Home ownership and cohorts in a comparative perspective (2000-2020): rewealthization as a trend of increasing inequality and distortion within income groups and occupational classes

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LIS LISER SEM ON HOUSING AND WEALTH INEQ
Recent studies put emphasis on wealth distribution
  - Piketty, 2014; Saez & Zucman, 2016; Chauvel et al, 2021; Pfeffer Waitkus, 2022; etc.

Wealth transfers, role of inheritance, even for health
(Semyonov, Lewin-Epstein, Maskileyson 2013 [Social Science and Med] )

Wealth as a central component of mobility and life chances
(Killewald Pfeffer Schachner, 2017)

General:
Buy the work of others, resource for investment, insurance function, etc.

Specific to health: healthier life style, shock absorber and stress buffer,
access to expensive hospitals, doctors, treatments, (better spare parts)

Wealth is more than a « money reserve »!

Home ownership as a crucial dimension of saving strategies across the life course
Background: wealth is back, and housing price index fascinating

- Repatrimonialisation = Re-wealth-ization = Wealth is back in town...
- Wealth / Income ratio
- Housing indices / Household Incomes
- A topic shared by economists, political scientist and sociologists


RESEARCH QUESTION HERE NOW:
Housing Price Impact on Birth Cohorts
A Global Approach

Home ownership status (HOS)

BIRTH COHORT INEQUALITIES / GENERATIONAL SCARS

Consequences of the new context
of housing price inflation for young cohorts in transition

I. Permanent interest of housing property
   (wealth accumulation, insurance function and retirement ...)

II. Coping with new RHPI

III. Longer repayment period, cheaper zone, smaller size house

IV. .. Or ... remain on the renting market => HOS=0

International Variations:
Prices, History, Demography, Family structures, Taxes, Policies ...

INTER-COHORT INEQUALITIES // INTRA-COHORT INEQUALITIES
Work income, wealth and the middle class: thinking on the strobiloid

Figure 6. Income and Wealth Strobiloid 2017 in euro (in France)

100 = Median Income
100 = Median Wealth

Income (per consumption unit)
Gini = 29%

Wealth (per household)
Gini = 66%

Median income: 24.4K€/UC/year
Mean income

Median wealth: 155K€/household

Note: The strobiloid is the shape of social pyramid corresponding to the distribution of income (left half) versus wealth (right half) (see [Chauvel 1995]). At a given level of income, the larger the curve, the more people there are positioned around this point. If 100 is the median income (per consumption unit) a large strobiloid at level 100 shows a large middle class at an equal distance between extremes. For wealth, there is clearly no middle class, and the population is stretched between an extremely high level of accumulation and an extremely low level.


Combining EGP and HOS
[proposal for a new collapse of the Service Class]

Four variations of the EGP class scheme including housing property

- Traditional EGP class scheme (A egp)
- Class scheme with service class collapsed by HOS (B hos)
- Class scheme including HOS and the 2 service classes (C egp/hos)
- Class scheme including HOS and service class simplified (D egp/hos/s)
Why is wealth crucial now? Western European Realities

Average cost of an apartment in Europe as of the 1st half of 2020, by city
(in euros per square meter)


HK island 2022 ➔ 20.000eur/m²

Average price of private permanent housing flats in Hong Kong from 2006 to 2022, by district
(in Hong Kong dollars per square meter)


In 2022, the average price of permanent housing in Hong Kong Island dropped to around 173 thousand Hong Kong dollars per square meter on average. The city had the highest property prices in the region.
2022 Q3 prices and income levels
The median multiple is a price-to-income ratio, which is the median house price divided by the gross median household income (pre-tax).
Gaps of Work and Wealth in Global Cities


➔ Think now of elite level services: education, health, etc.
Owner / non-owners? Issues?

Price and quality?


https://www.squareyards.com/blog/lakshmi-mittal-house-celebhm
1B€
Intergenerational home ownership

Jo Blanden\textsuperscript{1,3} \& Andrew Eyles\textsuperscript{2,3} \& Stephen Machin\textsuperscript{4}

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Abstract
This paper studies intergenerational links in home ownership, an increasingly important wealth marker and a measure of economic status in itself. Repeated cross sectional UK data show that home ownership rates have fallen rapidly over time, most markedly amongst younger people in more recent birth cohorts. Evidence from British birth cohorts data supplemented by the Wealth and Assets Survey show a significant rise through time in the intergenerational persistence of home ownership, as home ownership rates shrank disproportionately among those whose parents did not own their own home. Given the close connection between home ownership and wealth, these results on strengthening intergenerational persistence in home ownership are therefore also suggestive of a fall in intergenerational housing wealth mobility over time.

