

Wealth Inequality in the Netherlands: Observed vs Capitalized Wealth

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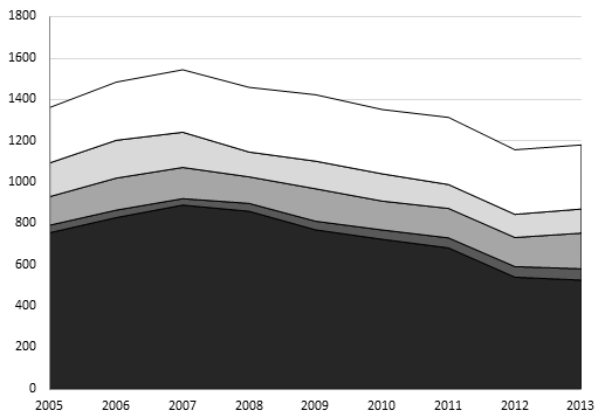
- The wealth distribution can be estimated through a range of methodologies and/or sources: survey data, estate multiplier, wealth tax data or capitalization.
- The capitalization method has received renewed attention since Saez and Zucman (2016 QJE).
- We use Dutch wealth tax data to compute wealth 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)



NA Aggregates

- Net housing
- Business Wealth
- Shares of a substantial holding
- Bonds, shares and mutual funds
- Current and saving accounts

Figure 1.2 IPO Wealth-Income Ratio

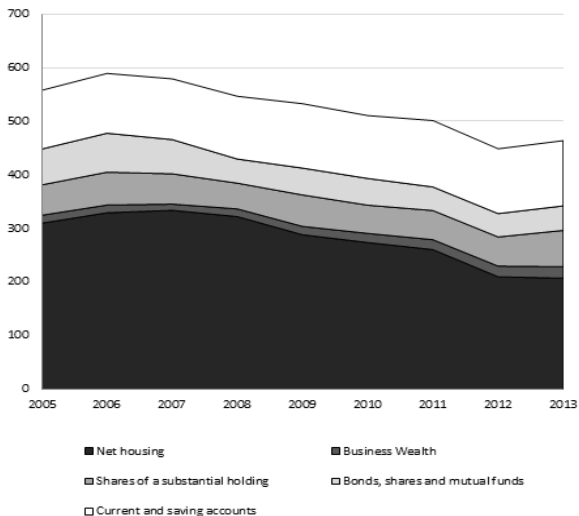


Figure 2 Gini Coefficient IPO Total Net Wealth

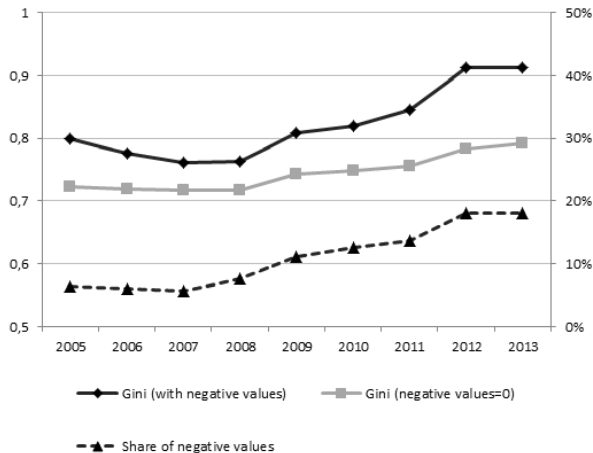
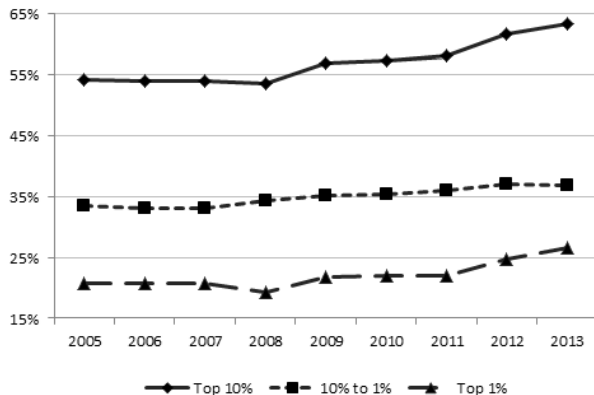


