The Impact of a Rise in the Real Estate Transfer Taxes on the French Housing Market

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A reform of the French real estate transfer taxes (RETT) was engaged from March 2014 (DMTO)

The Finance Act for 2014 allows the départements to vote an optional increase in their part of the taxes from 3.80% to 4.50% (i.e. an increase of 18.42%)

- Starting point for a natural experiment

Reform enacted as temporary

- However, on December 2014 the reform was made permanent
Introduction
The RETT system in France (1/2)

- RETT are calculated on the sale price after abatements (quite limited and scarce)
- RETT are decomposed as follows:
  - **3.80% goes to the départements** (purpose of the reform)
  - 1.20% goes to the municipalities
  - 0.09% goes to the State
- Total rate: 5.09% of the tax base before reform, 5.81% after
The transaction costs (i.e. the RETT + the notary and experts’ fees) are paid by the buyer, and must be paid in full when the bill of sale is signed

- Average rate: 7% of the sale price
- Represent on average €16,000
- Mostly financed by savings

Collected by the notary on behalf of the Treasury Department (Direction Générale des Finances Publiques or DGFiP).
Introduction
Why the reform?

- Two main reasons why the government and the départements wanted to increase the RETT
  - The grants of the State decreased drastically (by €1.5 billion in 2013)
  - The 2007 economic downturn impacted the housing market, decreasing the tax revenues of the local governments
- Both factors resulted in a financial stranglehold of the local governments
Figure 1: Number of transactions of established properties in 12-month cumulative

Coverage: France except Mayotte.
Sources: INSEE; CGEDD from DGFiP (MEDOC) and notaries’ databases.
Introduction
Map of the RETT Increase Implementation Schedule by Département

Notes: map updated May 2017.
Sources: Authors’ drawing and DGFiP, Droits d’enregistrement : taux, abattements et exonérations 2017.
Notes: the number of transactions of the départements in each group are cumulated over the previous 12 months, and correspond to the number of transactions in the régime de droit commun registered by the DGFiP in each département. Treatment group is composed of the départements which implemented the RETT increase in March (i.e. 58). Control group is composed of all the départements of the sample which did not implemented the RETT increase in March (i.e. 34). Vertical lines correspond to the implementation dates. Base 100 = January 2012.
Introduction
Purpose of the evaluation (1/2)

- We assume **no effect on the sale price**
- Confirmed empirically by the preliminary results of Bachelet and Poulhès, forthcoming (2018), using microeconomic data (notaries’ databases)

Price effect

1. The French housing market is sticky in terms of price
2. Why is the tax fully born by the buyers in the short run?
   - Out of the scope of the paper
We focus on two potential effects on quantities, assuming no price reactions.

**Anticipation effect (ex-ante effect)**
- Agents should have brought forward the sale date
- Should precede the implementation month \((t - 1)\)

**Retention effect (ex-post effect)**
- Extensive margin response
1. Previous literature
2. Data
3. Empirical strategy
4. Estimates
5. Robustness checks
6. Discussion
7. Conclusion
Previous literature on RETT is quite recent and scarce
First evaluation of the effects of RETT on housing: Benjamin, Coulson and Yang (1993)
In the following decade, research articles were more focused on the theoretical framework of the effects of transaction costs on residential mobility: Ioannides and Kan (1996) and Van Ommeren and Van Leuvensteijn (2005)
The most important empirical research took place during the last five years

They showed that RETT is highly distorting in the short-run (in the number and price of transactions)

Theoretical models of Nash bargaining

Difference with France: RETT in these countries are progressive, with bunch and notches
Dataset comes from the DGFiP, and was compiled by the *Conseil Général de l’Environnement et du Développement Durable (CGEDD)*

Databases MEDOC + Fidji

Variable of interest

- Monthly tax bases by *départements*
- From January 2000 up to now
• Matching data to the months when the bill of sale is signed (and not to the months of tax revenues collection)

• Tax revenues computation:

\[
\text{Total Tax Revenues}_{dt} = \text{Total Tax Bases}_{dt} \times \tau_{dt}
\]

where \(d\) corresponds to the département, \(t\) to the month and \(\tau\) to the corresponding département’s RETT rate (i.e. either 3.80% or 4.50%)
## Control variables

1. Unemployment rates
2. New residential construction
3. Mortgage rate
4. Population
5. Property tax rates
6. Share of social housing
7. Share of secondary residence