Keywords Housing \cdot Intergenerational mobility \cdot Wealth \cdot Cohorts

JEL Classification R31 \cdot J11 \cdot D31 \cdot J62

**Notes:** Labour Force Survey data from 1996 to 2016. The sample of observations is limited to household reference persons. Data are weighted using person weights provided by the LFS.

**Fig. 2** Patterns of home ownership in the UK across time and age group

![Graph showing cohort effects on home ownership from the labour force survey](image)

Notes: Labour Force Survey data from 1996 to 2016. The sample of observations is limited to household reference persons aged 20-69. Individual controls are gender, marital status, number of dependent children, ethnicity and, in the case of the dashed line, gross weekly income entered as a percentile in the annual wage distribution. Percentiles are calculated using LFS income weights. All three lines are based on coefficients from the common sample of individuals with full data on characteristics and income. In order to separately identify the effect of cohort from age and year, we normalise the cohort effect to be 0 for individuals aged 42 in the year 2000 (those born in 1958 as indicated by the vertical line in the Figure). Coefficients are smoothed over a using a 5 year rolling window.

Fig. 3 Cohort effects on home ownership from the labour force survey
WHAT TIME IS IT? Age-Period-Cohort

UK= United Kingdom

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BIRTH COHORT INEQUALITIES / GENERATIONAL SCARS

Consequences of the new context
of housing price inflation for young cohorts in transition

I. Permanent interest of housing property (wealth accumulation, insurance function and retirement)

II. Coping with new RHPI

III. Longer repayment period, cheaper zone,
smaller size house (apartment, not house with a garden, … )

IV. .. Or … remain on the renting market => HOS=0

International Variations:
Prices, History, Demography, Family structures, Taxes, Policies …

INTER-COHORT INEQUALITIES // INTRA-COHORT INEQUALITIES
Data and measurements

- LIS [www.lisdatacenter.org](http://www.lisdatacenter.org)
  - Main countries **au de es il it lu mx uk us**
    (Australia Germany Spain Israel Italy Luxembourg Mexico United-Kingdom Untied-States)
  - Window of observation: 2000 to most recent
  - Age groups from age 35 to 79 (before too early, after too late … )
  - Excluding persons living with parents (! ➔ same meaning for Germany and Italy)

- Variables:
  - Dep. Var.: HH ref person and partner’s home ownership: 0/1 variable
    (1) [full home owners (no mortgage) + owners with mortgage] vs (0) others
  - Time(s) variable: Age / Period / cohort APC
  - Other variables (for controls):
    HH equivalized income; education; migration; etc…
**WHAT TIME IS IT? Age-Period-Cohort**

**UK= United Kingdom**

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https://doi.org/10.1007/s10734-018-0353-z
UK = United Kingdom

Owners by age group

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The larger APC family (with STATA ssc install)

APCD (detrended): are some cohorts above or below a linear trend of long-run economic growth? Basically, the APCD is a ‘bump detector’. ssc install apcd

APCTLAG (trended by cohort once average lagged age effect fitted): which cohort increased or declined. The program is a part of the ssc install apcgo

APCGO (gap / Oaxaca): once controlled by other covariates, did the gap between group 0 and 1 changed. ssc install apcgo

APCH (hysteresis) is the cohort apcd effect bump durable or not over time

APC-DISCO (discontinuity) parsimonious test of cohort trend discontinuity (level/slope)

Refinements to come (faster bootstraps, better controls, simplification, etc.)
The issue with APC models is the diversity of general slopes. Conventional APC with constraint, Yang Yang APC-IE, HAPC …

**Our method A: APCD**

APCD (detrended): are some cohorts above or below a linear trend of long-run economic growth? Basically, the APCD is a ‘bump detector’.

\[
y_{apcd} = \alpha_a + \pi_p + \gamma_c + \alpha_0 \text{rescale}(a) + \gamma_0 \text{rescale}(c) + \beta_0 + \sum_j \beta_j x_j + \epsilon_i
\]

\[
\begin{align*}
  p &= c + a \\
  \sum a &= \sum p = \sum c = 0 \\
  \text{Slope}_a(\alpha_a) &= \text{Slope}_p(\pi_p) = \text{Slope}_c(\gamma_c) = 0 \\
  \min(\epsilon) &< \epsilon < \max(\epsilon)
\end{align*}
\]

STATA ssc install apcd => available ado file

• PLZ see more on www.louischauvel.org/apcdex.htm


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Notes: Labour Force Survey data from 1996 to 2016. The sample of observations is limited to household reference persons aged 20-69. Individual controls are gender, marital status, number of dependent children, ethnicity and, in the case of the dashed line, gross weekly income entered as a percentile in the annual wage distribution. Percentiles are calculated using LFS income weights. All three lines are based on coefficients from the common sample of individuals with full data on characteristics and income. In order to separately identify the effect of cohort from age and year, we normalise the cohort effect to be 0 for individuals aged 42 in the year 2000 (those born in 1958 as indicated by the vertical line in the Figure). Coefficients are smoothed over a using a 5 year rolling window.

