

# Down Payments, Deferred Homes: How LTV Restrictions Reshape Household Consumption

---

Yann Cerasi  
Zurich & SFI

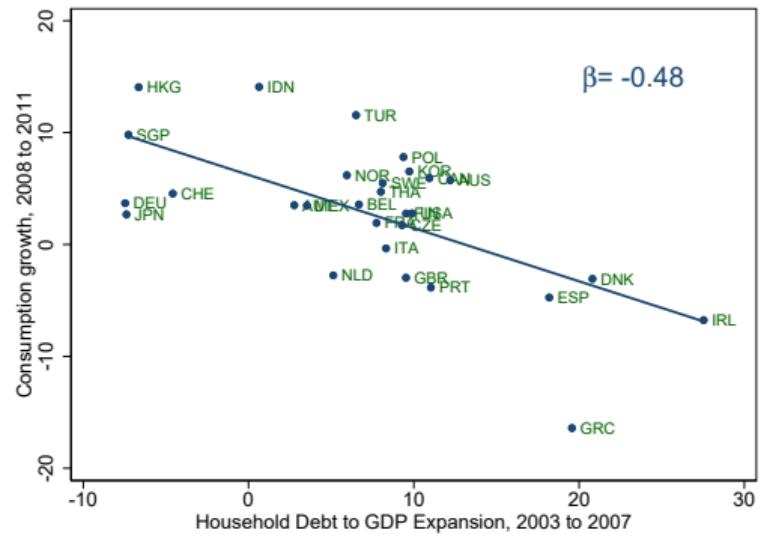
Gazi Kabas  
Tilburg

Steven Ongena  
Zurich & SFI

Kasper Roszbach  
Norges Bank

The views expressed here are those of the authors, and not necessarily those of the Norges Bank.

# Household Debt and Consumption



Source: Mian, Sufi, and Verner (QJE, 2017).

Increase in HH debt before the GFC predicts a decline in consumption during GFC

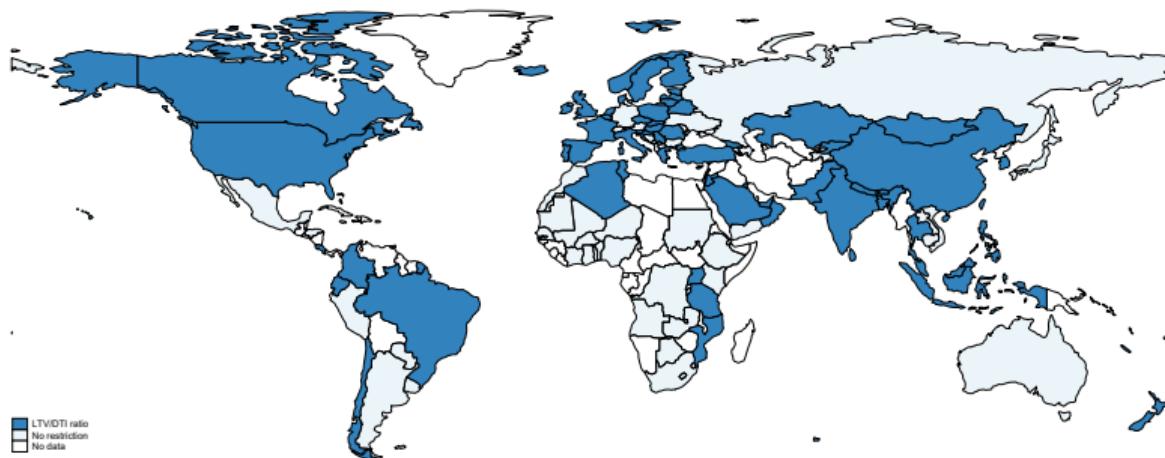
## Macroprudential Policies in 2000



*Source: IMF iMaPP Database*

**As a result, many countries have implemented borrowing restrictions on HH**

# Macroprudential Policies in 2021



Source: IMF iMaPP Database

**As a result, many countries have implemented borrowing restrictions on HH**

## Borrowing Restrictions Beyond the Housing Market

---

- **Collateral** and **wealth channels**, via **households who are homeowners**, explain the co-movement between the household debt, housing markets, and consumption

## Borrowing Restrictions Beyond the Housing Market

---

- **Collateral and wealth channels**, via **households who are homeowners**, explain the co-movement between the household debt, housing markets, and consumption
- **Macroprudential Policies** aim to weaken these channels
- **How?** Tighten the borrowing capacity of **households who want to be homeowners**

## Borrowing Restrictions Beyond the Housing Market

---

- **Collateral and wealth channels**, via **households who are homeowners**, explain the co-movement between the household debt, housing markets, and consumption
- **Macroprudential Policies** aim to weaken these channels
- **How?** Tighten the borrowing capacity of **households who want to be homeowners**
- **Question:** How do households who may want to be homeowners adjust consumption when a macroprudential policy is introduced?
  - Use a loan-to-value ratio restriction introduced in Norway
  - Population-wide household consumption, balance sheet, and housing transactions

## Findings

---

- **Renters increase their consumption after the introduction of LTV restriction**  
→ 3.2 pp increase in the consumption/income ratio

## Findings

---

- **Renters increase their consumption after the introduction of LTV restriction**  
→ 3.2 pp increase in the consumption/income ratio
- **Mechanism:** Delayed/discouraged home purchase and savings

## Findings

---

- **Renters increase their consumption after the introduction of LTV restriction**  
→ 3.2 pp increase in the consumption/income ratio
- **Mechanism:** Delayed/discouraged home purchase and savings
- Renters draw on their savings and financial assets and increase uncollateralized debt

## Findings

---

- **Renters increase their consumption after the introduction of LTV restriction**  
→ 3.2 pp increase in the consumption/income ratio
- **Mechanism:** Delayed/discouraged home purchase and savings
- Renters draw on their savings and financial assets and increase uncollateralized debt
- **Homebuyers** change their consumption dynamics around a home purchase  
→ Homebuyers decrease their consumption before and after a home purchase

## Findings

---

- **Renters increase their consumption after the introduction of LTV restriction**  
→ 3.2 pp increase in the consumption/income ratio
- **Mechanism:** Delayed/discouraged home purchase and savings
- Renters draw on their savings and financial assets and increase uncollateralized debt
- **Homebuyers** change their consumption dynamics around a home purchase  
→ Homebuyers decrease their consumption before and after a home purchase

Why are these findings important?

