The German Land Transfer Tax: Evidence for Single- Family Home Transactions

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Outline

Introduction

- The aim of the paper is to separate the effects of land transfer tax on real estate transactions in Germany
    - short-term anticipatory effect and
    - long-term permanent effect
- Single-family home transactions are used for the study. Data for German states for the period 2005-2015

Related Literature

- US Based Studies
  - Benjamin et al (1993) for Philadelphia,
  - Dachis et al (2012) for Toronto,
  - Kopczuk and Munroe (2013) for New York and New Jersey,
  - Slemrod et al (2016) for Washington DC
- European Based Studies
  - Best and Kleven (2013) and
 - Besley et al (2014) for the UK

Motivation

FIGURE 1. AVERAGE SHARE OF LAND TRANSFER TAXES ON TRANSACTIONS COSTS OF PROPERTY TRANSACTIONS IN OECD COUNTRIES, 2011
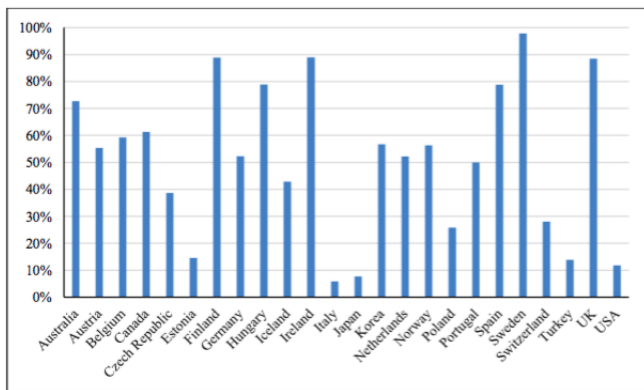
Notes: The figure shows the average share of land transfer taxes on total transaction costs of property transactions in OECD countries in 2011 where data has been available. Transaction costs include notary and legal fees, real estate agent fees and land transfer taxes. *Data*: Andrews et al. (2011).

Motivation (cont.)

FIGURE 2. TAX RATE OF THE LAND TRANSFER TAX IN GERMAN STATES AS OF JANUARY 2016
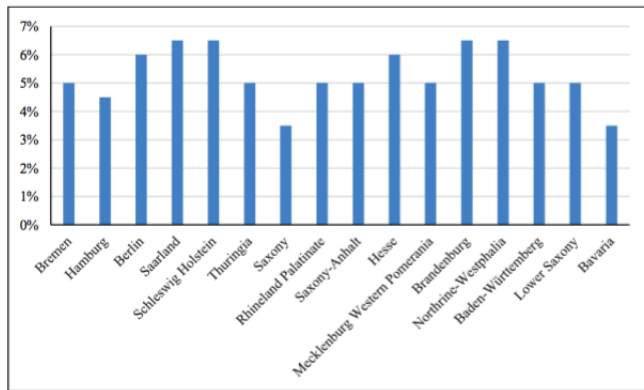
Notes: The figure shows the tax rate of the land transfer tax for all German States as of January 2016. Apart from Bavaria and Saxony, all German states increased the land transfer tax since 2007.

Tax Increases - News

FIGURE 3. MEDIA CITATIONS OF LAND TRANSFER TAX INCREASES IN DIFFERENT GERMAN STATES
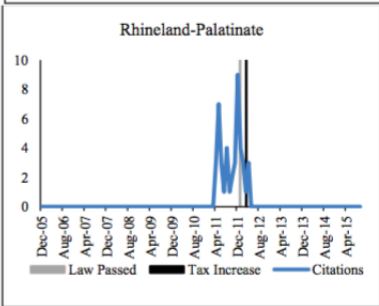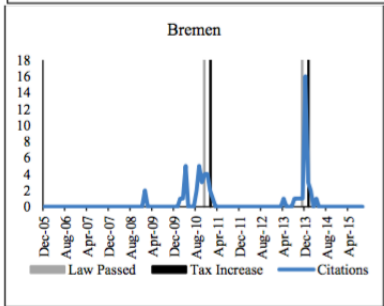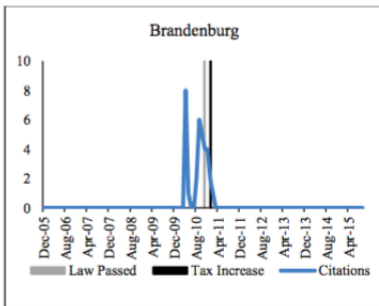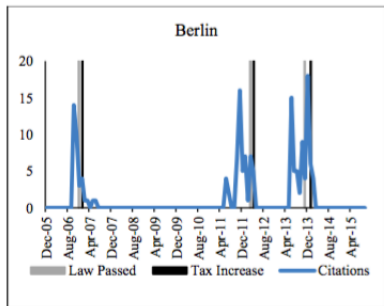
Outline

