course of ten years. This makes inter-vivo gifts a promising tool for tax

⁴ See Holtz-Eakin et al. (1993) for the US and Doorley and Pestel (2016) for Germany.

planning in the long run. For the US regime, which offers annual exclusion thresholds, Joulfaian and McGarry (2004) and Poterba (2001) find this tool to be underused from a tax-minimizing perspective. These results suggest that wealth-owners seek to retain some control over their assets, be it for wealth-loving or precautionary motives. Evidence for inheritance tax planning is more scarce. Most notably, Kopczuk (2007) finds evidence for tax planning if the deceased suffered from severe illness prior to death. In a similar vein, Kopczuk and Slemrod (2003) find date of deaths to be postponed to a date after an estate tax decrease, although this is likely a result from manipulating of the official time of death.

This paper also relates to the theoretical literature on taxing inheritances versus inter-vivo gifts. Both types of transfers are usually taxed in a similar manner, but this may be questionable if both kinds of transfers are associated with distinct behavioral responses and hence different efficiency costs. Moreover, the optimal tax treatment depends on the nature of the bequest motive (Cremer and Pestieau, 2006; Kopczuk, 2010). Individuals may leave bequests for a handful of reasons. As a basic classification, bequests can be either accidental or intentional. If they are fully accidental, i. e. wealth is kept until death because of an intrinsic utility of wealth or due to precautionary reasons, efficiency costs of bequest taxation are low. In this case, the amount of bequests will not be affected by the presence or extent of bequest taxation. On the other hand, parents might plan their wealth transfers, either because they participate in their offspring's utility (altruistic motive) or because of strategic considerations. If these kind of motives are predominant, bequest taxation may have a sizable impact on the timing and amount of transferred wealth and tax-induced distortions can be sizable.

The remainder of this paper is structured as follows. Section 2 presents the institutional setting in which bequests and their taxation take place. Section 3 presents the data base and descriptive statistics. Section 4 discusses the dimensions on which tax planning can be expected. Section 5 delivers the empirical estimates, before section 6 concludes.

2 German Institutional Background

Succession and division of estate In the event of death, an estate is in principle divided equally among the descendants of the deceased person. In case there are no descendants, the next in line of succession are parents of the deceased, including their offspring. If the deceased person was married, the spouse receives one quarter of the estate and the remaining amount is divided among the group of beneficiaries. These rules however only apply in case the deceased did not express a last will. The last will might determine different heirs or a different distribution of the estate among them. Alternatively, the last will might contain predefined inheritances to certain recipients

(*Vermächtnis*), determining a specific asset or a specific amount of money. Testators however do not have full control over the distribution of their estate. The minimum inheritance for descendants is half the amount they would have received in absence of a last will.⁵ These restrictions obviously do not apply to inter-vivo gifts, as both the amount of the gift and the recipient can be freely determined by the donor.

Tax Treatment of wealth transfers As most EU countries, Germany imposes an *inheritance tax* that is levied on the recipients of a wealth transfer. In contrast to the *estate tax* applied in the US and the UK, the tax is levied on the transfer received and not on the total estate. This allows for granting exemptions depending on the personal characteristics of the taxpayer. A second dimension affects the treatment of inter-vivo gifts. While the US levies a federal gift tax distinct to the estate tax, both forms of transfers are treated equally in Germany. For this reason, the German system will here be referred to as a *bequest tax*, applying to wealth transfers in general.

The German Bequest Tax (*Erbschaft- und Schenkungsteuer*) is imposed on the recipient of an inheritance or a gift. All wealth types are in principle taxed, including cash, real estate, businesses and stock assets. Real estate can be transferred tax-free to spouses or children in case the property remains owner-occupied. There are substantial personal exemptions, depending on the relation between donor and recipient (see Table 5 in the Appendix for details). These amount to €500k for spouses including same-sex marriages and to €400k for children and stepchildren. Lower thresholds apply for other relatives. In case of non-relatives and legal persons, the allowance is €20k. In case of inheritances, there is an additional personal deduction of €256k for spouses (*Versorgungsfreibetrag*), and an age-dependent allowance for children amounting up to €52k. If someone receives a transfer (by gift or inheritance) from the same donor within a time span of 10 years, this transfer is additionally considered. This implies that bequests are tax-free only if the sum of transfers received from a specific person over the course of ten years is lower than the personal allowance.

The tax liability is determined on the gross estate, net of liabilities and exemptions, and after adding previous transfers from the same donor. Table 1 shows the full tax schedule; Figure 1 visualizes the current schedule for taxable bequests below €800k. There are three different schedules (*tax classes (TC)*), depending on the relationship between donor and recipient. The lowest tax rates apply for Tax Class I, encompassing spouses, children, grandchildren and parents. Tax Class II affects siblings and their offspring, divorced spouses and parents (in case of inter-vivo gifts). In case of other recipients, Tax Class III is applied, which features the highest tax rates. The tariff consists of brackets in the average tax rate. For example, the tax rate that is applied to the total

⁵ As an example, if there are five descendants (and no spouse), each receives 20% of the estate in absence of a last will. If the last will determines an alternative distribution or includes other beneficiaries, each descendant still receives the minimum share of 10%.

Table 1: Average Tax Rates by year and taxable bequests

	Taxable bequests (1,000 €)	before 2009			Taxable bequests (1,000 €)	2009			after 2009		
		Tax Class				Tax Class			Tax Class		
		I	II	III		I	II	III	I	II	III
K_1	52	7	12	17	75	7	30	30	7	15	30
K_2	256	11	17	23	300	11	30	30	11	20	30
K_3	512	15	22	29	600	15	30	30	15	25	30
K_4	5,113	19	27	35	6,000	19	30	30	19	30	30
K_5	12,783	23	32	41	13,000	23	50	50	23	35	50
K_6	25,565	27	37	47	26,000	27	50	50	27	40	50
K_7	$\geq 25,565$	30	40	50	$\geq 26,000$	30	50	50	30	43	50