- **Borrowing constraints affect renters' consumption, implying wider implications**
- **Financial stability implications of macropru restrictions are not specific to homeowners**

## **Loan-To-Value Restriction & Data**

## LTV Restriction

---

- Due to strong growth in house prices and household debt levels, LTV ratio restriction is announced in **Spring 2010** and introduced in Fall 2010.
  - LTV cap is at **90%** (later at 85%)
  - Covers all loans to the same property

## Data

---

- Consumption, housing transactions, tax filings, individual characteristics
  - Consumption: Debit card transactions, digital invoice, direct remittances.  
Approximately 80% of the total consumption via banks. 26 COICOP categories
- Sample: 2006-2018, Annual, Household-level

## Data

---

- Consumption, housing transactions, tax filings, individual characteristics
  - Consumption: Debit card transactions, digital invoice, direct remittances.
  - Approximately 80% of the total consumption via banks. 26 COICOP categories
- Sample: 2006-2018, Annual, Household-level
- **3 groups:** Renters, homebuyers, homeowners
  - Renters: Do not have housing wealth, no housing transactions before the restriction
  - Homebuyers: First-time homebuyers
  - Homeowners: Have housing wealth before 2006

## Empirical Strategy

## Difference-in-Differences Design

---

$$y_{it} = \beta Renter_i \times Post_t + \gamma_1 Renter_i + \gamma_2 Post_t + \epsilon_{it}$$

- $y_{it}$  = Consumption / Income
- $Renter_i$ : =1 if HH is a renter until 2010, 0 if HH is already a homeowner prior to 2006  
→ Renters include HHs that purchase a home after the restriction
- $Post_t$ : =1 if year  $\geq$  2010

## Difference-in-Differences Design

---

$$y_{it} = \beta Renter_i \times Post_t + \gamma_1 Renter_i + \gamma_2 Post_t + \epsilon_{it}$$

- $y_{it}$  = Consumption / Income
- $Renter_i$ : =1 if HH is a renter until 2010, 0 if HH is already a homeowner prior to 2006  
→ Renters include HHs that purchase a home after the restriction
- $Post_t$ : =1 if year  $\geq$  2010
- **Identifying assumption**
  1. Without the restriction, the consumption/income difference between renters and homeowners would be the same  
→ The levels can be different

## Difference-in-Differences Design

---

$$y_{it} = \beta Renter_i \times Post_t + \gamma_1 Renter_i + \gamma_2 Post_t + \epsilon_{it}$$

- $y_{it}$  = Consumption / Income
- $Renter_i$ : =1 if HH is a renter until 2010, 0 if HH is already a homeowner prior to 2006  
→ Renters include HHs that purchase a home after the restriction
- $Post_t$ : =1 if year  $\geq$  2010
- **Identifying assumption**
  1. Without the restriction, the consumption/income difference between renters and homeowners would be the same  
→ The levels can be different
  2. Homeowners are not affected by the restriction  
→ The restriction can reduce homeowners' access to credit, or housing wealth

# Results

# Consumption Reaction of Renters

	Consumption/Income		
	(1)	(2)	(3)
Renter × Post	0.0320*** (5.52)	0.0314*** (5.27)	0.0321*** (5.79)
Renter	-0.130*** (-26.73)	-0.130*** (-25.77)	
Post			
<i>Fixed Effects:</i>			
Year FE		✓	✓
Household FE			✓
Obs.	11304369	11304369	11304369
R <sup>2</sup>	0.008	0.010	0.412
Mean(Dependent Var.)	0.675		

Renters increase their consumption after the LTV restriction

- ▶ Consumption vs Income?

# Do homeowners form a good control group for renters?

---

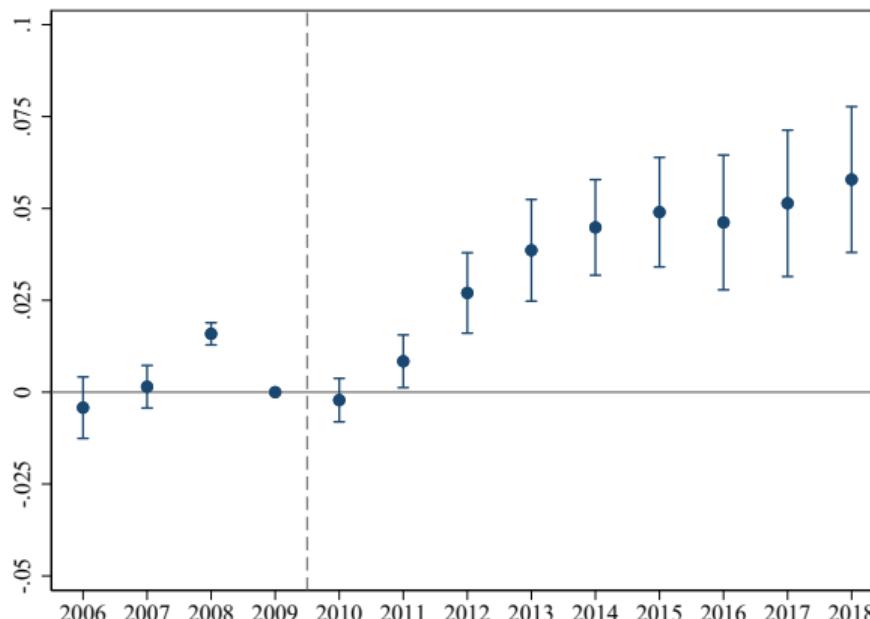
## Possible issues

1. Homeowners are different from renters  
→ **Parallel trends** before the restriction?

# Do homeowners form a good control group for renters?

## Possible issues

1. Homeowners are different from renters  
→ **Parallel trends** before the restriction?



# Do homeowners form a good control group for renters?

---

## Possible issues

1. Homeowners are different from renters  
→ Differences in characteristics start to affect consumption differentially in 2010

# Do homeowners form a good control group for renters?

## Possible issues

1. Homeowners are different from renters

→ Differences in characteristics start to affect consumption differentially in 2010

	Consumption/Income					
	(1)	(2)	(3)	(4)	(5)	(6)
Renter × Post	0.0329*** (6.44)	0.0306*** (5.51)	0.0253*** (4.44)	0.0336*** (5.86)	0.0311*** (6.17)	0.0265*** (5.79)
<i>Fixed Effects:</i>						
Household FE	✓	✓	✓	✓	✓	✓
Age × Year FE	✓					
Deposit bins × Year FE		✓				
Financial Asset bins × Year FE			✓			
Total wealth bins × Year FE				✓		
Parental wealth bins × Year FE					✓	
Full Interacted FE						✓
Obs.	11304369	11304369	11304369	11304369	11304369	11185919
R <sup>2</sup>	0.413	0.413	0.413	0.413	0.412	0.442
Mean(Dependent Var.)	0.675					

## Do homeowners form a good control group for renters?

---

### Possible issues

1. Homeowners are different from renters
2. The restriction can limit homeowners' borrowing capacity, or decrease their housing wealth  
→ Suggesting that the consumption difference is due to homeowners' lower consumption

# Do homeowners form a good control group for renters?

## Possible issues

1. Homeowners are different from renters
2. The restriction can limit homeowners' borrowing capacity, or decrease their housing wealth  
→ Suggesting that the consumption difference is due to homeowners' lower consumption