Figure 3 Top Shares IPO Total Net Wealth



- 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%

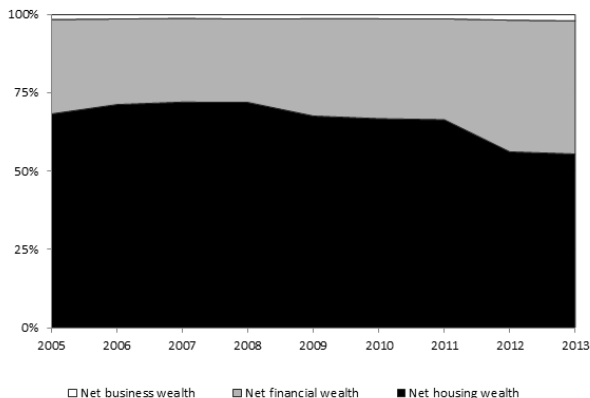


Figure 4.2 IPO Wealth Composition - Top 10%

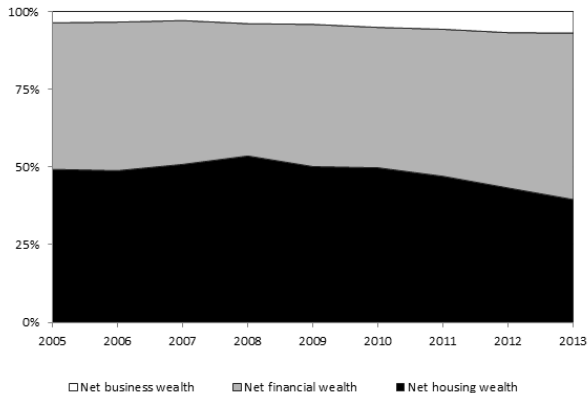
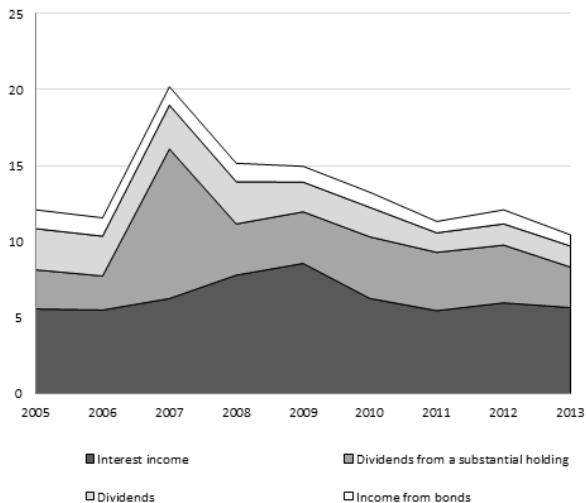


Figure 4.3 IPO Wealth Composition - Top 1%



- 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)

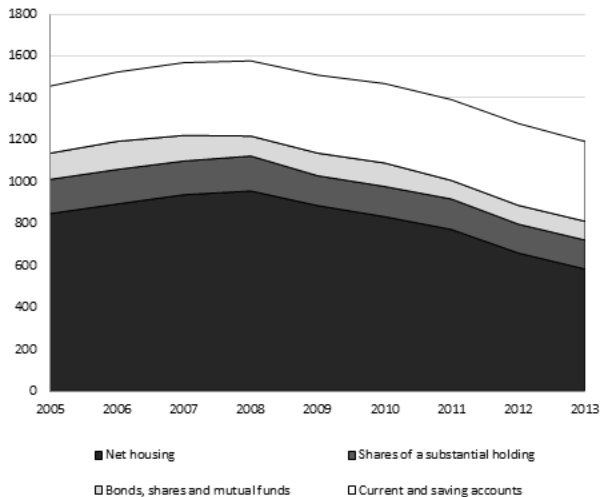


Figure 7 Capitalization Factors

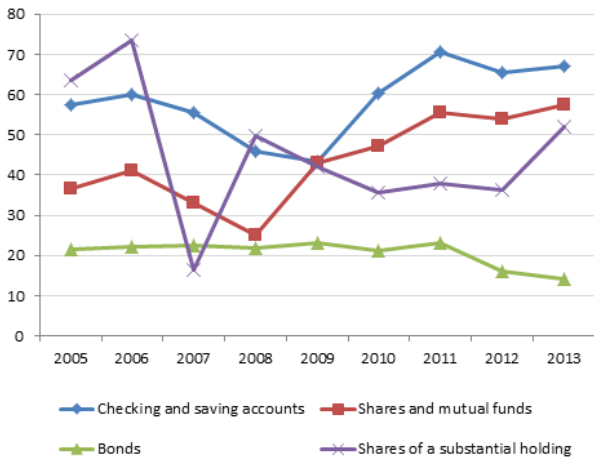


Figure 8.1 Comparison Gini (Financial Assets)