*Sources: INSEE, Sit@del2 and Banque de France*
Three local variables in order to compute an index of “good administration” of the local governments

Sources: INSEE, Sit@del2 and Banque de France
Empirical strategy
Difference-in-differences (1/3)

101 départements in France

Removed from the sample

9 départements

1 Alsace-Moselle Region, because of particular legal status following the German annexation of 1870: Moselle 57, Bas-Rhin 67 and Haut-Rhin 68

2 Paris 75

3 Overseas départements: Guadeloupe 971, Martinique 972, Guyane 973, La Réunion 974 and Mayotte 976 (too much heterogeneity)
Empirical strategy
Difference-in-differences (2/3)

- Main issue: estimate the effects *simultaneously*, taking into account the spread of implementation of the reform

<table>
<thead>
<tr>
<th>Treatment group (4.50%), by implementation date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 58 départements implemented in March 2014</td>
</tr>
<tr>
<td>2. 18 départements implemented in April 2014</td>
</tr>
<tr>
<td>3. 2 départements implemented in May 2014</td>
</tr>
<tr>
<td>4. 7 départements implemented in June 2014</td>
</tr>
<tr>
<td>5. 3 départements implemented in January 2015</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>88 départements in all</td>
</tr>
</tbody>
</table>
Empirical strategy
Difference-in-differences (3/3)

**Attrition of the control group** over the regressed period

**Table 1:** Size of the treatment and control groups over the estimated period, by date of implementation

<table>
<thead>
<tr>
<th>Period</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Treatment</td>
</tr>
<tr>
<td>January 2012 - January</td>
<td>0</td>
</tr>
<tr>
<td>January 2014</td>
<td></td>
</tr>
<tr>
<td>February 2014</td>
<td>58</td>
</tr>
<tr>
<td>March 2014</td>
<td>76</td>
</tr>
<tr>
<td>April 2014</td>
<td>78</td>
</tr>
<tr>
<td>May 2014 - November 2014</td>
<td>85</td>
</tr>
<tr>
<td>December 2014 - October</td>
<td>88</td>
</tr>
</tbody>
</table>

*Notes:* numbers correspond to the number of départements.
Empirical strategy
Econometric models

- **Quasi-myopic** models developed by Malani and Reif (2015)

- Monthly-based model:

$$\log Y_{dt} = \alpha_d + \lambda_t + \sum_{j=1}^{6} \beta_{A_j} Anticipation_{d,t=T_d-j} + \sum_{k=0}^{19} \beta_{R_k} Retention_{d,t=T_d+k} + \rho X_{dt} + \epsilon_{dt}$$

  Where $T_d$ is equal to the implementation month of the reform in a département $d$

- Parsimonious model:

$$\log Y_{dt} = \alpha_d + \lambda_t + \beta_{A_1} Anticipation_{d,t=T_d-1} + \beta_2 Retention_{d,t\in[T_d,T_d+19]} + \rho X_{dt} + \epsilon_{dt}$$

- Regressed period: January 2012 to October 2015
Anticipation effect

The volume of transactions increased by 28\% (significant at the 1\% level), the month just before the implementation month (i.e. $T_d - 1$)

- Proof that there was a \textit{timing response} from the buyers and sellers to avoid the taxes increase
- Confirmed by the estimates on the tax revenues
Anticipation effect
Retention effect
Graph of the effects month by month
Net effect

Estimates
Retention effect

**Retention effect**

Average decrease in the volume of transactions of **7%** (significant at the 1% level)

- Most of the decrease took place during the first months following the RETT increase
- Elasticity of the tax base to the tax: - 0.45
- Confirmed by the estimates on the tax revenues (10% increase instead of 18.42%)
- Elasticity of the tax revenue to the tax: 0.65
Figure 3: Effect of the reform on the volume of transactions, month by month before and after the implementation

Notes: month 0 corresponds to the month of implementation of the reform in a given département. Sources: CGEDD and DGFiP, Assiettes des droits de mutation immobiliers par département, from 2000 to 2016; authors’ computation.
Net effect

- Using moving-average bimonthly data
- The transactions of the month of anticipation $T_d - 1$ and the following month $T_d$ are added up
- The volume of transactions decreased on average by 4.6% over a period of ten months after the reform (i.e. $T_d + 9$) (significant at the 5% level)

- Represents around 35,000 missing transactions
Robustness checks

1. Test on possible self-selection: Logit
2. Placebo test
3. Alternative dependent variables
4. Estimations using different periods and samples
5. Changes in local economic conditions
6. Removing possibly heterogeneous groups
7. Possible political selection bias between the treatment and control groups? Negative answer
Discussion

The loss of transactions may be for ever

However we get back after a few months to the initial situation

No more difference between the treatment and control groups
The rise of the tax is small in percentage, even though it represents a lot of money.