	Consumption/Income					
	(1) LTV<90%	(2) LTV<75%	(3) LTV<60%	(4) LTV<50%	(5)	(6)
Renter × Post	0.0205*** (4.50)	0.0195*** (4.58)	0.0182*** (4.82)	0.0170*** (4.91)	0.0592*** (9.51)	0.0339*** (5.98)
<i>Fixed Effects:</i>						
Household FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓		
Housing wealth bins × Year FE					✓	
Municipality × Year FE						✓
Obs.	8,688,858	8,042,192	7,188,687	6,530,123	11304369	11304369
R <sup>2</sup>	0.448	0.457	0.468	0.477	0.413	0.416
Mean(Dependent Var.)	0.675					

# Do homeowners form a good control group for renters?

---

## Possible issues

1. Homeowners are different from renters
2. The restriction can limit homeowners' borrowing capacity, or decrease their housing wealth
3. The effect of homeownership on consumption changes over time
  - House-related consumption, labor market attachment, or an unobservable
  - **Solution:** Within-renter comparison!

# Do homeowners form a good control group for renters?

---

## Possible issues

1. Homeowners are different from renters
2. The restriction can limit homeowners' borrowing capacity, or decrease their housing wealth
3. The effect of homeownership on consumption changes over time
  - House-related consumption, labor market attachment, or an unobservable
  - **Solution:** Within-renter comparison!

## Within-renter comparison

- Are there renters who are less exposed to the restriction?
  - Renters want to remain as renters and have never considered a home purchase
- How do we detect such renters?
  1. Split the sample into two: homeowners and renters
  2. Use XGBoost to predict the probability of being a homeowner by using 2006 information
  - **Intuition:** Renters with high probability have observables suggesting that they are similar to homeowners... but they are not

## Within Renter Comparison

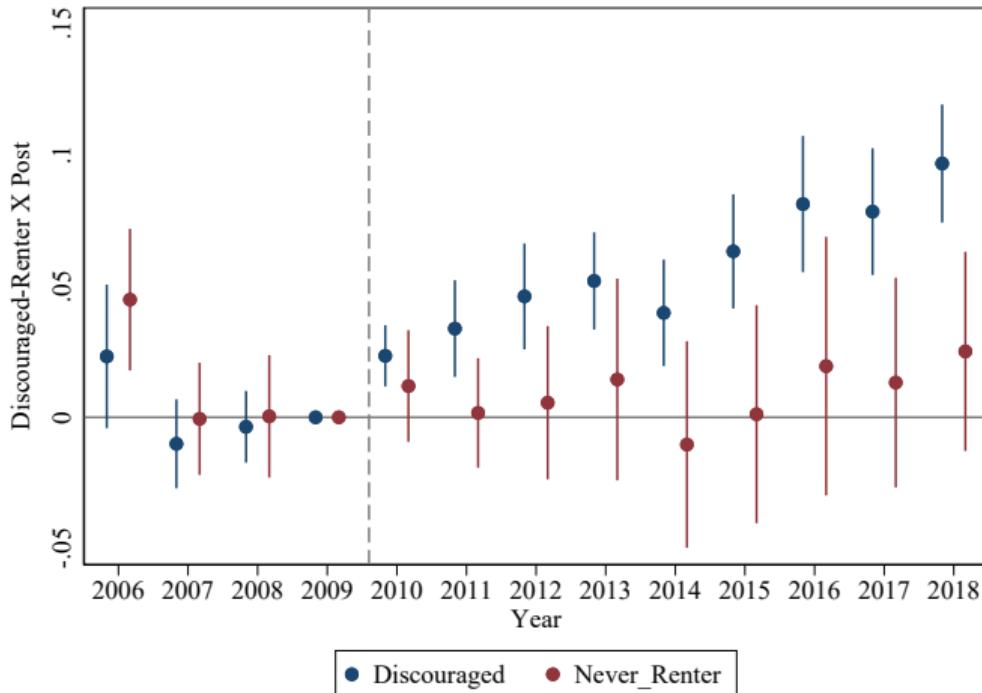
$$y_{it} = \beta Discouraged\ Renter_i \times Post_t + \gamma_1 Discouraged\ Renter_i + \gamma_2 Post_t + \epsilon_{it}$$

**Treated = Bottom 70% // Control (Always Renters) = Top 30%**

	Consumption/Income		
	(1)	(2)	(3)
Disc. Renters × Post	0.042*** (0.005)	0.042*** (0.005)	0.043*** (0.005)
Disc. Renters	-0.077*** (0.005)	-0.077*** (0.005)	
Post	0.027*** (0.010)		
<i>Fixed Effects:</i>			
Year FE		✓	✓
Household FE			✓
Obs.	770,032	770,032	770,032
Adj. R <sup>2</sup>	0.025	0.028	0.469
Mean(Dependent Var.)	0.58		

**Always renters do not drive the effect**

## Within Renter Comparison



*Treated = Bottom 70%, Control = Top 30%*

## Why do renters increase their consumption?

---

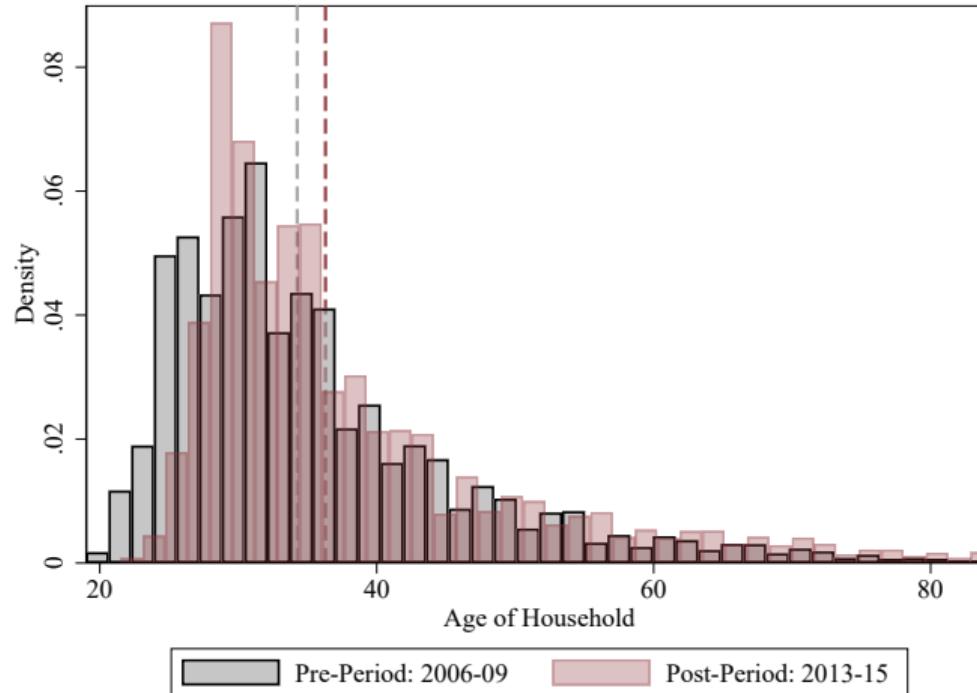
- The aim of the policy is to decrease household leverage by increasing saving rates  
→ Yet, we find the opposite effect! Why?
- **Renters may delay their home purchase and savings** (Karlman et al. (2024))
  - HHs need to reduce their consumption to accumulate savings
  - Leads to deviation in consumption smoothing, which is stronger for low-income HHs
  - The disutility of this deviation can be larger than the benefits of an earlier home purchase
  - Low-income HHs that consider becoming homeowners delay both the home purchase and savings

