WITH THE SUPPORT OF

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Detecting Distortions and Disruptions in Cohort Dynamics of Wellbeing in Europe: A 2004-22 EUSILC Analysis of Income, Homeownership, Health, Deprivation and Other Socioeconomic Indicators Using APC Models in 30 Countries

http://louischauvel.org/VIGONI_COMO_CHAUVEL_2025.pptx

Louis Chauvel

Institute for Research on Socio-Economic Inequality (IRSEI)
University of Luxembourg

19th Conference "Social Monitoring and Reporting in Europe"

Demographic Challenges and Opportunities and their Impact on Individual and Societal Well-being

Demographic Change and Dynamics of Well-being
Chair: Christian Suter (University of Neuchâtel)

Housing Crisis and the Young Generation of Adults

"Its < =education > other sin is that it does not prepare them <the young> for the aggressiveness of which they are destined to become the objects. In sending the young out into life with such a false psychological orientation, education is behaving as though **one were to equip people starting on a Polar expedition with summer clothing and maps of the Italian Lakes**."

Sigmund Freud (1930). *Civilization and its Discontents*. Section VIII footnote 1

„Sie < Erziehung > sündigt außerdem darin, daß sie <Jügend> ihn nicht auf die. Aggression vorbereitet, deren Objekt er zu werden bestimmt ist. Indem sie die Jugend mit so unrichtiger psychologischer Orientierung ins Leben entläßt, benimmt sich die Erziehung nicht anders, als wenn man Leute, die auf eine Polarexpedition gehen, mit Sommerkleidern und Karten der oberitalischen Seen ausrüsten würde."

The Journal of Economic Inequality
https://doi.org/10.1007/s10888-023-09563-z

Intergenerational home ownership

Jo Blanden[1,3] · Andrew Eyles[2,3] · Stephen Machin[4]

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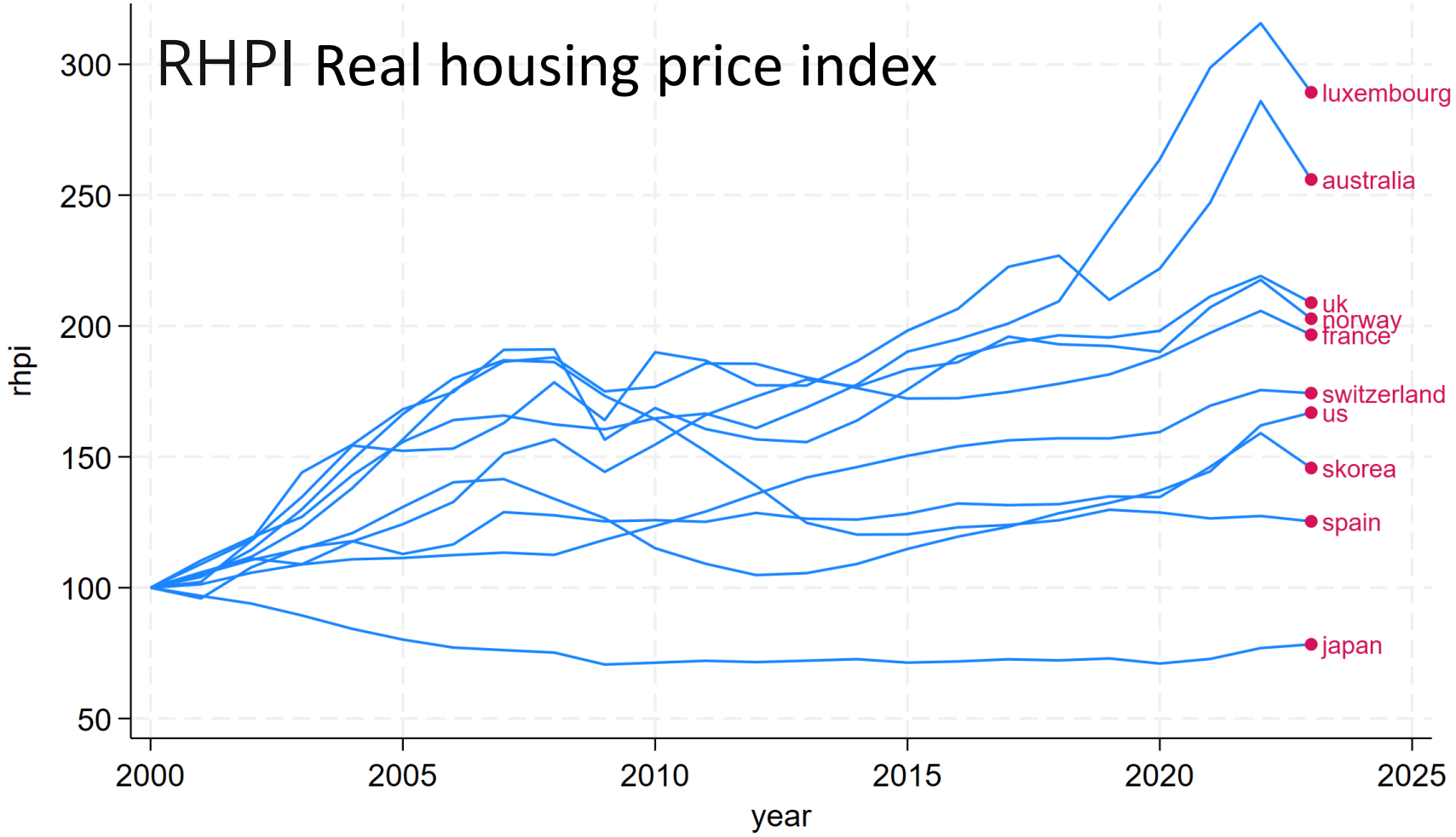
Abstract