Nobel Prize Richard Thaler

People are ready to pay a relatively important cost to save €10 at a restaurant.

At the same time: they think that a €500,000 and a €505,000 housing are almost of the same values, except the deviation is €5,000!
Discussion

Can be rationalize this behaviour? YES!

With credit constraints: a bit extreme but it figures out the limited borrowing capacity of the household

<table>
<thead>
<tr>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>$Y_t$ Exogenous income</td>
</tr>
<tr>
<td>$C_t$ Consumption of the good</td>
</tr>
<tr>
<td>$H_t$ Housing consumption</td>
</tr>
<tr>
<td>$\overline{H}_t$ Owned-housing stock</td>
</tr>
<tr>
<td>$\overline{H}_t - H_t \geq 0$</td>
</tr>
<tr>
<td>$R_t$ Rent</td>
</tr>
<tr>
<td>$p_t$ Housing price</td>
</tr>
<tr>
<td>$A_t$ Financial wealth, rate of return $r_t$</td>
</tr>
<tr>
<td>$A_t \geq 0$, no possibility of borrowing</td>
</tr>
</tbody>
</table>
A stamp duty tax in $t^*$ paid by the buyer and announced well in advance

$$\max \sum_{t=0}^{\infty} \beta^t U(C_t, H_t)$$

$$C_t + (A_{t+1} - A_t) + p_t(\overline{H}_{t+1} - \overline{H}_t) = r_t A_t + R_t(\overline{H}_t - H_t) + Y_t \text{ for } t = 1, \ldots, t^* - 1$$

$$C_t + (A_{t+1} - A_t) + p_t(\overline{H}_{t+1} - \overline{H}_t) + 1_{\Delta \overline{H}_t} p_t(\overline{H}_{t+1} - \overline{H}_t) = r_t A_t + R_t(\overline{H}_t - H_t) + Y_t \text{ for } t = t^*, \ldots, +\infty$$
Discussion
FOC wrt to $\overline{H}_t$

For $t = 1, \ldots, t^* - 2$: no impact of the RETT

$$\frac{\partial L}{\partial \overline{H}_{t+1}} = 0 \iff \lambda_t p_t = \lambda_{t+1} \beta (p_{t+1} + R_{t+1})$$

For $t = t^* - 1$: a non-ambiguous anticipation effect

$$\frac{\partial L}{\partial \overline{H}_{t+1}} = 0 \iff \lambda_t p_t = \lambda_{t+1} \beta (p_{t+1} (1 + 1_{\Delta H_{t+1}} \tau) + R_{t+1})$$

For $t = t^* \ldots \infty$: an ambiguous retention effect

$$\frac{\partial L}{\partial \overline{H}_{t+1}} = 0 \iff \lambda_t p_t (1 + 1_{\Delta H_t} \tau) = \lambda_{t+1} \beta (p_{t+1} (1 + 1_{\Delta H_{t+1}} \tau) + R_{t+1})$$

No effect in case of home-ownership, $\overline{H}_t = H_t$, the term $R_{t+1}$ vanishes + $Y_t$ is increasing with $t$, and housing a normal good which makes plausible $1_{\Delta H_t} = 1_{\Delta H_{t+1}} = 1$
Conclusion

- RETT reform had an impact on the housing market
- RETT increase has a temporary negative impact on mobility
- Distinction between tight and less tight markets (Bachelet & Poulhès, forthcoming 2018)
- Buyers and sellers anticipated the taxes rise
- RETT rise was a “good” deal for the départements in terms of tax revenue
Thank you for your attention
Appendix - Empirical strategy

Map of the Treatment and Control Départements - February 2014

Sources: original map comes from ExcelDownloads; authors’ drawing.