## Why do renters increase their consumption?

---

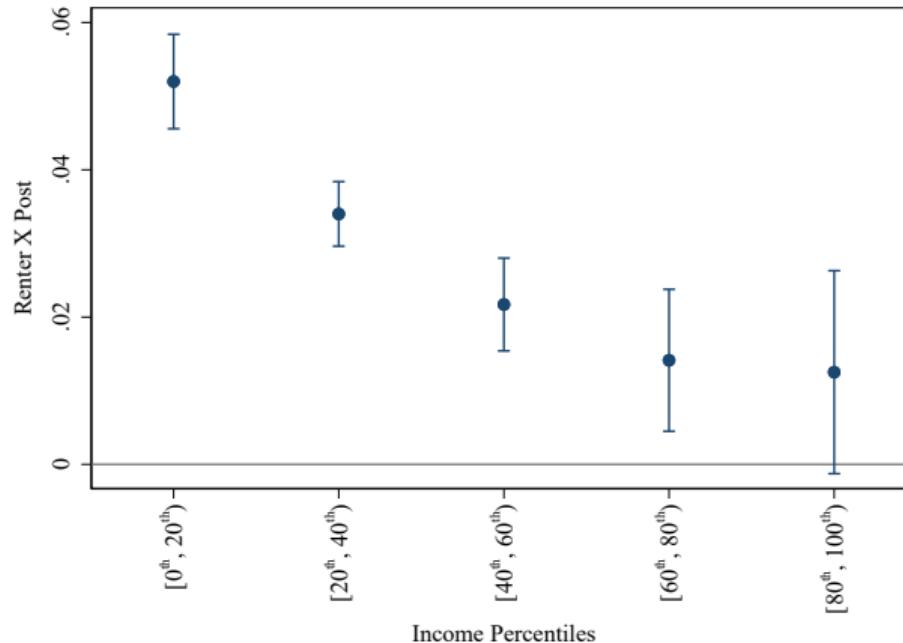
- The aim of the policy is to decrease household leverage by increasing saving rates  
→ Yet, we find the opposite effect! Why?
- **Renters may delay their home purchase and savings** (Karlman et al. (2024))
  - HHs need to reduce their consumption to accumulate savings
  - Leads to deviation in consumption smoothing, which is stronger for low-income HHs
  - The disutility of this deviation can be larger than the benefits of an earlier home purchase
  - Low-income HHs that consider becoming homeowners delay both the home purchase and savings
- **Two predictions**
  1. There must be a delay in home purchases: Age distribution of homebuyers
  2. Income heterogeneity: The effect must be stronger for renters who need to deviate more

# Age Distribution of Home Buying Cohorts



Homebuying cohorts get older

## Income Heterogeneity



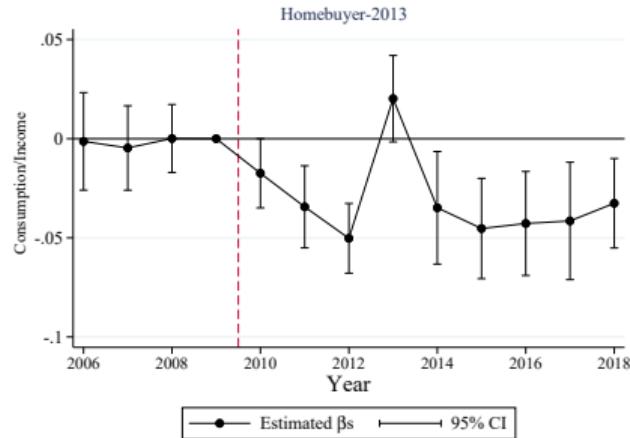
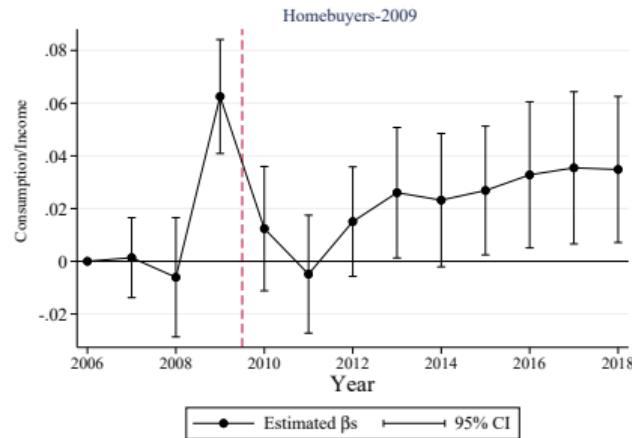
The effect is stronger for households with lower income

## Renters' balance sheet items

	Debt/Income (1)	Deposits/Income (2)	Fin. Assets/Income (3)	Net Savings/Income (4)
Renter × Post	0.275*** (16.08)	-0.132*** (-12.52)	-0.218*** (-18.35)	-0.486*** (-18.02)
<u>Fixed Effects:</u>				
Year FE	✓	✓	✓	✓
Household FE	✓	✓	✓	✓
Obs.	11304369	11304369	11304369	11304369
R <sup>2</sup>	0.725	0.756	0.780	0.789
Mean(Dependent Var.)	1.862	0.870	1.426	-0.438

In line with higher consumption, we find lower savings and higher debt use

# Consumption Dynamics around the Home Purchase



Homebuyers-09

Homebuyers-13

- Why? Rebuilding liquidity, cheaper areas, purchasing another home, and habit formation
- Match HB'13 to HB'09 to address the selection problem