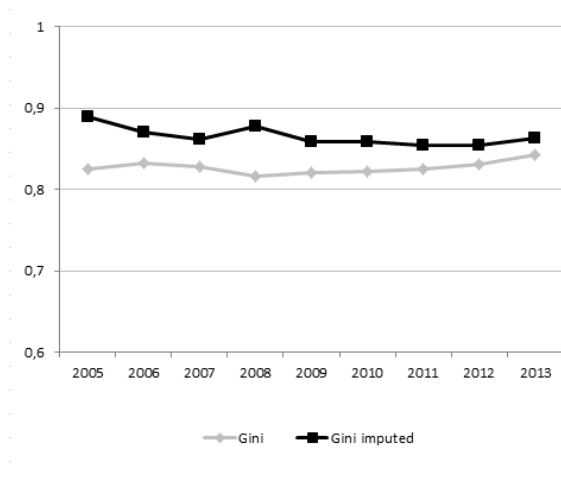
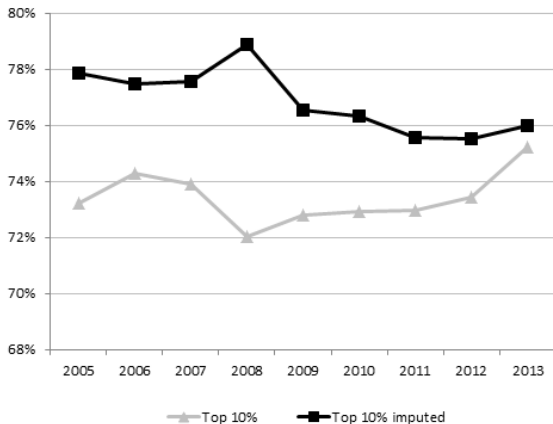
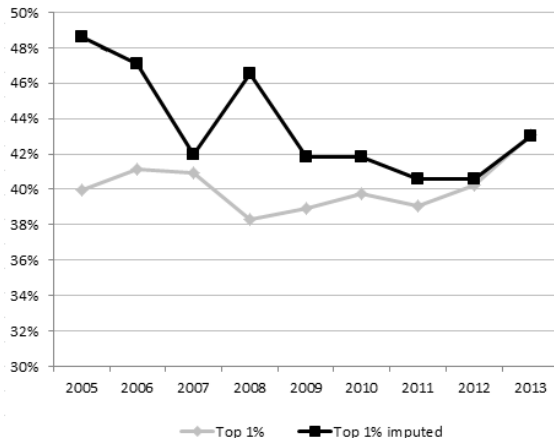


Figure 8.2 Comparison Top 10% Share (Financial Assets)



Outcome Capitalization vs IPO Wealth

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)

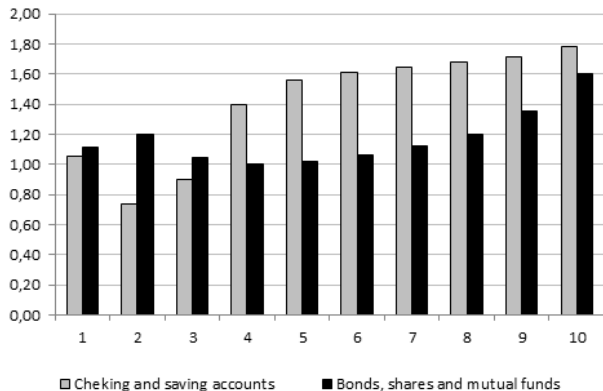


Figure 10.1 Median Returns by Net Wealth Decile
Checking and Saving Accounts

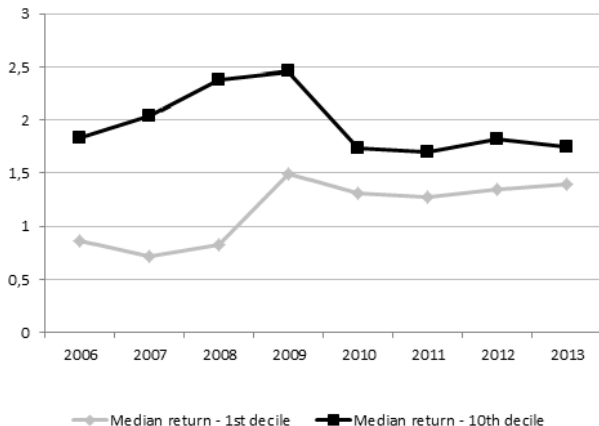


Figure 10.2 Median Returns by Net Wealth Decile
Bonds, Shares and Mutual Funds



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).

Item	Definition	Source
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

Item	Definition	Source
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

Item	Definition	Source
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