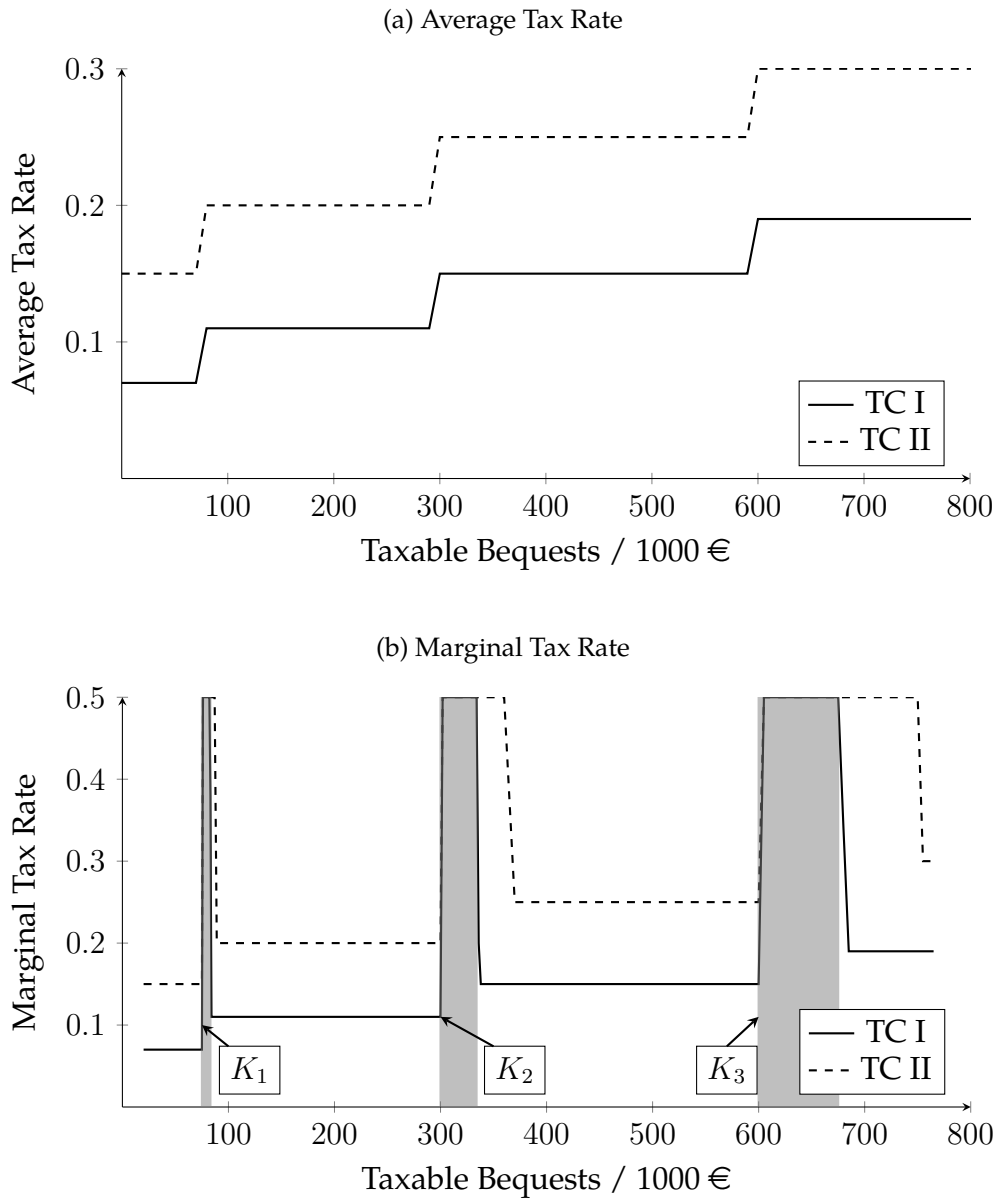
Tax Class I encompasses spouses, children, grandchildren and parents. Tax Class II encompasses siblings and their offspring, parents (for the case of inter-vivo gifts) and divorced spouses. For other recipients, including companies and foundations, Tax Class III is applied.

sum of taxable bequests jumps from 7% to 11% for TC I if the taxable bequest b exceeds €75k. In absence of further rules, this would imply a discontinuity in the tax liability, i. e. a notch. The transition between two tax rates is in fact smoothed by an additional rule which effectively caps the marginal tax rate at 50% in the relevant range.⁶ This is visualized in Figure 1b. The tariff induces discrete jumps in marginal tax rates (kink points). In the areas marked grey for TC1, it is particularly attractive to shift the value of total bequests towards the kink point.⁷ My data base spans the years 2007 to 2011, encompassing two reforms. In 2009, tax rates were increased for tax classes II and III. Moreover, personal exemptions were substantially raised. The 2010 reform altered tax rates for tax classes II and III again.

⁶ If the taxable bequest b lies between two kink points K_l and K_u (with respective tax rates τ_l and τ_u), the tax liability, depending on the tax class C , is obtained by $T^C(b) = \min(\tau_u^C b; \tau_l^C K_l + \tau_k(b - K_l))$;
 $\tau_k = \begin{cases} 0.5 & \text{if } \tau_u^C < 0.3 \\ 0.75 & \text{if } \tau_u^C \geq 0.3 \end{cases}$.

⁷ As Glogowsky (2016) notes, this is essentially a setting with two kinks, a convex kink with $\Delta\tau > 0$, followed by a concave kink with a tax rate decrease ($\Delta\tau < 0$). Bunching at the second kink is however unlikely, because its value is not explicitly stated in the tax rules but has to be inferred.

Figure 1: The German Bequest Tax Schedule



The figure visualizes the bequest tax tariff in place since 2010. Tax Class I encompasses spouses, children, grandchildren and parents. Tax Class II encompasses siblings and their offspring, parents (for the case of inter-vivo gifts) and divorced spouses. For other recipients, Tax Class III is applied with a constant ATR (MTR) of 30 % in the depicted range (not displayed). K_1 , K_2 and K_3 indicate the kink points where bunching is going to be investigated. The grey areas indicate the regions with marginal tax rates of 50% for TC I.

3 Data

The empirical analysis is based on annual German administrative bequest tax return data (*Erbschaft- und Schenkungsteuerstatistik*), spanning the years 2007 to 2011. They cover the universe of bequests and gifts for which a tax claim was requested. This includes also bequests that were eventually not taxed. There are more than 200,000 observations per year. Due to high exemption rates, the majority of wealth transfers does not show up in the bequest tax data. For 2010, Bach et al. (2014) estimate that the tax data cover 30% of all bequests, accounting for 73% of transferred wealth in total.⁸ The data years refer to the first assessment of the tax liability. They might deviate from the actual gift or death event by several years because tax authorities do not approach heirs before a couple of months after the death event. It may also take a long time until tax authorities learn about a taxable event. This holds particularly for inter-vivo gifts. Larger deviations may be caused by disputes among heirs or in case of foreign-based assets. The latter occur more often for valuable bequests entailing a multitude of assets. Lags between the taxable event and the actual tax assessment indeed increase with the total sum of bequests. Nevertheless, around 90% of tax cases get assessed within the first two years (Schinke, 2012). Independent of the time lag, the wealth transfer is always subject to the tax regime in force at the time of the taxable event. The existence of the time lag makes the sample less representative for more recent years. This sample selection does not pose a problem to the identification of the elasticity of taxable bequests if the propensity for tax planning is uncorrelated with the time lag.

Table 2 indicates that the majority of bequests come in the form of inheritances. As argued in section 4, not all types of inheritances are equally suited for tax planning. Inheritances where the heir receives exclusively predefined inheritances account for 15% of all inheritances. Adding 'standard' inheritances that accrue to one heir only yields that around one quarter of all inheritances are particularly suspect of tax planning. The Panel B of Table 2 reveals a three-way split of tax cases regarding the type of recipient. One third remains in the inner family, another third goes to other relatives, while the last third of bequests is received by non-family members. Bequests differ considerably in value by relationship, the value of gross bequests diminishes for non-family recipients. Gross inheritances greatly exceed gross gifts in value for most groups of recipients. After subtracting exemptions and accounting for prior transfers from the same person, taxable gifts are worth around €300k on average, compared to only €160k for taxable inheritances.

The bottom panel of Table 2 finally shows that gifts and inheritances differ not only

⁸ This implies an annual sum of inheritances and gifts of €62 bn, based on GSOEP survey data. Estimates based on national accounts yield total annual volumes in the range of €200 bn. According to Houben and Maiterth (2013), such macro-based approaches are however less suited for estimating the bequest tax base. On the other hand, survey-based estimates might suffer from under-reporting. There is hence considerable uncertainty regarding the overall volume of annual bequests.

