

# Wealth Inequality in the Netherlands: Observed vs Capitalized Wealth

R. van Ooijen   E. Suari-Andreu   R.J.M. Alessie

University of Groningen & Netspar

WID.world Conference

Paris School of Economics

December 15<sup>th</sup> 2017



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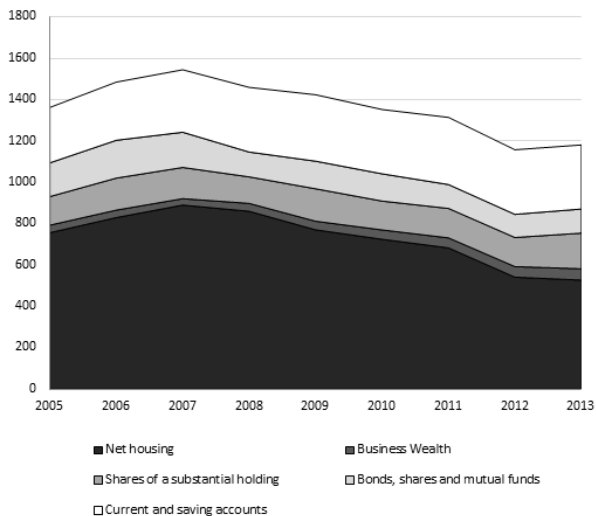
- The wealth distribution can be estimated through a range of methodologies and/or sources: survey data, estate multiplier, wealth tax data or capitalization.
- The capitalization method has received renewed attention since Saez and Zucman (2016 QJE).
- We use Dutch wealth tax data to compute wealth inequality between 2005 and 2013.
- Following Fagereng et al. (2016 AER) and Lundberg and Waldenström (2017 RIW), we compare results from observed wealth with the capitalization method.

- Data
  - IPO Wealth
  - IPO Income
- Capitalization Method
  - National Accounts
  - Capitalization Factors
  - Outcome Capitalization vs IPO Wealth
- Sources of Discrepancy
  - Heterogeneous Returns
  - Wealth>Returns Correlation
- Conclusion and Future Work

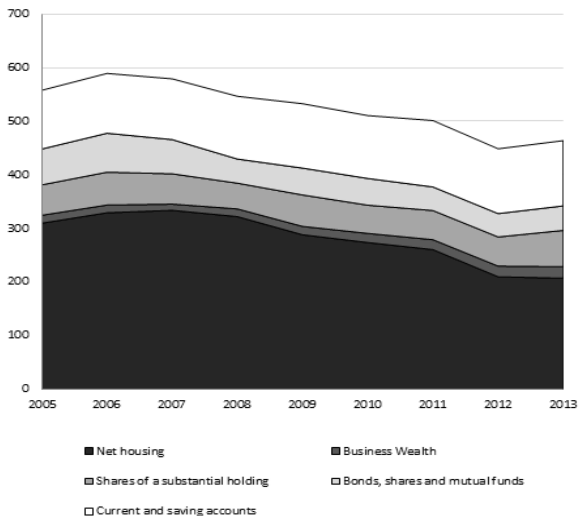
- Through a reform in 2001 the Netherlands imposed a tax on the total value of deposits, stocks, bonds, and immovable property (main residence excluded). Dutch Tax System
- Since 2005 financial institutions provide the tax authorities with integral data on income and wealth.
- Statistics Netherlands has access to these data and puts together what it calls the *Inkomenspanelonderzoek* (IPO).
- The IPO is a panel data set that follows a sample of close to 100 thousand households over time, and provides information on income and wealth linked to demographic characteristics.

- The wealth data are given at the household level and can be broken down into the following categories:
  - **Financial assets:** Current and saving accounts, bonds, shares, and mutual funds, and shares of a substantial holding. **FA**
  - **Non-financial assets:** Main residence, other real estate, and business wealth. **NFA**
  - **Liabilities:** Mortgage and other debt. **LI**
- We do not observe pension wealth, life insurances, and wealth held offshore.