## Conclusion

---

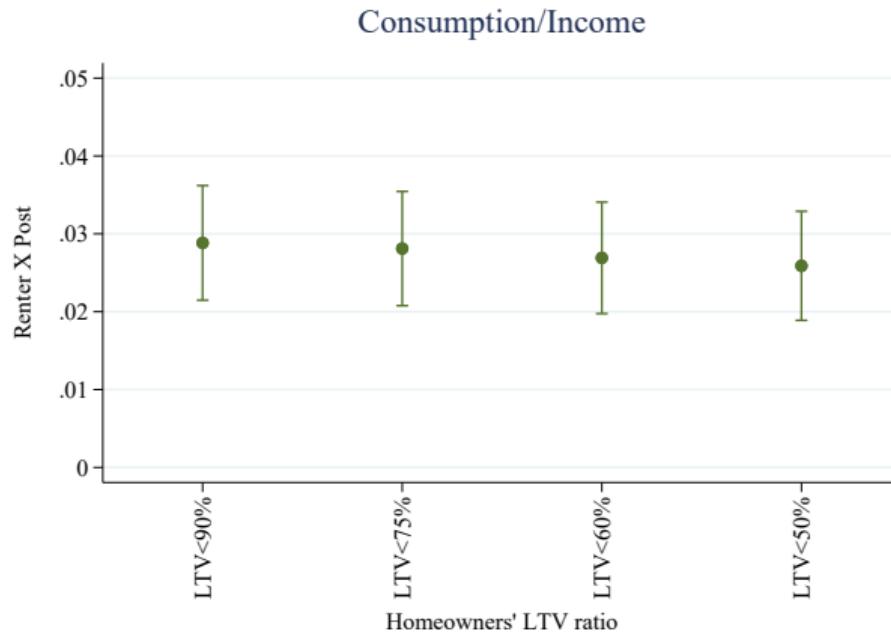
- Renters increase their consumption relative to homeowners when a borrowing constraint is introduced
- The costs related to deviation from consumption smoothing may explain this behavior
- Homebuyers reduce their consumption before and after a home purchase
- The implications of borrowing constraints are wider than previously thought

**Thank You!**

## Appendix

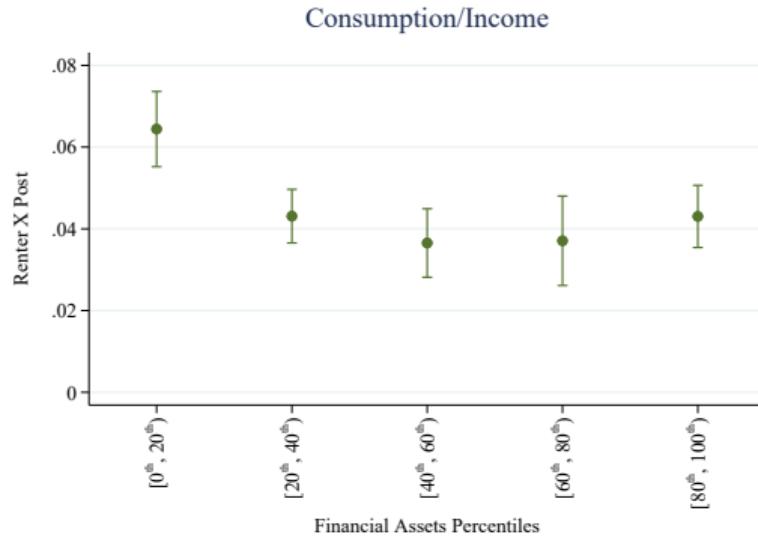
---

## Homeowners' access to credit



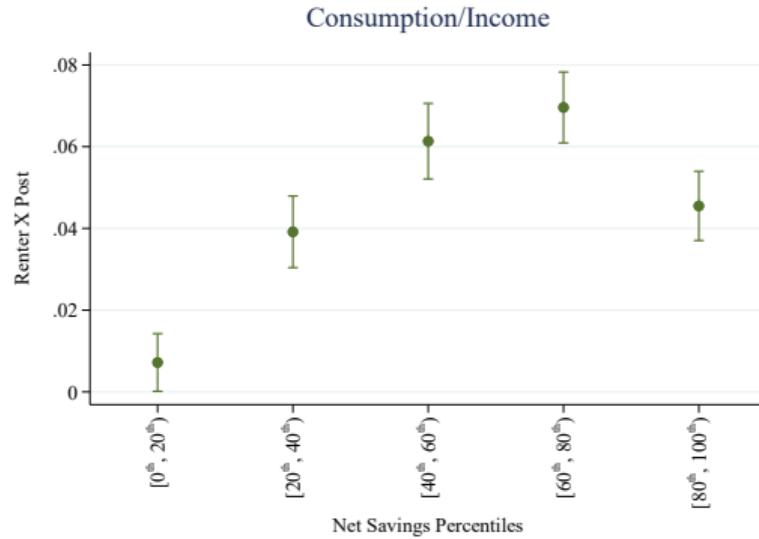
Removing homeowners who are more likely to be constrained by the policy does not change results [▶ Back](#)

## Heterogeneity - Assets



► Back

## Heterogeneity - Savings

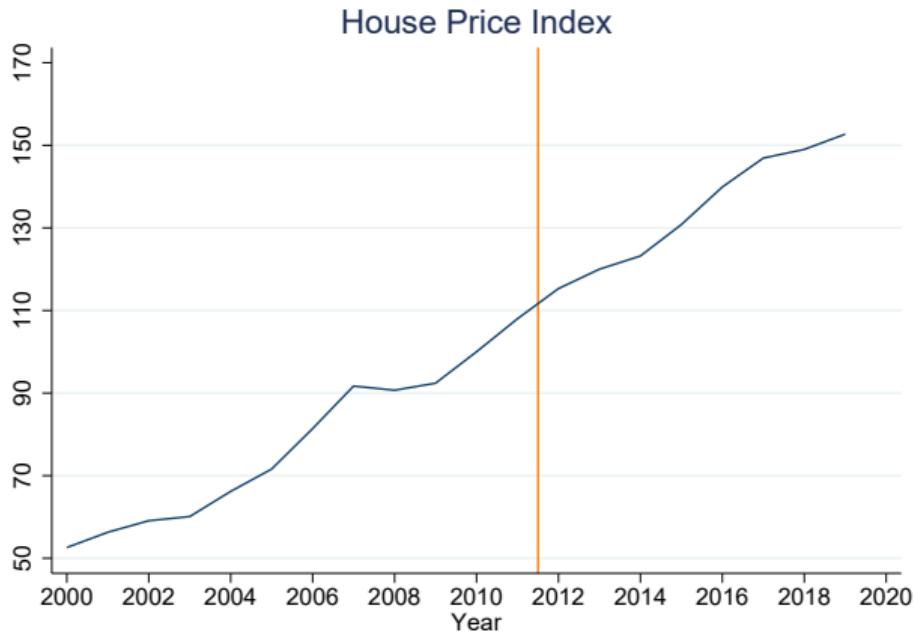


# Consumption or Income?

	ln(Income)			ln(Consumption)		
	(1)	(2)	(3)	(4)	(5)	(6)
Renter × Post	0.0289*** (9.36)	0.0295*** (9.23)	0.0147*** (9.26)	0.135*** (21.64)	0.135*** (21.51)	0.108*** (13.85)
Renter	-0.641*** (-87.28)	-0.642*** (-86.55)		-0.954*** (-112.22)	-0.955*** (-112.29)	
Post	0.211*** (187.87)			0.208*** (24.33)		
<i>Fixed Effects:</i>						
Year FE		✓	✓		✓	✓
Household FE			✓			✓
Obs.	9,150,918	9,150,918	9,139,463	9,150,918	9,150,918	9,139,463
R <sup>2</sup>	0.126	0.138	0.838	0.107	0.112	0.766
Mean(Dependent Var.)	12.981			12.450		