Table 2: Descriptive Statistics

Panel A: Observations by year and type of bequest					
	2007	2008	2009	2010	2011
All observations	214,232	264,332	247,109	202,154	210,899
Inter-vivo gifts	59,830	78,681	71,337	53,058	54,755
Inheritances	154,402	185,651	175,772	149,096	156,144
<i>thereof (shares):</i>					
Inheritances with one heir ^a	23.4%	24.0%	23.7%	25.6%	26.7%
Predefined inheritance only	20.0%	20.1%	13.6%	11.4%	10.9%
Panel B: Value of transfers by family relationship ^b					
Relationship	Observations	Inheritances		Gifts	
		gross bequest ^c	taxable transfer ^d	gross bequest	taxable transfer
		<i>mean value in €</i>			
Spouses	42,631	973,324	415,830	417,007	492,806
Children	276,568	756,858	511,056	477,446	474,730
Grandchildren	32,266	446,393	302,274	274,940	285,999
Parent	25,082	158,665	91,997	38,240	24,813
Other relatives	388,144	99,505	79,739	200,795	87,510
Non-relatives	372,026	93,731	73,575	83,925	91,233
<i>Total</i>	<i>1,138,917</i>	<i>326,299</i>	<i>159,021</i>	<i>316,590</i>	<i>297,504</i>
Panel C: Asset composition					
	Land	Financial Assets	Real Estate	Business	Other
	<i>Means of asset shares^e</i>				
Inheritances	0.7%	68.0%	28.2%	1.8%	1.3%
Gifts	3.1%	12.4%	51.8%	16.0%	16.7%

Source: RDC of the Federal Statistical Office and Statistical Offices of the Länder, Inheritance and Gift Tax Returns, survey years 2007-2011, own calculations.

^a including predefined inheritances as a special case.

^b only bequests with overall positive value (transferred wealth > transferred debts).

^c Gross bequests equal the share of the estate accruing to the recipient, possibly after division among all heirs.

^d Taxable transfer = gross bequest – exemptions + prior transfers within 10 years.

^e Average share of gross bequest

in value, but also in asset type. Inheritances consist, in average, to 68% of financial assets and to 28% of real estate. Gifts, in contrast, consist only to 12% of financial assets. Real Estate accounts, in average, for 52% of a gifts' value.

Table 3: Personal characteristics of donors and recipients

<i>Type of Transfer</i>		<i>Donor</i>		<i>Recipient</i>	
		Men	Women	Men	Women
Inheritance	Shares	0.399	0.601	0.438	0.562
	Mean Age	67.7	71.6	57.0	60.4
Gifts	Shares	0.509	0.491	0.539	0.461
	Mean Age	74.6	82.7	45.3	47.5

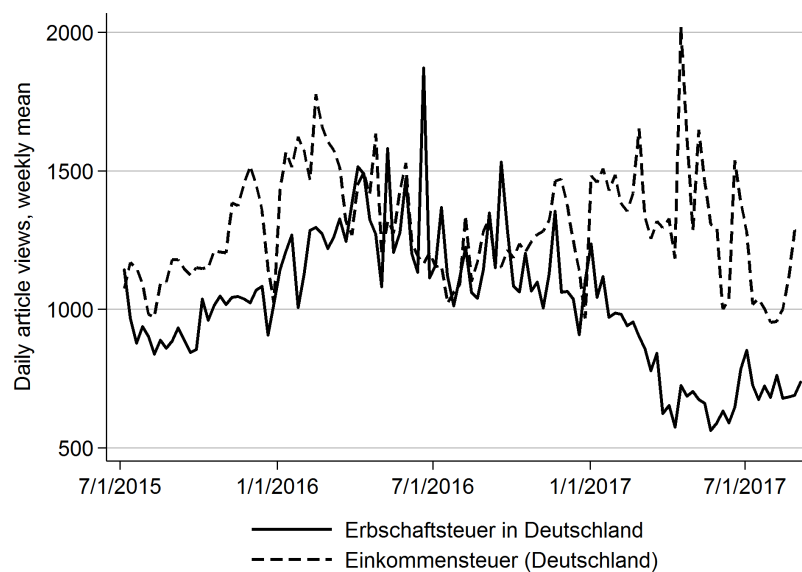
Source: RDC of the Federal Statistical Office and Statistical Offices of the Länder, Inheritance and Gift Tax Returns, survey years 2007-2011, own calculations.

Personal information on taxpayers is limited as usual in administrative data. In the present case, these are restricted to age and sex of both donor and recipient of the bequest (Table 3). Gift recipients are around 12 years younger than heirs. Nonetheless, they are already in their forties on average. As noted by Kaplow (2001), receiving gifts at an earlier stage in life, e. g. while being in education, might be more efficient as this could ease liquidity constraints for the recipients. The majority of inheritances is left by women, which could simply be an artifact of higher female life expectancy.

4 Saliency and Scope for Tax Planning

In order to detect bunching of taxpayers, two prerequisites need to be met. First, taxpayers need to be aware of the incentives provided by the tax tariff. External tax advisors are usually employed when large fortunes are transferred. As consultant fees can be deducted from the tax due, this information is available in the data. Tax consultant payments above the standard deduction are reported for 95% of tax cases. A further point illustrating the saliency of bequest taxes is made in Figure 2. It compares weekly means of daily views on the German Wikipedia for the main articles on bequest and income tax in Germany.⁹ Both articles provide extensive information on the respective issue and exclusively treat the German rules.¹⁰ Article views for the income tax exceed those of the bequest tax, but remain mostly below double the bequest tax views. This is in contrast to the enormous relative importance of the income tax in terms of the number of annual taxpayers.¹¹ Against this backdrop, it seems plausible that taxpayers (or their advisors) are sufficiently aware of the incentives to reduce their bequest tax due.

Figure 2: Daily Wikipedia Article Views



The graph plots daily article views at the German Wikipedia from 06/2015 to 09/2017, comparing the main articles on bequest tax (solid line) and income tax (dashed line) in Germany. Intra-week fluctuations are eliminated by showing weekly mean values. Page view counts are obtained from <https://tools.wmflabs.org/pageviews>.

As a second prerequisite, taxpayers need to be able to manipulate the sum of taxable bequests. In Germany, tax authorities learn about events of death directly from

⁹ See Hoopes et al. (2015) for use of Wikipedia article view counts in the context of tax rule saliency.

¹⁰ This is opposed to corresponding regulations in Switzerland or Austria, for which the German Wikipedia would also be a preferred source of information.

¹¹ There are more than 30 million annual income tax cases (singles or married couples). In contrast, there are only around 200,000 bequest tax cases.

the registry. Moreover, banks, asset managers, insurance companies, notaries etc. are obliged to inform tax authorities about transfers of bank accounts, real estate or businesses. Infact, most inter-vivo gifts are indicated by notaries and hardly by taxpayers (Reis, 2005). If the tax authorities expect assets to be in a tax-relevant range, they request recipients to claim the sum of their assets. The presence of substantial third-party reporting renders full escape of bequest taxes unlikely (Kleven et al., 2011), particularly if transferred assets are based in Germany. There is however a considerable degree of freedom regarding the intensive margin.