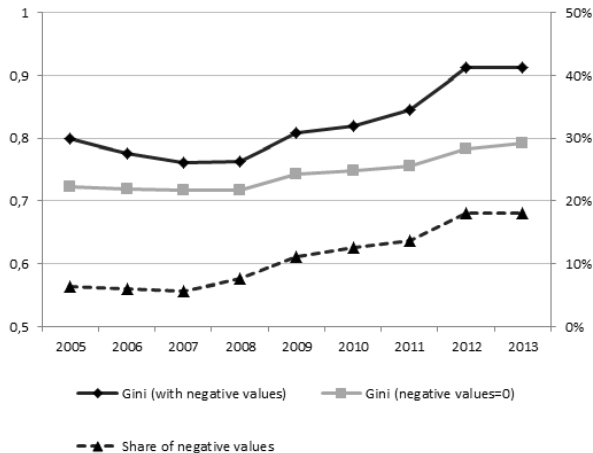
**Figure 1.1** IPO Wealth (€ Billions)



**Figure 1.2 IPO Wealth-Income Ratio**

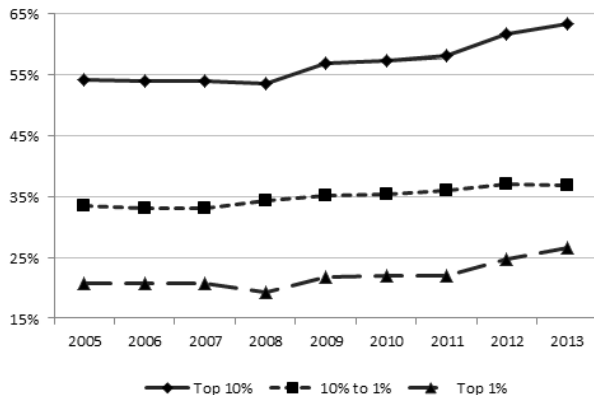


**Figure 2** Gini Coefficient IPO Total Net Wealth



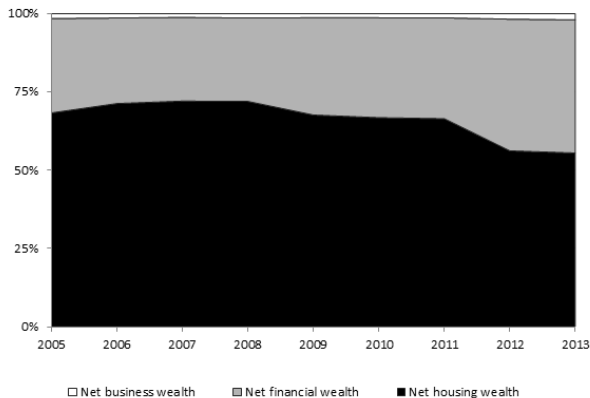


**Figure 3** Top Shares IPO Total Net Wealth

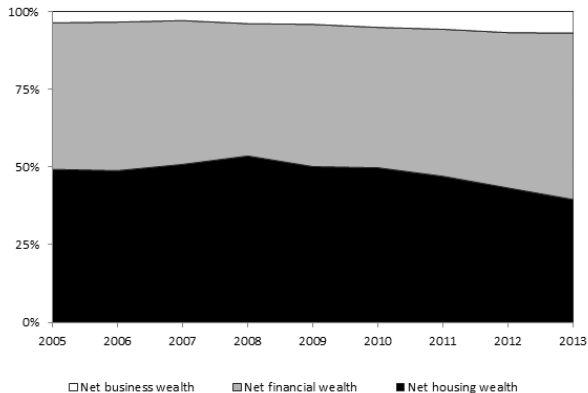


- Inequality slightly decreases between 2005 and 2007 and increases afterwards.
- These dynamics suggest that:
  - The boom and bust cycle in the housing market affected wealth inequality: Housing prices fell by about 20% between 2008 and 2013.
  - The middle class is more exposed to housing than those at the top of the wealth distribution.