**Fig. 3** Cohort effects on home ownership from the labour force survey.
Part II: APC-lag of the $u_{apc}$

- APC-Detrended as an identifiable solution of age, period and cohort non-linear effects (Chauvel, 2013, Chauvel and Schröder, 2014, Chauvel et al., 2016)

\[ u_{apc} = \alpha_a + \pi_p + \gamma_c + \alpha_0 \text{rescale}(a) + \gamma_0 \text{rescale}(c) + \beta_0 + \varepsilon \quad (APCD) \]

- where $\alpha_a, \pi_p, \gamma_c$ are zero and trend zero; $\alpha_0$ and $\gamma_0$ absorb age and cohort trend
- $\beta_0$ is the constant
- $\alpha_0 \text{rescale}(a) + \gamma_0 \text{rescale}(c)$ is a two-dimensional linear (=hyperplane) trend
- $\alpha_a, \pi_p, \gamma_c$ are 3 vectors of age, period and cohort fluctuations

- To solve the “identification problem” (a=p-c), a meaningful constraint is needed: trend in $\alpha_a = \text{the average of the longitudinal shift observed in } u_{apc}$
Methodology of APC-lag STATA subcommand in « ssc install apcgo »

Part II: APC-lag of the $u_{apc}$

- The APC-lag solution:

$$\alpha = \frac{\sum (u_{(a+1, p+1, c)} - u_{apc})}{[(A-1) (P-1)]}$$

$\alpha$ is the average longitudinal age effect along cohorts

($= \text{the average difference between } u_{(a+1, p+1, c)}$ and its cohort lag $u_{apc}$ across the table)

$$\text{Trend}(\alpha_c) = 12[\sum \alpha_c (2i - A - 1)] / [(A - 1)A(A + 1)]$$

- APC-lag delivers a unique estimate of vector $\gamma_c$, a cohort indexed measure of gaps
- Average $\gamma_c$ is the general intensity of the gap
- Trend of $\gamma_c$ measures increases/decreases of the gap in the window of observation
- Values of $\gamma_c$ show possible non-linearity
- The $\gamma_c$ can be compared between countries
Methodology of APC-tlag STATA subcommand in « ssc install apcgo »

UK= United Kingdom

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Cohort effects of home ownership with bootstrapped confidence intervals
And discontinuity analysis

Discontinuity:
cohort born in 1950 or 1965?
Cohort effects of home ownership with confidence intervals
And discontinuity analysis
Cohort effects of home ownership with confidence intervals
And discontinuity analysis (ALL INCOMES)
INTER COHORT DISCONTINUITIES // INEQUALITIES
On Stata: ssc install apcgo

- APC-GO is an APC model to provide a cohort analysis in gaps in outcomes between 2 groups after controlling for relevant explanatory variables
  - e.g. (gender) gaps in income net of education effects
    or (racial) gaps in education net of State/county effects

- Ingredients:
  1. Computation of Oaxaca decomposition in unexplained/explained gaps by A x P cell
  2. Estimate of APC-lag gaps with a focus on cohort
  3. Bootstrapping to obtain confidence intervals

Cohort effects of home ownership with confidence intervals
And discontinuity analysis OF GAP BETWEEN >1.2 times the median and <0.83 times the median income
Main Results

I. The trends are not universal (=welfare and housing regimes)

II. Anyway, the common trend is adverse to the lower income groups

III. And generally the young generations

IV. With increasing gaps ➔ squeezing the middle?
Conclusion

FUTURE RESEARCH

I. Why? Education, parental wealth, migration,…

II. Comparative diversities?

III. HISTORY, markets, institutions, taxation, cultural behavior,… ???

IV. Price and quality?…

V. Infranational divergence? Education, parental wealth, migration,…

VI. Futurology
   … increasing divide between owners and the wealth-poor ?
   More questions than answers!
Remember Whelpton and Frost

APC literature: Gospels & Bibles 1970-1990s

APC literature 2008-2013


O’Brien RM, 2015, Model Misspecification when Eliminating a Factor in Age-Period-Cohort Models, ASA 2015 Chicago mimeo.


APC literature (2016-2019)


Valleé-Dubois, Florence; Dassonneville, Ruth; Godbout, Jean-François. 2020. Educational equalization; Subjective well-being (Psychology); Demographic surveys; Labor supply; Selection bias (Statistics); Labor market research


APC literature (2020...)


**APC literature (2020...)**