Strategies to manipulate the tax base on the intensive margin are quite distinct between inter-vivo gifts and inheritances. Inter-vivo gifts clearly constitute a deliberate choice by the donor. When choosing the amount of the gift, he/she can target the total sum to one of the kink points in order to minimize the tax burden for the recipient. This is conceivable if the donor would have optimally chosen an amount slightly above a kink point (Nordblom and Ohlsson, 2006). Altering the taxable amount by the recipient is also possible, e. g. by misreporting the received sum to the authorities. While this paper cannot disentangle both possible mechanisms, ex-post manipulations however are associated with costs. Some of them, such as underreporting can be clearly classified as illegal evasion. According to common practice however, the likelihood of being audited is very low for bequest tax payers. Only in case of transferred businesses, auditors might verify that prerequisites for favorable tax treatment are met. Re-evaluating real estate in contrast is not illegal, but connected with costs.¹²

For inheritances, the case is somewhat different. If the deceased person did not leave a last will, there is by definition no tax planning on his/her behalf. Even if there is a last will, the testator would need to have a precise estimate of the total sum of assets his offspring will receive. The fact that personal exemptions might differ among recipients complicates tax planning by the testator. A third option is a predefined inheritance, where certain assets or a specific amount of money is dedicated to a specific person. This setting is highly comparable to giving an inter-vivo gift. Tax planning by the donor is hence rather unlikely for most cases of inheritances, but might be rather done by the recipient. A numerical example illustrates this: A bequest b worth €493k to a child of 18 years is, after subtracting the personal allowance of €400k and the additional age-dependent (rounded) allowance of €10k, associated with a taxable amount of €83k. Applying the tax rate of 11% (tax class I), the tax liability is €9,130. Reducing the taxable sum to €75k lowers the average tax rate to 7% and the tax due to €5,250, thus saving €3,880 in bequest taxes. The necessary reduction of €8,000 is small (1.6%) compared to the total bequest b . It is hence sufficient to reduce the tax base by a few thousand Euros

¹² The value of transferred assets is subject to evaluation. Since 2009, most assets are to be valued by their market value. Before, the so-called property value was used for real estates. This concept is primarily used for the assessment of the property tax and is supposed to reflect the market value of 1964. Although the concept of market value is more appropriate in terms of the utility an individual accrues from the additional wealth, it leaves considerable scope for altering the sum of transferred assets.

if b lies in (or slightly above) one of the grey areas in Figure 1.

It is important to note that the present approach measures short-term responses to bequest taxation, occurring around the time of the actual transfer. As discussed above, bunching for gifts presumably reflects tax planning by the donor before the transfer, while for inheritance taxes, tax planning is conceivable by both.¹³ Concerning longer-term strategies, wealthy persons can exploit the higher personal exemptions for own children by adoption. Personal exemptions can further be used several times by giving away the wealth piece-wise every 10 years.¹⁴ When transferring property, the donor can reduce the tax liability by claiming the further right to occupy the premises for himself. In this case, the future value of this usage is subtracted from the taxed transfer. While these channels are potentially of high relevance, the time coverage of the data used in this paper is too short to fully capture these kinds of responses. Nonetheless, the observed giving behavior might be partly motivated by exploiting the 10-year threshold.

5 Quantifying the amount of tax planning

5.1 Empirical Approach

In order to gauge the extent of tax planning, I quantify the amount of excess bunching of taxpayers. I apply the widely-used methodology of Chetty et al. (2011) who analyze bunching at kink points in the Danish income tax schedule. They assume a consumption-leisure trade-off, where only a share of households adjust their labor supply to the tax schedule. This could be due to heterogeneity in consumption-leisure preferences. Alternatively, it might be too costly to relocate on the tax schedule due to frictions, such as hours constraints or search costs. Carrying this idea to bequest taxation requires a different framework when thinking about expected behavioral responses. An inter-generational setting that features the decision between gifts and inheritances is provided by Nordblom and Ohlsson (2006). The introduction of a bequest tax induces distortions between both types of transfers and might lead to bunching at the kink point in order to minimize tax payments. Real responses to bequest taxation, e. g. on labor supply or saving behavior, are well conceivable, but these would not show up in the tax records. Shifting responses of the bequest tax base are hence the only channels that can be directly observed. This setting is comparable to the bunching evidence for house transaction taxes by Best and Kleven (2016). They find strong evidence for bunching of house prices at notches in the tax schedule. The authors explain this response with a low degree of frictions in the market due to the high number of professional real estate agents. As a result, carrying the Chetty et al. (2011) framework to

¹³ The sum of taxable gifts could also be agreed between donor and recipient, but this would also prior to the transfer.

¹⁴ This behavior has been documented by McGarry (2001) for the US.

bequest taxation, one has to think of wealth-owners who trade off own and offspring's consumption (Blumkin and Sadka, 2004).

Kink points introduce a jump in the marginal tax rate from τ_1 to τ_2 at some tax base value K . As shown by Saez (2010), the local elasticity of taxable bequests e_B at this kink point can be approximated by

$$e_B \simeq \frac{\hat{b}}{K \ln \left(\frac{1-\tau_1}{1-\tau_2} \right)}, \quad (1)$$

where b denotes the *excess mass*, i. e. the extent to which tax payers cluster at the kink point relative to a hypothetical situation in absence of the kink. Intuitively, Equation 1 relates the amount of bunching (i.e. the number of taxpayers located in proximity to the kink point) to the size of the kink. In order to estimate \hat{b} , taxable bequests are first grouped into equally sized bins, indicated by j . Then, a flexible polynomial function of the 7th degree is fitted on the density of tax cases excluding R bins to the left and to the right of the kink point.¹⁵

$$C_j = \sum_{i=0}^7 \beta_i (Z_j)^i + \sum_{i=-R}^R \gamma_i \cdot \mathbf{1}[j = i] + \varepsilon_j \quad (2)$$

As bunching is found to be very sharp under the kink point (Figure 3), R is set to 2, except for the first kink point ($R = 4$). Z_j denotes the number of tax cases with taxable assets falling in bin j relative to the kink point of interest. In order to provide estimates with the highest precision, small bin widths are desirable. The baseline results hence rely on a bin width of €100. This delivers the highest precision possible, as taxable amounts are in practice rounded down to the next multiplier of 100. For the more detailed analyses that build on smaller samples, the bin width is increased to €500 to secure a continuous density. The counterfactual density values \hat{C}_j are obtained from linear prediction of the coefficients. Finally, \hat{b} is calculated from the cumulated difference between both densities in the area of interest, normalized by the mean of the counterfactual values in that range.

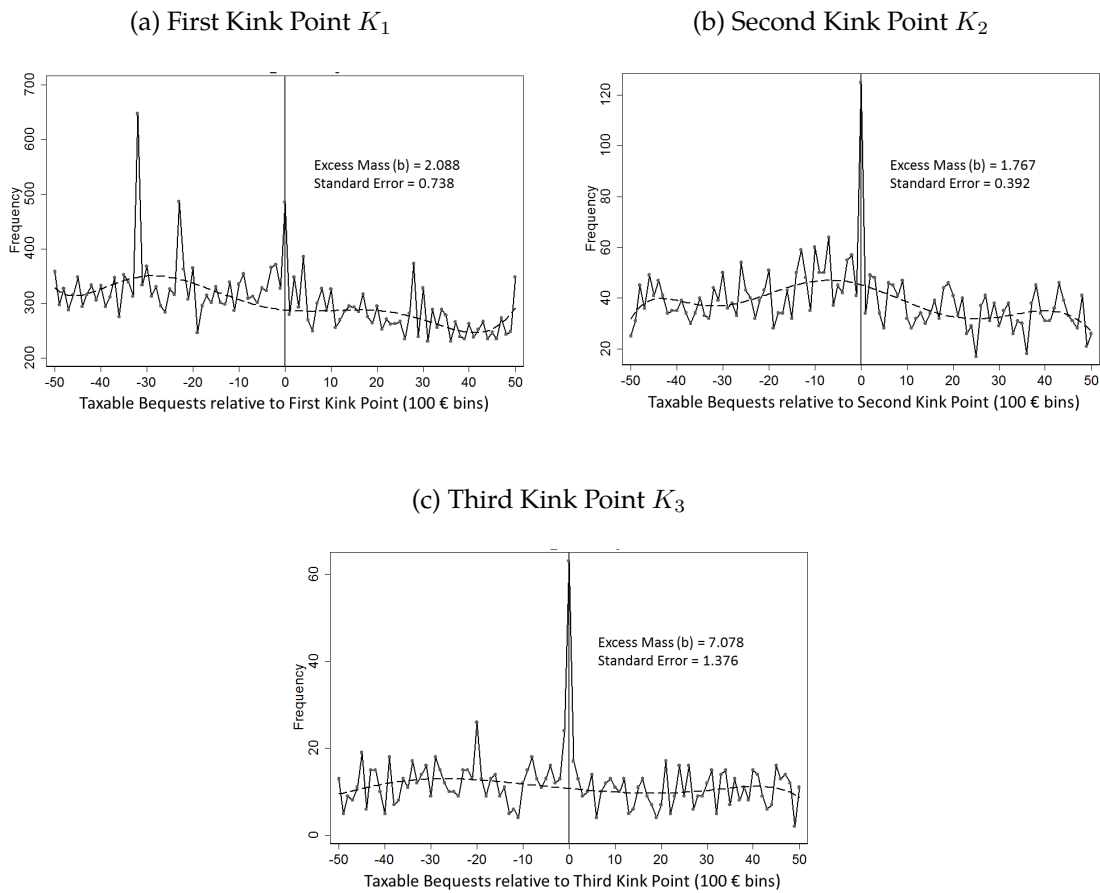
$$\hat{b} = \frac{\sum_{j=-R}^R C_j - \hat{C}_j}{\overline{\hat{C}_j}} \quad (3)$$