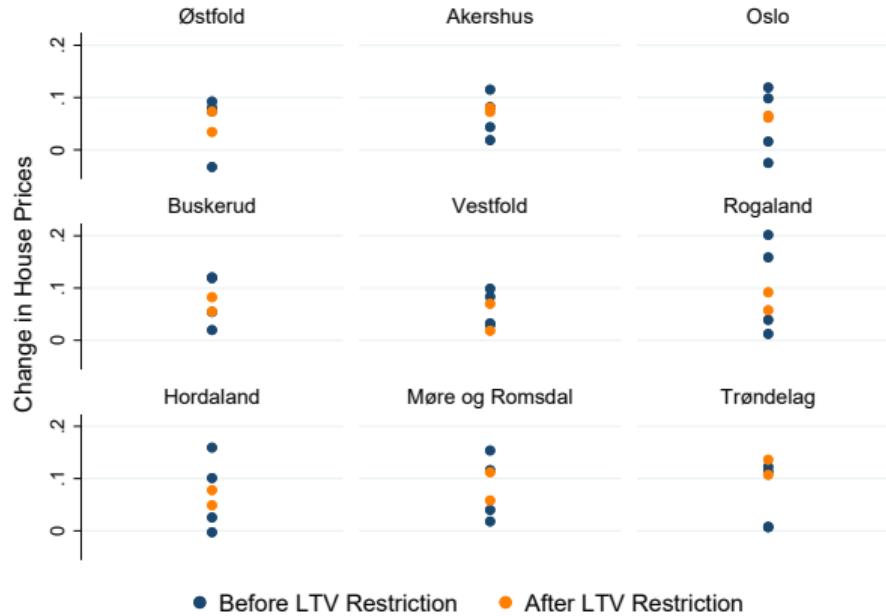
▶ Back

## House Prices



The aggregate house price index does not suggest a big effect

# House Prices



The regional house price growth rates are similar to the previous ones

# Stock Market Participation - Norway

Table 1: Summary statistics

	Mean	Std. dev	P10	Median	P90	P99
<i>Demographics</i>						
Age (in years)	48.87	18.00	26	47	74	90
Male	0.51	0.50	0	1	1	1
Single	0.36	0.48	0	0	1	1
College degree	0.35	0.48	0	0	1	1
<i>Income and wealth (\$'000s)</i>						
Total income	41.06	63.20	17.63	36.51	64.45	135.22
Financial wealth	74.27	1,695.97	0.47	12.53	123.51	774.35
Financial wealth in public equity	7.44	233.43	0	0	9.52	132.23
Non-financial wealth	199.96	308.21	0	154.35	471.92	1,115.31
Gross wealth	271.59	1,745.58	1.11	182.81	570.79	1,640.21
Net wealth	180.88	1,724.07	-38.78	67.23	463.62	1,424.09
<i>Participation and wealth shares</i>						
Invest in stock market	0.25	0.43	0	0	1	1
Hold mutual funds	0.21	0.41	0	0	1	1
Hold listed stocks	0.08	0.27	0	0	0	1
Cond. risky share (of gross wealth)	0.09	0.17	0.00	0.02	0.26	0.87
Cond. risky share (of fin. wealth)	0.28	0.28	0.01	0.18	0.74	0.98
Observations	4.13m					

*Notes.* This table provides summary statistics using data from 2016. The first block gives summary statistics for demographic characteristics. *Single* is a binary variable equal to 1 if the individual is neither married nor cohabiting, and zero otherwise. The second block information on income and wealth measured in USD (in thousands) based on an exchange rate of \$1=8.62 NOK at the end of 2016. *Total income* is income from all sources. *Public equity* is measured as the sum of holdings in equity mutual funds and listed stocks. The third block gives summary statistics on stock market (i.e., public equity) participation and the share of wealth invested in public equity conditional on holding a nonzero amount of such wealth.