**Figure 4.1** IPO Wealth Composition - Bottom 90%



**Figure 4.2** IPO Wealth Composition - Top 10%

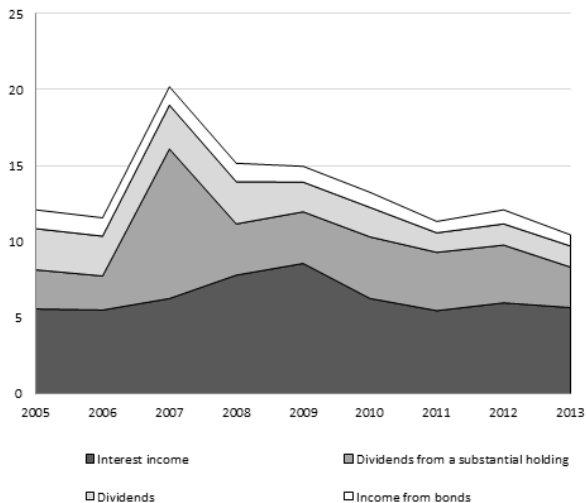


**Figure 4.3** IPO Wealth Composition - Top 1%



- Capital income data are given at the individual level and can be aggregated at the household level.
- The categories are: business income, interest income, income from bonds, dividends, dividends from shares of a substantial holding, income from main residence, and income from other real estate.
- In contrast to the wealth data, income from bonds and dividends are provided separately. Income from mutual funds is considered as dividends.

**Figure 5** IPO Income (€ Billions)



- From the Dutch National Accounts we identify the following stocks which we can match with the IPO Income categories:
  - Checking and saving accounts.
  - Bonds.
  - Shares and mutual funds.
  - Shares of a substantial holding.



- We calculate the capitalization factor ( $cf_j$ ) for asset category  $j$  as the ratio of the aggregate NA stock ( $a_j$ ) over the corresponding aggregate income flow in IPO ( $y_j$ ):

$$cf_j = \frac{a_j}{y_j} = \frac{1}{r_j}.$$

- Assets holdings for each household  $i$  are then imputed using the formula:

$$\hat{a}_{ij} = y_{ij}cf_j.$$

**Figure 6** NA Totals (€ Billions)

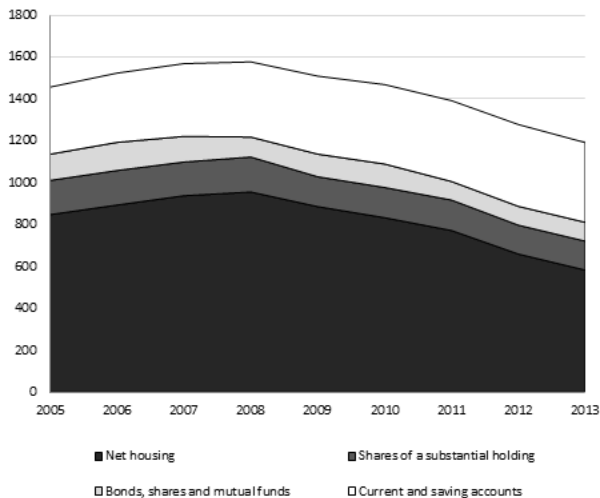
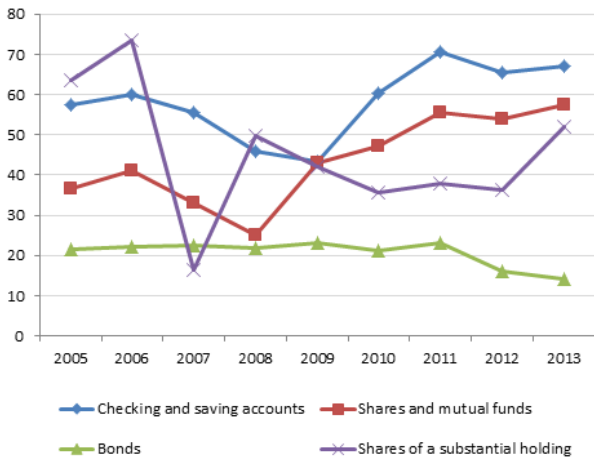
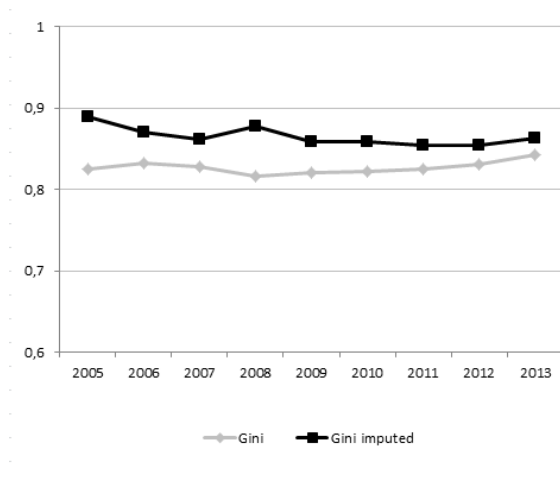