Plugging \hat{b} into Eq. 1 delivers the estimate for the local elasticity. A bootstrap procedure yields standard errors for \hat{b} .

¹⁵ As in Best and Kleven (2016) and Chetty et al. (2011), varying the polynomial degree has a negligible effect on the estimates.

5.2 Bunching Estimates

Figure 3: Bunching Graphs — Full Sample



Note: Each dot represents the number of tax cases in a given €100 bin. The dashed line represents the counterfactual distribution of tax cases, based on a polynomial fit of the 7th degree. b is estimated according to Eq. 3. Graphs are created with the Stata program `bunch_count`, as used in Chetty et al. (2011). K_1 amounts to €52k before 2009 and €72k afterwards. K_2 equals €256k before 2009 and €300k afterwards. K_3 equals €512k before 2009 and €600k afterwards.

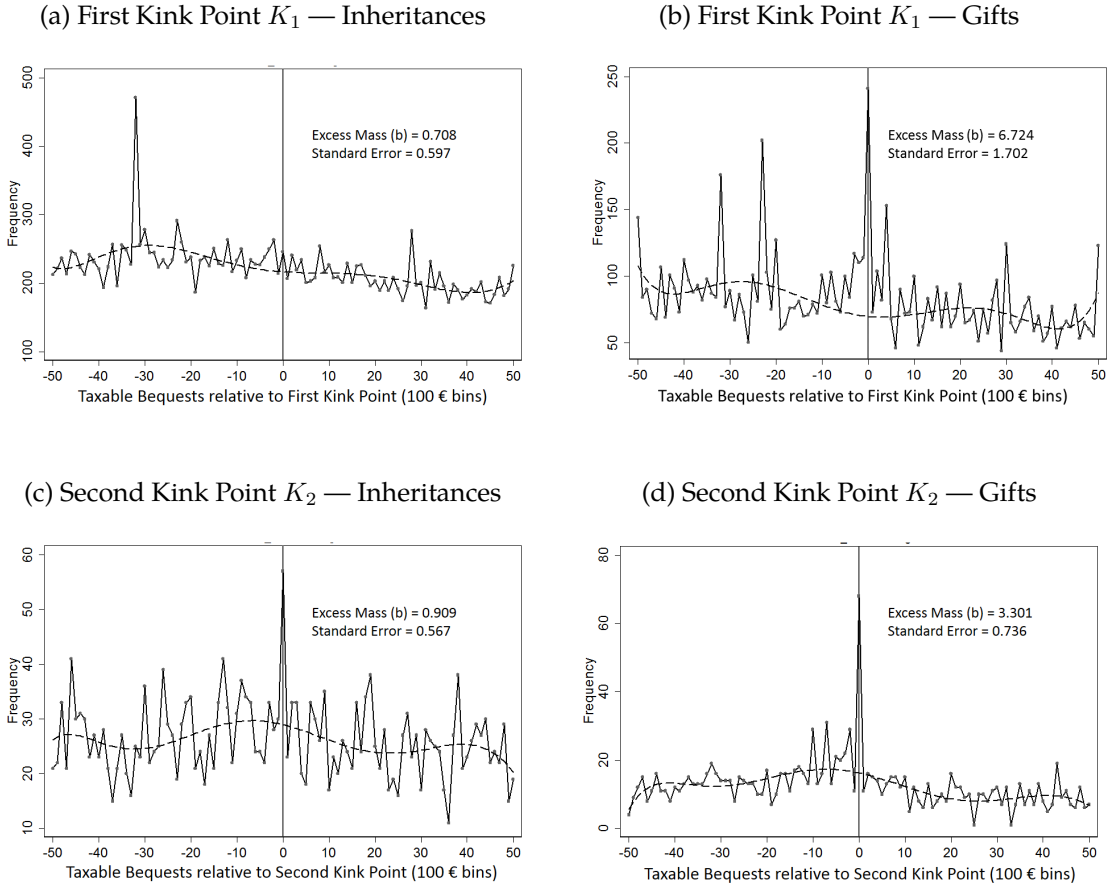
The empirical investigation focuses on the first three kink points in the tax schedule. As the tax return data also include non-taxed cases, one could also investigate bunching at the exemption level for gross bequests (the '0th kink'). The data might not be fully representative for values below the exemption, but preliminary evidence reveals bunching at the exemption in magnitude similar to what will be shown for the first three kinks.

Beyond the third kink, i. e., for taxable amounts of €6m and higher, the number of observations becomes too small. Figure 3 shows density plots for these kink points, underlying a pooled sample from all five years, restricted to the taxpayers who can potentially bunch. This encompasses all wealth transfers with a tax schedule featuring kinks, i. e. all transfers from tax class I, tax class II (not in 2009), and tax class III before 2009 (see Table 1). The horizontal axes show the difference to the respective kink point.

The tax schedule, and thereby the kink points, was shifted to the right in 2009. There is visual evidence for bunching at the kink in all graphs. Each of the excess masses is estimated to be significantly different from zero. It is highest for K_3 , located at €512k or €600k. This is particularly remarkable in light of less than 20 observations in each bin which is far below what related studies rely on.

The two spikes left to the kink point in Figure 3a stem from transfers amounting to round figures. The first spike represents transfers of exactly €100,000 to children. Subtracting the pre-2009 exemption of €51,200 results in taxable gifts of €48,800, representing the 32nd bin below K_1 .¹⁶ The second spike at the 23rd bin left to the kink represents transfers to grandchildren worth exactly €60,000. The tendency to transfer round-number amounts suggests the existence of reference points, induced by non-financial incentives (Kleven, 2016).