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2014 Reform of the French Real Estate Transfer Taxes 34 / 47
Appendix - Empirical strategy
Map of the Treatment and Control Départements - March 2014

Sources: original map comes from ExcelDownloads; authors’ drawing.
Appendix - Empirical strategy
Map of the Treatment and Control Départements - April 2014

Sources: original map comes from ExcelDownloads; authors’ drawing.

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Appendix - Empirical strategy
Map of the Treatment and Control Départements - May 2014 to Nov. 2014

Sources: original map comes from ExcelDownloads; authors’ drawing.

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Appendix - Empirical strategy
Map of the Treatment and Control Départements - Dec. 2014 to Oct. 2015

Sources: original map comes from ExcelDownloads; authors’ drawing.
Appendix - Empirical strategy
Difference-in-differences

"Final" control group (3.80%)

- 4 départements
  1. Indre 36
  2. Isère 38
  3. Mayenne 53 (implementation of the taxes increase in January 2016, therefore, out of the regressed period)
  4. Morbihan 56
Appendix - Robustness checks

Logit

- Binary logit on the variable of interest and control variables

- The binary logit is used to test whether there is a selection bias in the *départements* which implemented the tax increase, compared to the départements which did

- Treated *départements* = 1 ; Control *départements* = 0

- **Marginal effects are all close to zero**, meaning that there is no selection bias of the treated *départements*
Appendix - Robustness checks

Placebo test

- Check empirically the validity of the common trend assumption
- Regressed Period: January 2008 to October 2011
- Treatment period: February 2010 to October 2011
- Estimates show no coefficients significantly different from zero at the 10% level
- The common trend assumption is valid
Appendix - Robustness checks

Alternative dependent variables

- Possible bias due to an exogenous shock affecting the housing markets of the two groups differently
- Substitute the outcome variables with other variables, not affected by the reform
- *Régime dérogatoire*
- **No coefficient significantly different from zero** at the 10% level
- There was **no shock affecting differently the housing markets of the two groups**
Appendix - Robustness checks

Estimations using different period and sample

- Check the validity of our results to the choice of the period and sample groups
- Period: January 2013 to October 2014
- - treated, + control
- Estimates close to the ones of the principal model
- Estimates appear robust to the choice of period and sample
Appendix - Robustness checks

Changes in local economic conditions

- Results could be impacted by an exogenous economic shock affecting the sample groups differently.
- Using the monthly unemployment rates.
- Interaction variables between a dummy variable defining in which group belongs the département $d$, and the monthly unemployment rate of this département $d$.
- Same method as in Benzarti and Carloni (2015).
- No difference between the estimates and our main results for the anticipation effect.
- Estimates of the retention effect are slightly different.
- We can conclude that no exogenous local economic shock affected differently our groups.
Appendix - Robustness checks

Removing possibly heterogeneous groups

- Slightly different trends or levels in January 2015 and May 2014 groups
- Possible heterogeneity or unobservables that affect them differently over time
- Removing either January 2015 or May 2014 group or both, from the estimated sample
- Does not really change the estimates
- Concludes that our findings are robust to the choice of the sample, and to a possible bias from heterogeneous départements
Main selection problem in natural experiments including a local fiscal policy reform: the political opinion of the local councillors that decided to implement (or not) the tax increase.

One could argue that left-wing or right-wing départements might have implemented the reform differently.

The answer is no!
### Table 2: Distribution of the *départements’* political opinion, by implementation or non-implementation of the RETT increase

<table>
<thead>
<tr>
<th>Party</th>
<th>Left-Wing</th>
<th>Right-Wing</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>RETT = 4.50% (increased)</td>
<td>60.4%</td>
<td>39.6%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>58*</td>
<td>38*</td>
<td>96*</td>
</tr>
<tr>
<td>RETT = 3.80% (unchanged)</td>
<td>60%</td>
<td>40%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>3*</td>
<td>2*</td>
<td>5*</td>
</tr>
<tr>
<td>Whole country</td>
<td>60.4%</td>
<td>39.6%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>61*</td>
<td>40*</td>
<td>101*</td>
</tr>
</tbody>
</table>

* numbers correspond to the number of *département* used to compute the percentages.

Notes: the party of the local government corresponds to the political color when the RETT increase was voted. Then, it corresponds either to the 2011 or 2015 departmental elections. This computation was made among all the *départements* (i.e. 101).

Sources: Ministère de l’Intérieur and France-Politique, résultats des élections cantonales 2011 et départementales 2015.