Figure 7 Capitalization Factors

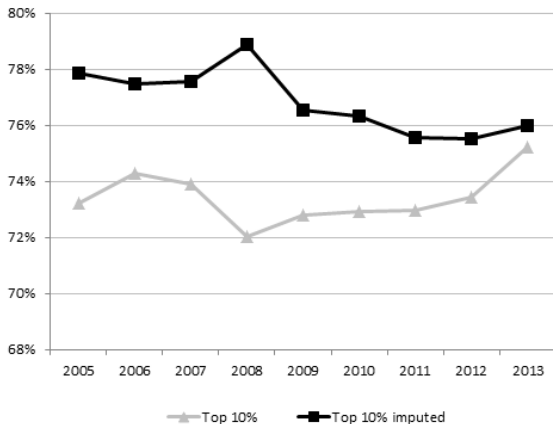


**Figure 8.1** Comparison Gini (Financial Assets)

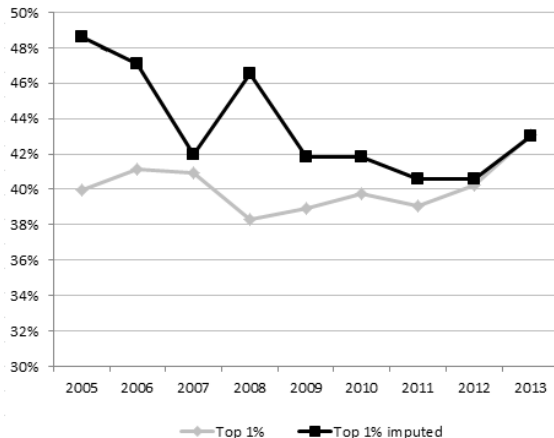


# Outcome Capitalization vs IPO Wealth

**Figure 8.2** Comparison Top 10% Share (Financial Assets)



**Figure 8.3** Comparison Top 1% Share (Financial Assets)



# Sources of Discrepancy

- The capitalization method carries a measurement error since it assumes asset specific constant returns across the wealth distribution:

$$\hat{a}_{ij} = y_{ij} c f_j = r_{ij} a_{ij} \frac{1}{r_j},$$

$$\frac{\hat{a}_{ij}}{a_{ij}} = \frac{r_{ij}}{r_j}.$$

- As explained by Fagereng et al. (2016 AER), the size of the measurement error depends on the extent of heterogeneity in returns and the correlation between returns and wealth.