Figure 4: Bunching Graphs — Inheritances versus Gifts

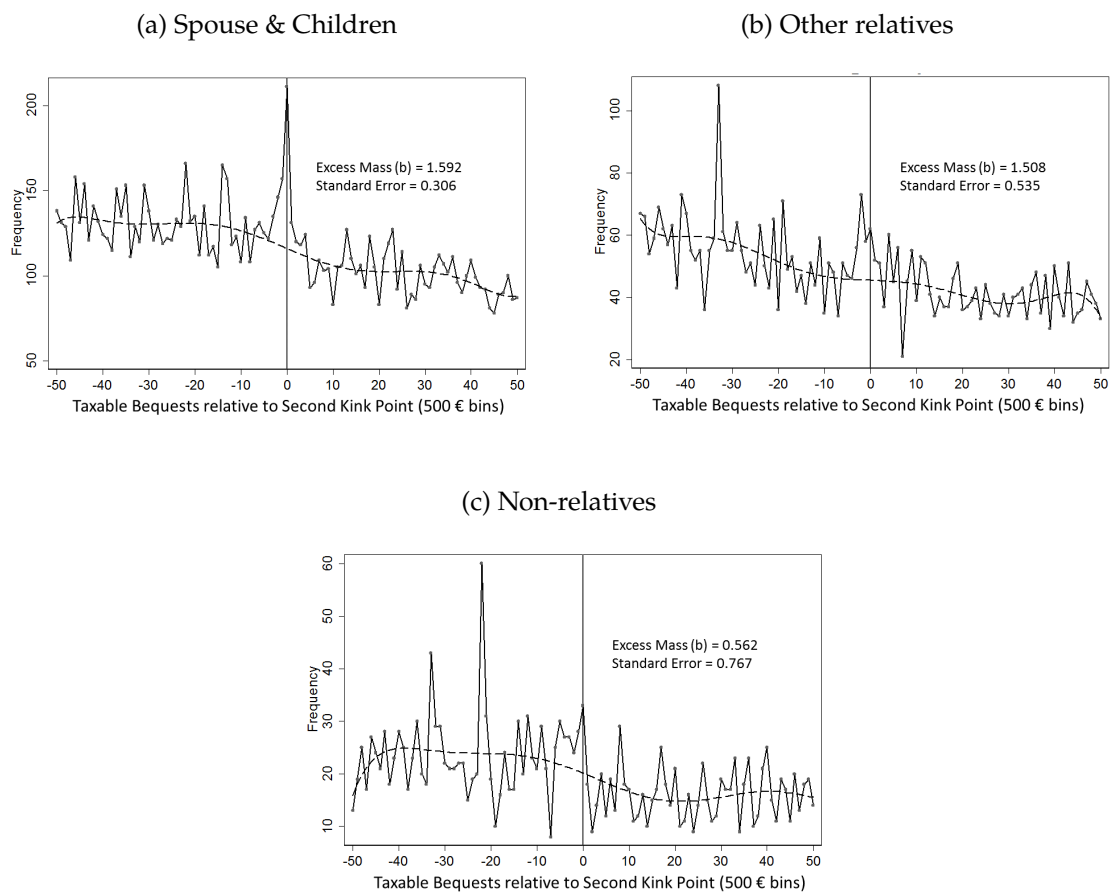


Note: Each dot represents the number of tax cases in a given €100 bin. The dashed line represents the counterfactual distribution of tax cases, based on a polynomial fit of the 7th degree. b is estimated according to Eq. 3. Graphs are created with the Stata program `bunch_count`, as used in Chetty et al. (2011). K_1 amounts to €52k before 2009 and €72k afterwards. K_2 equals €256k before 2009 and €300k afterwards. Bunching graphs for K_3 could not be produced due to an insufficient number of observations.

¹⁶ After 2009, the exemption amounts to €400,000, rendering such transfers to children tax-free.

In a next step, the sample is split by considering inheritances and gifts separately. While both types of transfers are treated equally by the tax schedule, tax planning behavior can be expected to take different forms for both types of transfers. Figure 4 shows bunching estimates by type of transfer for the first two kink points.¹⁷ For inheritances, no bunching can be observed at the first kink, while there is some visual, albeit not statistically significant, evidence for bunching at the second kink point. This holds even when restricting the sample to single heirs only (Figure 8 in the Appendix). In contrast, gifts display sharp and significant bunching at the first two kink points. This is supportive of the notion that tax planning for gifts is in principle easier.

Figure 5: Bunching Graphs — by family relationship (2nd kink)



Notes: The graph shows bunching estimates by tax class for the second kink point K_2 . Each dot represents the number of tax cases in a given €500 bin. The dashed line represents the counterfactual distribution of tax cases, based on a polynomial fit of the 7th degree. b is estimated according to Eq. 3. Graphs are created with the Stata program `bunch_count`, as used in Chetty et al. (2011). The second kink point K_2 equals €256k before 2009 and €300k afterwards. The density spike left to the kink in Figures 5b and 5c represents transfers worth exactly €250k.

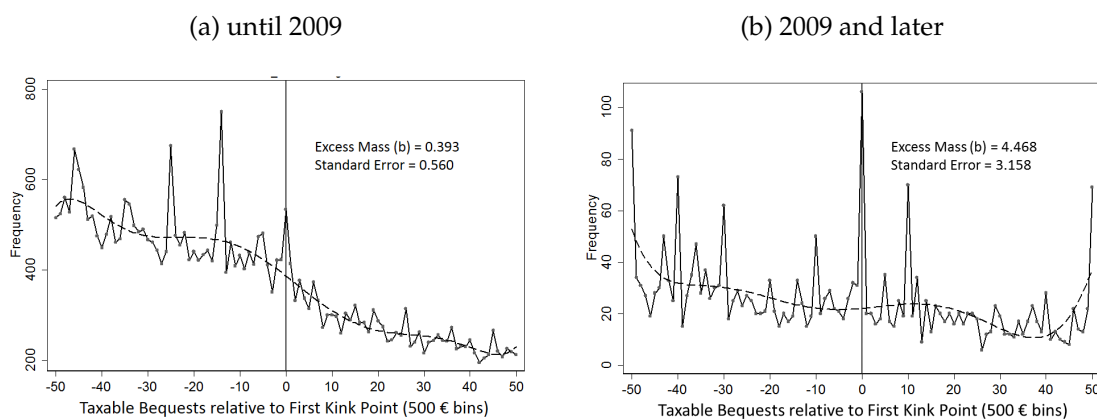
As a further decomposition, I consider differential responses by tax class, reflecting different relationships between donor and recipient (Figure 5).¹⁸ For transfers to

¹⁷ Around the third kink point, the number of tax cases is not sufficient to form a smooth distribution.

¹⁸ Figure 5 shows results for the second kink. Results for the first kink are shown in Figure 9.

spouses, children and grandchildren, bunching is estimated to be higher than for more distant relatives. No bunching is detected for non-relatives. There are two possible explanations for this finding. On the one hand, stronger family ties could facilitate collusion between donor and recipient in order to target the transferred sum. Similarly, donors might care more about the tax due of close family members which increases the motivation to engage in tax planning. On the other hand, tax exemptions are substantially higher for family members, implying that the gross bequests to family members are higher for comparable values of taxable bequests. The higher amount of transferred wealth then might raise the probability of tax planning.

Figure 6: Bunching Graphs — gifts only, before and after 2009 reform (1st kink)



Notes: Each dot represents the number of tax cases in a given €500 bin. The dashed line represents the counterfactual distribution of tax cases, based on a polynomial fit of the 7th degree. b is estimated according to Eq. 3. Graphs are created with the Stata program `bunch_count`, as used in Chetty et al. (2011). The 2009 reform implied higher tax rates for tax class II, affecting relatives other than spouses or children. Beyond, personal exemptions were raised substantially. For spouses, the personal exemption changed from €307k to €500k. For children, it increased from €51.2k to €400k. See Table 5 for details.

To illuminate this channel further, Figure 6 contrasts densities at the first kink for inter-vivo gifts before and after the 2009 reform. The reform increased tax rates for tax class II, while maintaining the tax rate difference of 5 percentage points. At the same time, personal exemptions were raised by €193k for spouses and by around €350k for children. This substantially raises the gross value of taxed transfers for the years 2009 and later. Bunching is found to be substantially higher after the reform, which is in line with a higher awareness of post-reform taxed transfers.