Source: Galaasen & Raja, 2024

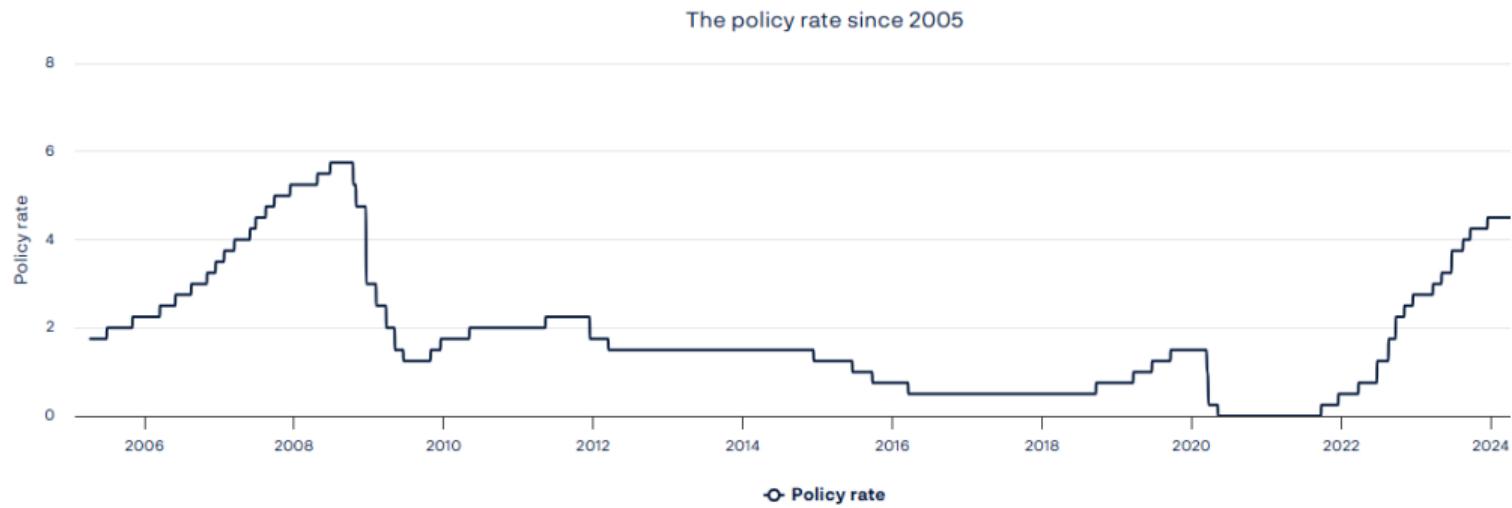
## Descriptive statistics

	Renters (N = 60,340)	Homebuyers–Pre (N = 13,720)	Homebuyers–Post (N = 13,747)
Total consumption	130,198	180,655	208,937
Food consumption	27,012	30,022	41,862
Furniture consumption	4,703	10,407	10,321
Restaurant consumption	2,632	3,880	7,708
Income	246,466	282,921	334,791
Deposits	136,412	136,167	134,571
Household age	50.82	34.43	34.79
Financial assets	175,631	189,213	285,785
Debt (gjeld)	123,346	283,529	511,194
Immigrant (share)	0.119	0.101	0.132
Parental wealth (bin)	8.851	7.055	6.749
Parental wealth 2009	219,557	318,173	351,553
Household size	1.292	1.588	1.657
Child (share)	0.138	0.252	0.250
Loan-to-value (LTV)	.	0.974	0.727
House price	.	1,539,787	2,452,764
Housing wealth	4.524	36.748	267,551

## Descriptive statistics - Within Renter

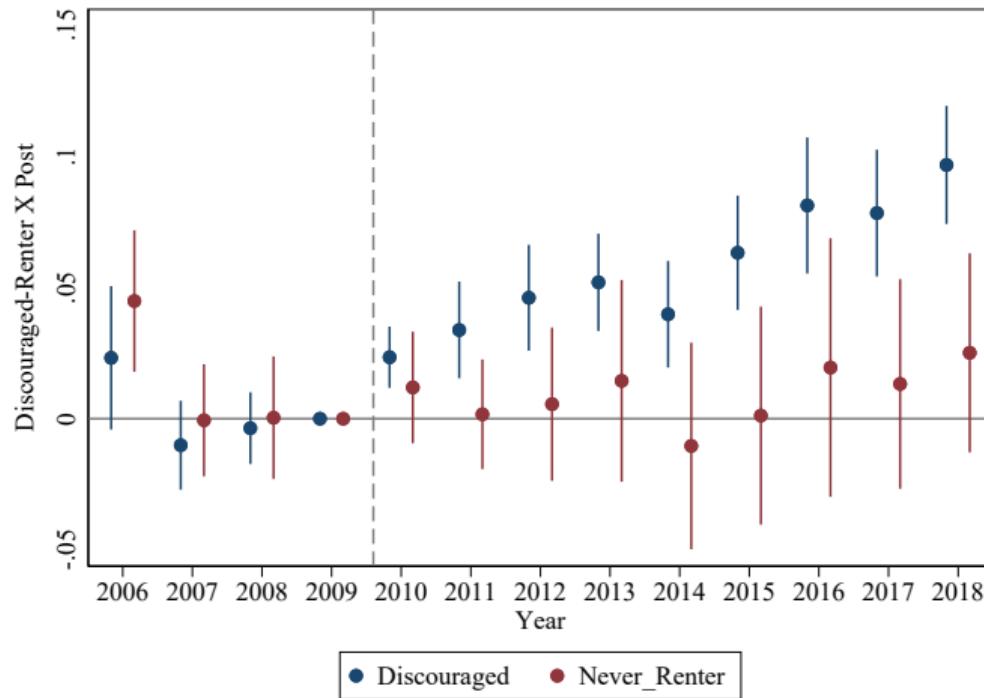
Variable	Always Renters (N = 18,102)	Discouraged Renters (N = 42,238)
Total consumption	169,377	113,407
Food consumption	35,051	23,568
Furniture consumption	6,487	3,938
Restaurant consumption	2,958	2,492
Income	293,092	226,485
Deposits	266,240	80,772
Household age	59.96	46.91
Financial assets	374,343	90,468
Debt (gjeld)	210,431	86,023
Immigrant (share)	0.113	0.120
Parental wealth bin (2009)	9.567	8.544
Parental wealth (2009)	225,730	217,998
Household size	1.493	1.205
Child (share)	0.128	0.143

## Policy rate

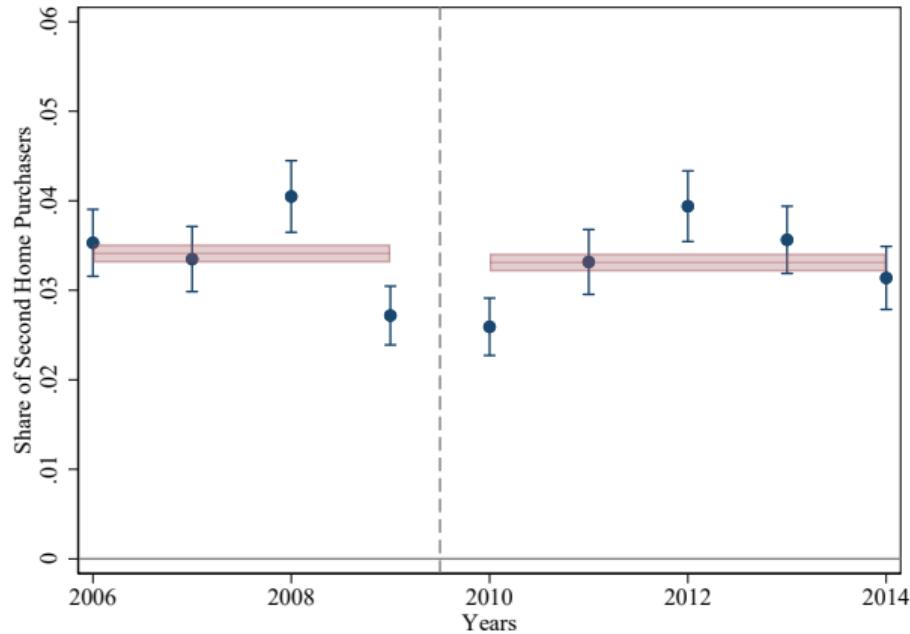


Source: Norges Bank

## Within Renter Control and Treated



## Second Home Purchases of Homeowners



No significant change in homeowners' second home purchases

# Macroeconomic Conditions

	Consumption/Income				
	(1)	(2)	(3)	(4)	(5)
Renter × Post	0.0419*** (6.71)	0.0420*** (6.64)	0.0453*** (6.56)	0.0478*** (7.04)	0.0514*** (6.69)
Renter × Δ GDP growth	-0.00670*** (-12.44)	-0.00677*** (-11.05)	-0.00902*** (-9.05)	-0.00496*** (-4.35)	-0.00346*** (-4.61)
Renter × Δ Inflation		-0.000122 (-0.46)	-0.00223*** (-4.18)	-0.00171*** (-3.10)	0.000839** (2.26)
Renter × Δ Policy rate			0.00378*** (4.48)	0.00000654 (0.01)	-0.00471*** (-7.72)
Renter × Δ VIX				0.00134*** (13.64)	0.00159*** (19.86)
Renter × Δ Unemployment rate					-0.0111*** (-3.49)
<i>Fixed Effects:</i>					
Year FE	✓	✓	✓	✓	✓
Household FE	✓	✓	✓	✓	✓
Obs.	11304369	11304369	11304369	11304369	11304369
R <sup>2</sup>	0.412	0.412	0.412	0.412	0.412
Mean(Dependent Var.)	0.675				