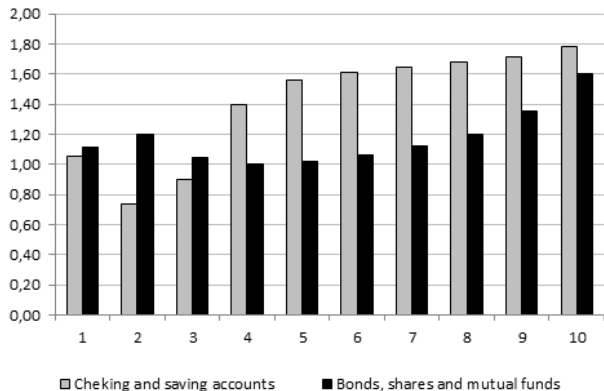
# Heterogeneous Returns

**Table 1** Returns by Asset Class % (Pooled years)

	Avg.	p25	p50	p75	p90	p99	Own.
Current and Saving Accounts	1.85	0.66	1.46	2.28	3.43	12.43	91.42%
Bonds, Shares and Mutual Funds	1.67	0	1.14	2.55	4.06	8.98	24.80%
Shares of a Substantial Holding	4.60	0	0	7.24	10.62	47.73	1.39%



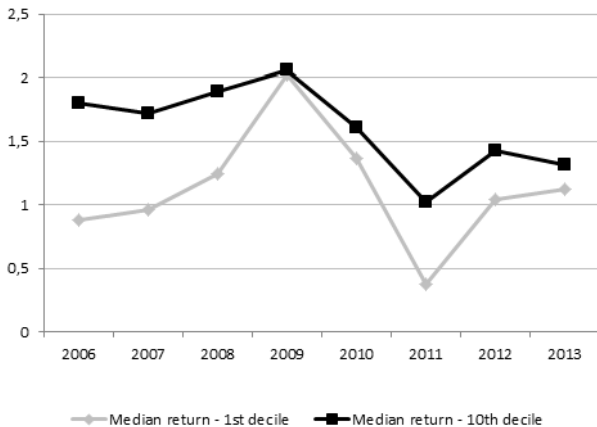
**Figure 9** Median Returns by Asset Class and Net Wealth Decile (Pooled Years)



**Figure 10.1** Median Returns by Net Wealth Decile  
Checking and Saving Accounts



**Figure 10.2** Median Returns by Net Wealth Decile  
Bonds, Shares and Mutual Funds



# Conclusions and Future Work

- Following Fagereng et al. (2016 AER) we intend to decompose the importance of heterogeneous returns and the wealth-returns correlation.
- Construct a broader measure of wealth that would include pension wealth and life insurances.
- Compare wealth tax data with other methods/sources:
  - Survey data.
  - Estate multiplier method.

## • Box 1

**Labour Income:** (1) Wages and salaries, (2) income from self-employment, (3) imputed wage of manager-shareholders of closely-held corporations, (4) pensions, and (5) social security.

**Capital Income:** (1) Imputed rent from owner-occupied housing, and (2) income from assets put at disposal of closely-held corporations by substantial shareholders.

## • Box 2

**Labour Income:** (1) Labour income of manager-shareholders of closely-held corporations in excess of imputed wage.

**Capital Income:** (1) Dividends and capital gains on shares in closely-held corporations which form a substantial holding.

## • Box 3

**Capital Income:** Imputed return (4%) on the value of (1) deposits, (2) stocks, (3) bonds, and (4) immovable property (main residence excluded).

<b>Item</b>	<b>Definition</b>	<b>Source</b>
Current and saving accounts	Total balance of all current and saving accounts	Box 3
Bonds	Market value of debt securities with a fixed interest rate	Box 3
Shares	Market value of securities that generate dividend income	Box 3
Shares of a substantial holding	Shares representing at least 5% of the ownership of a closely-held corporation	Box 2

FA

<b>Item</b>	<b>Definition</b>	<b>Source</b>
Main residence	Market value of owner occupied dwelling	Box 1 and real estate tax
Other real estate	Additional residences and real estate investments	Box 3 and real estate tax
Business wealth	Net value of closely-held owner-operator businesses	Box 1
Other assets	Cash, movable property rented out or used as investment, trust wealth, and share in an undivided estate	Box 3

NFA

<b>Item</b>	<b>Definition</b>	<b>Source</b>
Mortgage	Mortgage debt associated to main residence	Box 1 and real estate tax
Business debt	Net value entrepreneurial wealth in case it is negative	Box 1
Other debt	Consumer debt, study debt, and investment debt (on shares and/or real estate)	Box 3

LI