So far, the presentation was confined to visual bunching evidence. In order to gauge welfare costs associated with these estimates, Table 4 shows the respective elasticities. They are based on Eq. 1, assuming that taxpayers perceive a kink. As discussed above, the tax schedule however features notches at first sight. The additional rule of capping marginal tax rates receives little attention on lawyers' websites that provide advice on bequest tax avoidance. Beyond, the precise extent of the areas with high marginal tax rates is not explicitly stated in the tax code. The bunching I observe could therefore be

partially a response to a perceived notch. This would imply far higher tax base elasticities, as the respective change in tax rates is lower and hence imply distinct quantitative welfare implications.

Even the sharp significant bunching estimates for inter-vivo gifts turn out to translate into rather low elasticities. The highest estimate (within the sample containing all years) is obtained at the first kink point for gifts, with a precisely estimated elasticity of 0.021. This means that the amount of bunching is small relative to the monetary gain. One could question the *economic* significance of an elasticity of 0.02 maximum. Such small effects might however become relevant for the recipient if one takes long-term wealth accumulation into account. A standard explanation for the (partial) absence of behavioral reactions is the presence of substantial optimization frictions (Chetty et al., 2011). These can take various forms. An obvious one are legal hurdles. While tax avoidance by targeting the sum of taxable bequests *ex ante* is obviously legal, *ex post* adjustments might be considered illegal. It might also point to higher (pecuniary and non-pecuniary) costs of tax planning *ex post* versus *ex ante*. In light of the heavy involvement of professional tax advisors, informational frictions seem to play less of a role in the present context. The visual evidence in Figures 3 to 6 reveals the presence of bunching not only at kink points, but also at certain round numbers. The amount of bunching is in magnitude comparable to the bunching at kink points. This implies the presence of reference points other than those implied by the tax code which are of similar significance to people. The fact that a sizable number of wealth transfers amounts to round numbers suggests psychological focal points. Targeting these focal points by the tax code could be addressed by future reforms (Kleven, 2016).

The fact that gifts are more responsive than inheritances is in line with the intentional character of gifts. From a welfare perspective, a higher elasticity of gifts would suggest a preferential tax treatment of inter-vivo gifts (Piketty and Saez, 2013). Increasing the personal allowance for inter-vivo gifts relative to inheritances might hence induce wealth-owners to make gifts earlier. Recipients, in turn, might then receive gifts at a life stage with liquidity constraints (Cremer and Pestieau, 2006; Kaplow, 2001). An equivalent effect can be expected from reducing the exclusion threshold of currently 10 years in which transfers are considered for taxation.

A final check quantifies bunching of *total* bequests at the personal exemption. As wealth transfers below the personal exemption are tax-free, the tax return data become less representative for bequests far below the exemption. For values just below the threshold however, there should not be a selection issue harming the identification of the elasticity. The associated graphs, differentiated by family relationship, are shown in Figure 7. There is bunching for all three relationships, strongest for grandchildren. For children and grandchildren, a substantial share of transfers seem to be targeted at €1000 (2 bins) below the exemption. The associated elasticities amount to 0.06 (spouses), 0.08

	All Years pooled			before 2009			after 2009	
	All	Close relatives	Further relatives	All	Close relatives	Further relatives	All	Close relatives
<i>Full Sample</i>								
K_1	0.007***	0.002	0.011	0.001	-0.002	0.013	0.009	0.048*
K_2	0.001***	0.005***	0.005*	0.003***	0.003***	0.004	0.012***	0.026***
K_3	0.003***	0.003***	0.004**					
<i>Gifts</i>								
K_1	0.021***	-0.006	0.039	0.006	-0.006	0.040	0.048	
K_2	0.002***			0.007***				
K_3	0.004***							
<i>Inheritances</i>								
K_1	0.002	0.005	0.005	-0.001	0.001	0.007	0.005	
K_2	0.001**	0.003**	0.001**	0.001	0.001	0.003	0.006***	
K_3	0.002**	0.003**	0.003					
<i>Inheritances, Single Heirs</i>								
K_1	0.001	-0.003	0.001	0.001	-0.009	0.002	0.004	
K_2	0.000	0.002	0.001	-0.001	0.000	0.000	0.005**	

Notes: The table shows elasticity estimates according to Eq. 1, based on the estimated excess mass \hat{b} , the tax rates at the kink point (τ_1, τ_2) and the amount of taxable bequests at the kink K . The pooled estimations may correspond to different levels of tax rates and kinks due to the 2009 reform and to different tax classes. When pooling several tax classes, the lowest tax rates (for tax class I) are applied. When pooling several years, the tax rates and kinks for the pre-2009 schedule are applied. Empty cells denote cases where the taxpayer density was not sufficient to measure bunching with a bin width of €500. Significance levels correspond to those from the bootstrapped standard errors of \hat{b} in the excess mass estimation: (***) = 0.01, (**) = 0.05, (*) = 0.1.

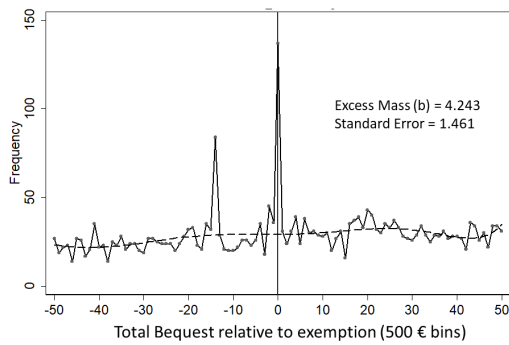
Table 4: Local elasticities of taxable bequests

(children) and 0.32 (grandchildren).¹⁹ These magnitudes suggest that bequests are targeted not only to kinks in the tax schedule, but also to the personal exemption. Broadening the tax base by lowering the personal exemption threshold can thus be expected to significantly affect timing and/or amounts of intergenerational wealth transfers.

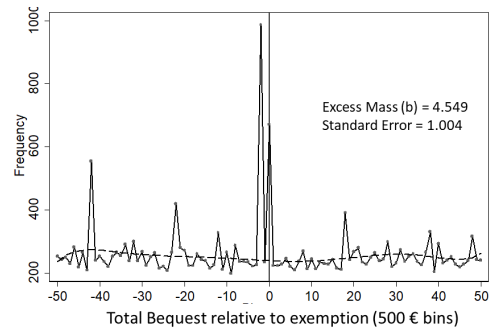
¹⁹ For these calculations, the higher legal thresholds after 2009 (see Table 5) are assumed. The elasticities therefore are to be interpreted as a lower bound.

Figure 7: Bunching at the Personal Exemption

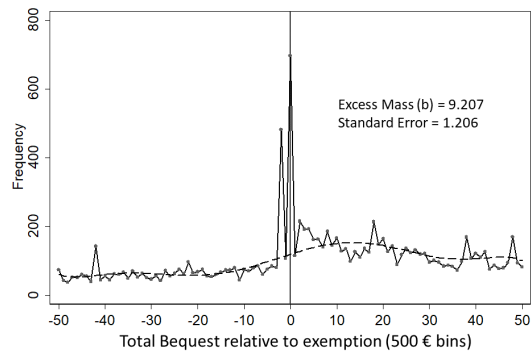
(a) Spouse



(b) Child



(c) Grandchild



Notes: Each dot represents the number of assessed tax cases in a given €500 bin of total bequests, i. e. gross bequests net of liabilities, relative to the personal exemption. The dashed line represents the counterfactual distribution of tax cases, based on a polynomial fit of the 7th degree. b is estimated according to Eq. 3. Graphs are created with the Stata program `bunch_count`, as used in Chetty et al. (2011).