Allowing renters to respond differently to macro conditions makes no difference

## Renters' Housing Location

- Renters may become less mobile and prefer to live in more expensive areas
- This can lead to higher consumption

	Relocation dummy	Log(median Muni. Inc.)	Log(Mean Muni. Inc.)
Renter × Post	-0.009*** (0.002)	0.001*** (0.000)	0.001*** (0.000)
<i>Fixed Effects:</i>			
HH FE	✓	✓	✓
Year FE	✓	✓	✓
Adj. $R^2$	0.129	0.954	0.956
Obs.	11,097,635	11,097,635	11,097,635

This channel is significant, but economically too small to explain the effect

# Homebuyers

## Empirical Strategy-Homebuyers

- Challenge in homebuyer analysis: Home purchase affects consumption
  - Aim is to estimate the restriction's effect in addition to the home purchase effect
  - Compare homebuyers in 2013 ( $HB'13$ ) to homebuyers in 2009 ( $HB'09$ )
  - Due to home purchases in different years, use homeowners to control for time effects
  - Model the home purchase effect explicitly

$$y_{it} = \beta_1 HB'13 \times \text{Prepurchase} + \beta_2 HB'13 \times \text{Purchase} + \beta_3 HB'13 \times \text{Postpurchase}$$

$$\gamma_1 HB \times \text{Prepurchase} + \gamma_2 HB \times \text{Purchase} + \gamma_3 HB \times \text{Postpurchase}$$

$$\alpha_1 HB'13 + \alpha_2 HB + \alpha_3 \text{Prepurchase} + \alpha_4 \text{Purchase} + \alpha_5 \text{Postpurchase} + \epsilon_{it}$$

## Empirical Strategy-Homebuyers

- Challenge in homebuyer analysis: Home purchase affects consumption
  - Aim is to estimate the restriction's effect in addition to the home purchase effect
  - Compare homebuyers in 2013 ( $HB'13$ ) to homebuyers in 2009 ( $HB'09$ )
  - Due to home purchases in different years, use homeowners to control for time effects
  - Model the home purchase effect explicitly

$$y_{it} = \beta_1 HB'13 \times \text{Prepurchase} + \beta_2 HB'13 \times \text{Purchase} + \beta_3 HB'13 \times \text{Postpurchase}$$
$$\gamma_1 HB \times \text{Prepurchase} + \gamma_2 HB \times \text{Purchase} + \gamma_3 HB \times \text{Postpurchase}$$
$$\alpha_1 HB'13 + \alpha_2 HB + \alpha_3 \text{Prepurchase} + \alpha_4 \text{Purchase} + \alpha_5 \text{Postpurchase} + \epsilon_{it}$$

- Identifying assumption**

- Without the restriction, the difference between  $HB'13$  and  $HB'09$  would be the same
  - Time effects are differenced out by using homeowners
- The restriction should not change the homebuyer characteristics

# Consumption Dynamics around the Home Purchase

	Consumption/Income		
	(1)	(2)	(3)
HB'13 × Prepurchase	0.0237** (1.97)	-0.0238* (-1.91)	-0.0206* (-1.79)
HB'13 × Purchase	-0.0176 (-1.43)	-0.0302** (-2.49)	-0.0272** (-2.13)
HB'13 × Postpurchase	-0.0186 (-1.49)	-0.0563*** (-4.68)	-0.0475*** (-4.35)
Prepurchase	-0.0493*** (-3.88)	0.00571 (0.56)	0.00368 (0.39)
Purchase	0.0312* (1.82)	0.0708*** (5.29)	0.0695*** (5.58)
Postpurchase	-0.0137 (-0.65)	0.0402*** (2.92)	0.0361*** (3.34)
HB'09	-0.0509*** (-4.58)	-0.0997*** (-13.63)	
HB'13	-0.0297** (-2.18)	0.00969 (0.83)	
<i>Fixed Effects:</i>			
Year FE		✓	✓
Household FE			✓
Obs.	7,240,872	7,240,872	7,233,040
R <sup>2</sup>	0.000	0.002	0.416
Mean(Dependent Var.)	0.671		

HB'13 have lower consumption before and after the home purchase

## Homebuyers-Matching

	HB'13		HB'09		HB'09-Matched	
	Mean		Mean	Diff.	Mean	Diff.
Consumption	147.77		150.93	3.17	151.47	3.70
Income	255.14		245.74	-9.40*	255.10	-0.04
Consumption/Income	0.63		0.64	0.01	0.63	0.00
Deposits	111.61		107.89	-3.72	115.06	3.44
Financial Assets	148.62		144.03	-4.59	153.28	4.66
Debt	192.55		177.99	-14.55	186.11	-6.44
Net Savings	-43.93		-33.97	9.96	-32.83	11.10
Age	32.93		32.63	-0.30	33.12	0.19
# of Adults	1.31		1.38	0.06***	1.34	0.03
# of Children	0.19		0.19	0.01	0.19	0.01
Observations	4826				3103	

Matching reduces the differences

# Homebuyers-Matching

Matched Sample	Consumption/Income		
	(1)	(2)	(3)
HB'13 × Repurchase	0.00774 (0.52)	-0.0400*** (-2.59)	-0.0363** (-2.48)
HB'13 × Purchase	-0.0286* (-1.74)	-0.0413** (-2.59)	-0.0363** (-2.26)
HB'13 × Postpurchase	-0.0302* (-1.77)	-0.0679*** (-4.20)	-0.0606*** (-4.31)
Repurchase	-0.0321** (-1.98)	0.0229* (1.66)	0.0205 (1.59)
Purchase	0.0441** (2.10)	0.0836*** (4.98)	0.0805*** (5.52)
Postpurchase	0.000459 (0.02)	0.0543*** (3.03)	0.0519*** (3.97)
HB	-0.0740*** (-4.86)	-0.123*** (-11.17)	
HB'13	-0.00897 (-0.49)	0.0304* (1.87)	
<i>Fixed Effects:</i>			
Year FE		✓	✓
Household FE			✓
Obs.	7,220,875	7,220,875	7,213,047
R <sup>2</sup>	0.000	0.002	0.417
Mean(Dependent Var.)	0.672		

The decline in consumption gets larger