Bargaining

FIGURE 4: BARGAINING SOLUTION IN A SCENARIO WITHOUT TAXES
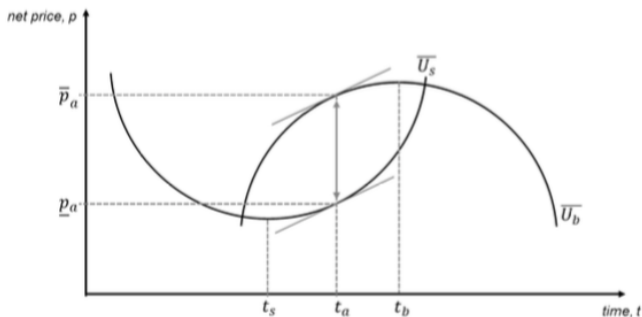
Notes: The figure depicts the bargaining solution of a matched pair of buyer and seller. t_s (t_b) is the seller's (buyer's) preferred transaction date. The indifference curves, $\overline{U}_s$ and $\overline{U}_b$, show the seller's reservation price and the buyer's willingness to pay as functions of the transaction date. The arrow marks the highest possible bargaining surplus and thus the actual transaction date. $\underline{p}_a$ and $\overline{p}_a$ represent the lower and upper boundaries for the transaction price.

Bargaining

FIGURE 5: TRANSACTION WITH TAXES
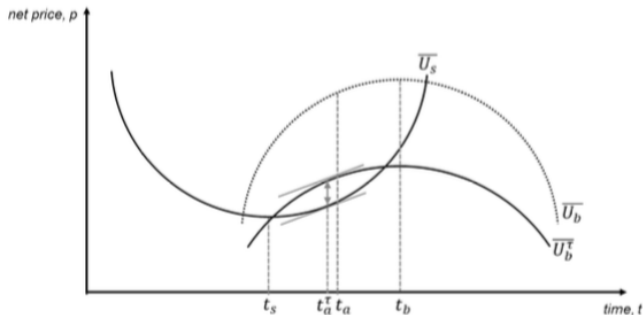
Notes: The figure shows the bargaining solution in a scenario with land transfer taxes. With the same gross willingness to pay, the buyer's net willingness to pay drops from $\overline{U}_b$ (dotted line) to $\overline{U}_b^\tau$ (solid line), since the buyer has to pay the tax. The new indifference curve is also flatter because the tax amount depends on the assessment basis. The actual transaction date is slightly shifted towards the seller's preference.

Bargaining

FIGURE 6: TRANSACTION WITH TAX INTRODUCTION – ANTICIPATION EFFECT
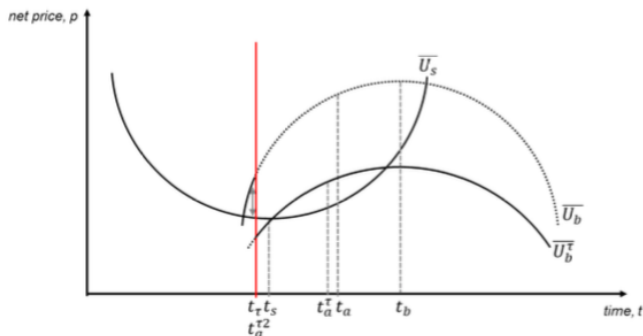
Notes: The land transfer tax is increased in t_τ. Here, the buyer's indifference curve shows a discontinuity. Since he has to pay a higher price after the tax introduction, his net willingness to pay drops at that date. $t_a^{\tau 2}$ marks the last possible date to transact without transfer taxes. In the depicted scenario, the time period between $t_a^{\tau 2}$ and t_a^τ is sufficiently short so that the bargaining surplus is maximized in $t_a^{\tau 2}$ and the transaction takes place here.