6 Conclusion

Parallel to the rise of bequests as a source of income, interest in taxation of wealth transfers is likely to thrive in the future. A heavier taxation of bequests potentially cushions rising wealth inequality, but little is known about distortionary effects on the decision on whether and how much to leave. This paper estimates shifting responses of taxable bequests in Germany. Relying on administrative data, I make use of the tax schedule featuring discrete jumps in marginal tax rates. Building on the empirical literature on bunching at kink points, I find sharp and significant bunching for taxable bequests above the basic allowance. These are confined to the subsample of inter-vivo gifts, while the distribution of inheritances is rather smooth around kink points. Gift bunching is sharp and significant even for high amounts, where the number of observations become small. These findings are in line with previous cross-sectional evidence on the responsiveness of gift behavior to taxation (Bernheim et al., 2004; Joulfaian, 2004, 2005; Page, 2003), albeit with rather low elasticities.

My findings shed light on tax planning in the context of wealth transfers. Tax planning for gifts presumably takes place on behalf of the donor. The fact that gift amounts are affected by tax incentives is in line with the intentional character of inter-vivo gifts. Inheritances, on the other hand, are rather of an accidental nature, which usually prevents tax planning on behalf of the donor. I hence do not find evidence for deathbed planning as in Kopczuk (2007). Beyond, there is hardly evidence for tax planning by the recipient. In light of high salience of bequest tax rules, this suggests the presence of optimization frictions, presumably in the form of legal hurdles and adjustments costs. The overall low level of responsiveness is surprising given that professionals are involved in most transactions. A side result is the presence of focal points not induced by the tax code. Beyond, I find evidence for the presence of focal points for gifts and predefined inheritances. Their importance is comparable to the bunching at kink points in the tax schedule.

The main message of the paper is that overall efficiency costs of bequest taxation are rather low. Regarding the on-going discussion on raising bequest taxes, this finding provides no reason to abstain from higher taxes for concerns of generating additional revenue. From the higher responsiveness of inter-vivo gifts, one could make the case for a preferential tax treatment of gifts. As bequests are targeted in particular at the personal threshold, this could be achieved by raising tax exemptions. Lower taxation of gifts relative to inheritances could raise the volume of deliberate giving or even advance them to an earlier point in time. Whether this is desirable from a societies' perspective however depends on the welfare weights attributed to younger and older wealth owners.

In order to investigate the issue in more detail, data covering a longer time span would be required. In particular, future research could tackle the extent to which the ten-year exclusion threshold is exploited.

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Appendix

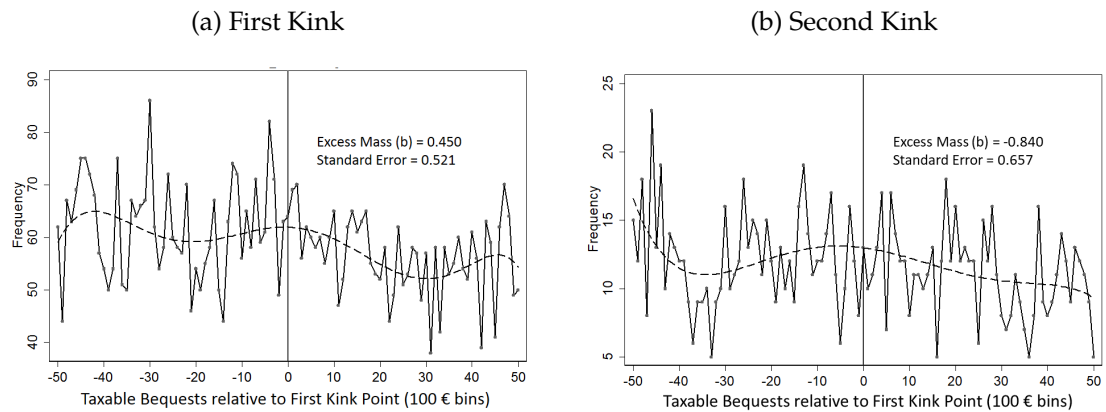
Table 5: Personal Exemptions by relationship between donor and recipient

	before 2009	since 2009
	<i>in €</i>	
Spouses ^a	307,000	500,000
Children, Stepchildren, Children of deceased (step-)children ^b	51,200	400,000
Children of living (step-)children	51,200	200,000
Parents (inheritances only)	51,200	100,000
Parents (gifts only), Siblings, Nieces, Nephews, Step-parents, divorced spouses, children and parents-in-law	10,300	20,000
Other (Non-relative, firm, trust)	5,200	20,000

^a For inheritances, spouses are granted an additional exemption of €256,000.

^b For inheritances, children are granted an additional age-dependent exemption. It amounts to €52,000 for children below 5 years, €41,000 for children between 5 and 10 years, €30,700 for children between 11 and 15 years, €20,500 for children between 16 and 20 years, and €10,300 for children between 21 and 27 years.

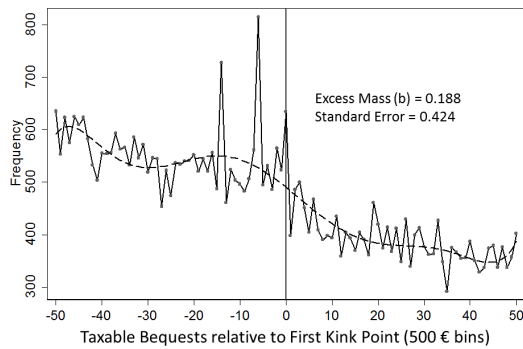
Figure 8: Bunching Graphs — Inheritances, single heirs only



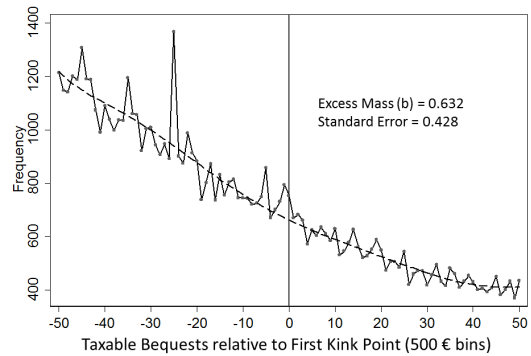
Notes: Each dot represents the number of tax cases in a given €100 bin. The dashed line represents the counterfactual distribution of tax cases, based on a polynomial fit of the 7th degree. b is estimated according to Eq. 3. Graphs are created with the Stata program `bunch_count`, as used in Chetty et al. (2011).

Figure 9: Bunching Graphs — by family relationship (1st kink)

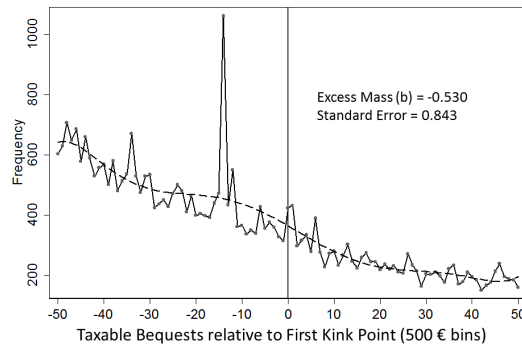
(a) Spouse & Children



(b) Other relatives



(c) Non-relatives



Notes: The Graph shows bunching estimates by tax class around the first kink point K_1 , equalling €52k before 2009 and €72k afterwards. Each dot represents the number of tax cases in a given €500 bin. The dashed line represents the counterfactual distribution of tax cases, based on a polynomial fit of the 7th degree. b is estimated according to Eq. 3. Graphs are created with the Stata program `bunch_count`, as used in Chetty et al. (2011).