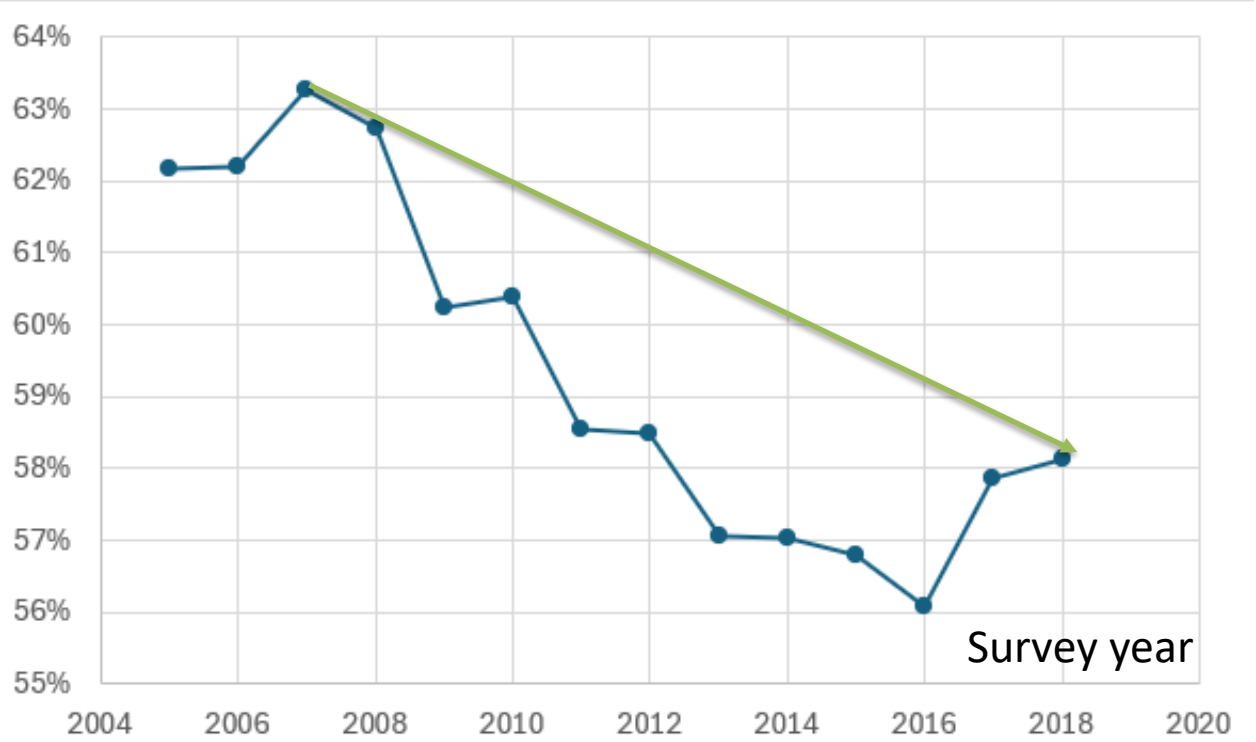
This paper studies intergenerational links in home ownership, an increasingly important wealth marker and a measure of economic status in itself. Repeated cross sectional UK