Bargaining

FIGURE 7: TRANSACTION WITH TAXES – LONG-TERM EFFECT
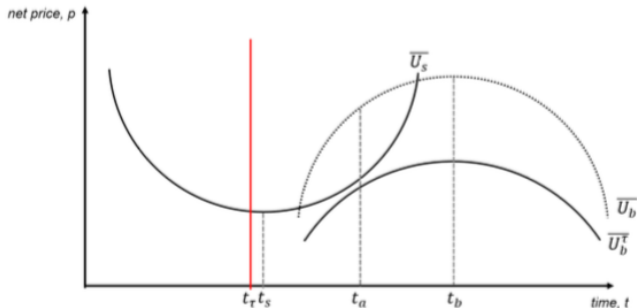
Notes: The figure depicts a scenario where no transaction takes place due to the land transfer tax. The buyer's willingness to pay does not exceed the seller's reservation price at any given time. Thus, no surplus can be generated by transacting.

Hypotheses

- **Hypothesis 1**: More transactions take place just before the tax increase (Bunching). On the other hand, those transactions which are brought forward do no not take place after the implementation of the higher land transfer tax.

- **Hypothesis 2**: Less transactions take place right after the tax increase (Lag). With land transfer taxes in place, the sale of a property yields less utility as lower prices can be obtained. At the same time, buying a property also yields less utility as higher prices need to be paid. Therefore, the number of transactions might drop after the tax increase.

- **Hypothesis 3**: The higher the land transfer tax, the less transactions take place (Liquidity).

Data

- Property Valuation Committees of Berlin, Brandenburg, Bremen, Rhineland-Palatinate, Saarland and Saxony-Anhalt.
  - Only contains transactions of single-family homes.
  - These dwellings have a high rate of owner-occupation and are used for private housing; therefore mainly private transactions are included in the sample
- The data covers the number of single-family home transactions since the year 2005 on a monthly basis for each German state respectively.
- Sample spans the period from January 2005 to December 2014 for almost all states which allows inclusion of all tax increases during that time frame.
  - Included two years prior to the actual possibility to change the tax rate. By looking at transactions where no tax increases took place we are able to control for seasonal and common factors that are likely to affect transactions on a range of relatively similar property.

Data

FIGURE 8: LEVEL OF THE LAND TRANSFER TAX IN DIFFERENT GERMAN STATES FROM 2006 TO 2014
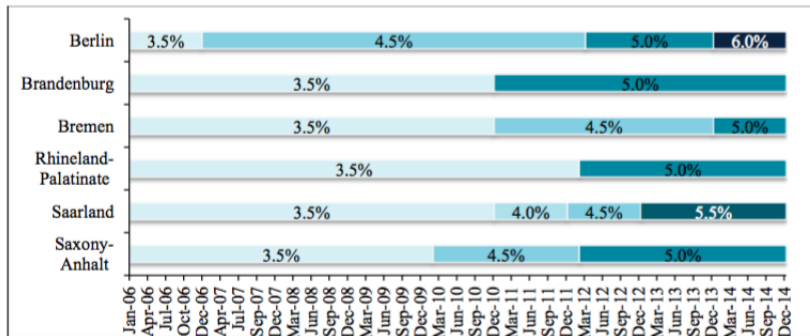
Notes: The figure gives the levels of the land transfer tax in different Germany states from January 2006 to December 2014. Changes in the tax usually took place at the beginning of a month; only the first increas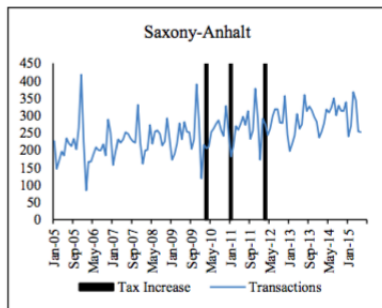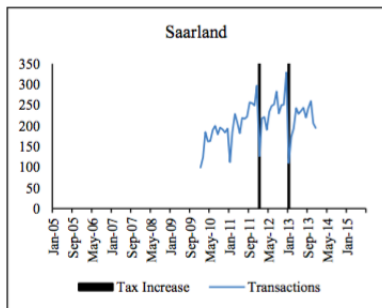e in Saxony-Anhalt took place at the 2nd of March in 2010. Data: Property Valuation Committee of Berlin, Brandenburg, Bremen, Rhineland-Palatinate, Saarland and Saxony-Anhalt (2015).

Counts of Transactions per State

Notes: The figure gives the number of transactions for each German state included in the sample over time. *Data*: Property Valuation Committees in Berlin, Brandenburg, Bremen, Rhineland-Palatinate, Saarland and Saxony An-halt.

Outline

Model

$$
\begin{aligned}
T_{i,t} &= \alpha_i + \beta R_{i,t} + \sum_{h=1}^{M} y_h \, before_{h,i,t} + \sum_{j=1}^{M} \delta_j \, after_{j,i,t} \\
&+ \sum_{k=1}^{M} \eta_k (before_{k,i,t} \times raiselevel_{k,i,t}) \\
&+ \sum_{l=1}^{M} \theta_l (after_{l,i,t} \times raiselevel_{l,i,t}) + \sum_{m=1}^{128} \lambda_m date_{m,t} + controls_{i,t} + \epsilon_{i,t}
\end{aligned}
$$

$T_{i,t}$ log number of transactions in state i at time t
$R_{i,t}$ land transfer tax rate
$before_{h,i,t}$ dummy variable for h months before the tax change
$after_{j,i,t}$ dummy variable for j months after the tax change
$raiselevel_{k|l,i,t}$ percent points tax change
$date_{m,t}$ monthly dummies

Estimation by least squares with robust standard errors

	Dependent Variable: Log Number of Single-Family Home Transactions						LONG TERM EFFECT		
	(1)			(2)			(3)		
#month dummies	1	2	3	1	2	3	1	2	3
Land Transfer Tax	-0.0606**	-0.0552*	-0.0521*	-0.0663**	-0.0647*	-0.0654*	-0.0711**	-0.0637**	-0.0618**
	(0.0229)	(0.0228)	(0.0252)	(0.0253)	(0.0258)	(0.0279)	(0.0216)	(0.0193)	(0.0205)
Months Before the Tax Change									
3			-0.1811			0.0007			-0.1174
			(0.1106)			(0.0731)			(0.0732)
2		-0.0391	-0.0418		-0.0161	-0.0163		-0.0089	-0.0092
		(0.2111)	(0.2197)		(0.0712)	(0.0717)		(0.1480)	(0.1493)
1	0.1014	0.1020	0.1015	0.4134***	0.4115***	0.4115***	0.1135	0.1164	0.1184
	(0.1548)	(0.1696)	(0.1740)	(0.0788)	(0.0830)	(0.0808)	(0.1169)	(0.1239)	(0.1238)
Months After the Tax Change									
1	-0.1634	-0.1855	-0.1877	-0.4567***	-0.4597***	-0.4589***	-0.1500	-0.1444	-0.1452
	(0.1155)	(0.1163)	(0.1184)	(0.0715)	(0.0740)	(0.0742)	(0.1894)	(0.1934)	(0.1957)
2		0.2054	0.2056		-0.0420	-0.0411		0.2383	0.2397
		(0.2619)	(0.2723)		(0.0547)	(0.0550)		(0.2436)	(0.2480)
3			0.0793			0.0105			0.0612
			(0.1406)			(0.0282)			(0.1051)
Level of Tax Increase * Months Before Tax Change									
3			0.1984						0.1504*
			(0.1094)						(0.0647)
2		0.0295	0.0301					0.0385	0.0400
		(0.1741)	(0.1762)					(0.0914)	(0.0926)
1	0.3272*	0.3267*	0.3290*				0.3323**	0.3325**	0.3340**
	(0.1321)	(0.1355)	(0.1376)				(0.0959)	(0.0988)	(0.1005)
Level of Tax Increase * Months After Tax Change									
1	-0.2985**	-0.2839**	-0.2854**				-0.2753	-0.2827	-0.2824
	(0.1040)	(0.0945)	(0.0920)				(0.1504)	(0.1538)	(0.1539)
2		-0.2466	-0.2484					-0.2612	-0.2626
		(0.2206)	(0.2293)					(0.1879)	(0.1898)
3			-0.0806						-0.0432
			(0.1344)						(0.0748)

Other Robustness

- Exclusion of Brandenburg due a period of no transfer tax for housing companies and cooperatives
  - Long term effect not always significant
  - Short run distortions: Still some evidence
- Regional Border effects
  - likely migration across the border when tax rates differ.
  - Exclusion of Berlin and Brundenburg: Results are similar
- Omitting one state at the time
  - Results are not significant for the long-run effect in most cases (except when dropping Berlin and Saarland)
  - Short-run distortions are not significant in a number of cases (some significant but incorrectly signed)

Conclusions

- Short run distortions around the time of the tax rate change
- Long run effect of around 6% drop in the number of transactions with a 1% increase in the land tax rate.

Discussion

- Count Data Model. Poisson Distribution. (Cameron and Trivedi, 2013)

- Using fully the available data. Dachis et al (2012)

- Minor
  - Table 2 is redundant. Table 3 includes Table 2 results.
  - Table 6 No of Observations needs adjustment due to dropping of a state at the time.