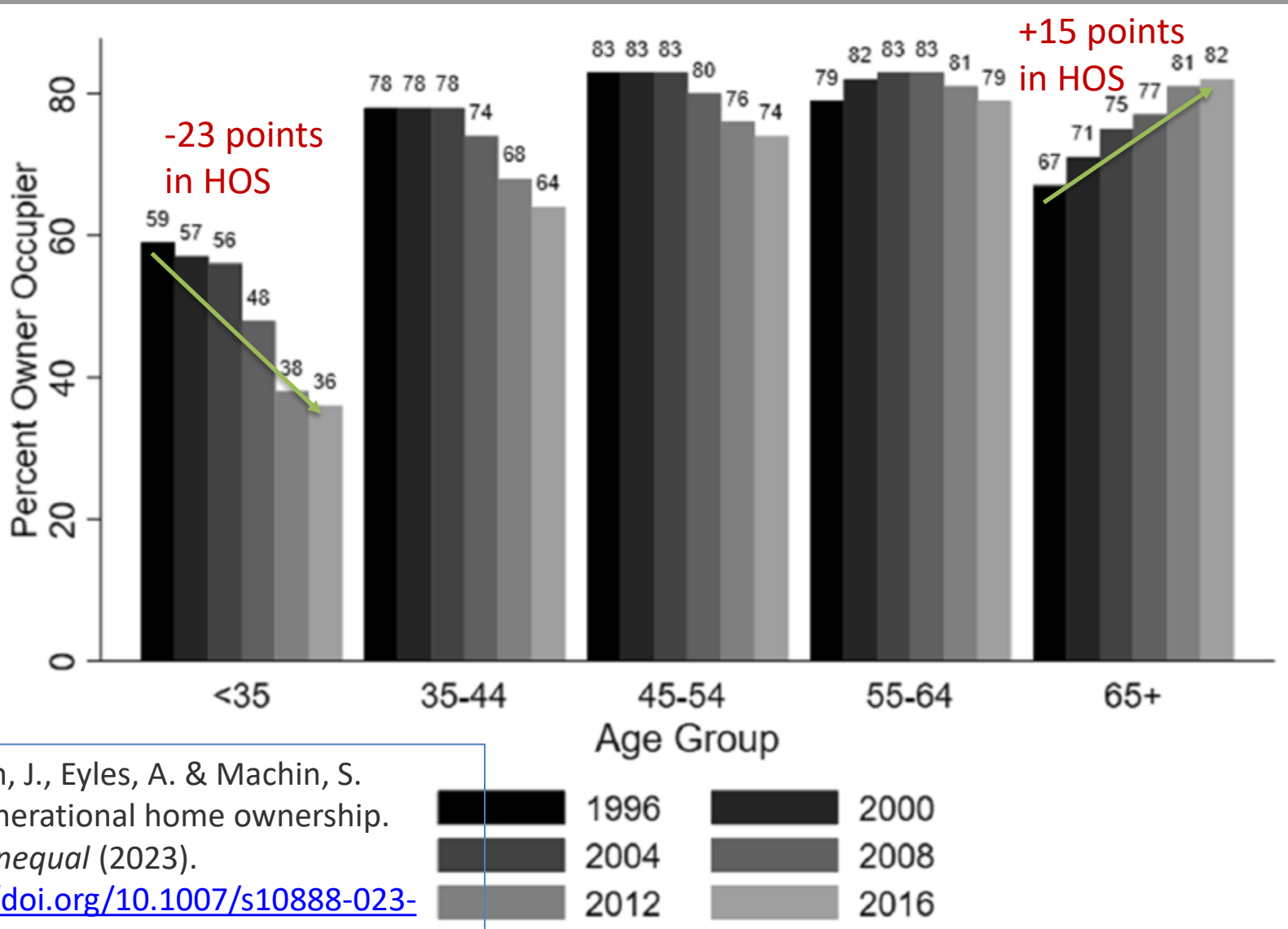
Booming RHPI Real housing price index (100=year 2000) («housing assets inflation»)



RHPI Real housing price index (2000=100) Mack, A., and E. Martínez-García. 2011. "A Cross-Country Quarterly Database of Real House Prices: A Methodological Note." Globalization and Monetary Policy Institute Working Paper No. 99, Federal Reserve Bank of Dallas. Chauvel's calculations

- «Nuance»
  Only -5 points in HOS (home ownership status 0/1)
  UK in Eu-Silc surveys





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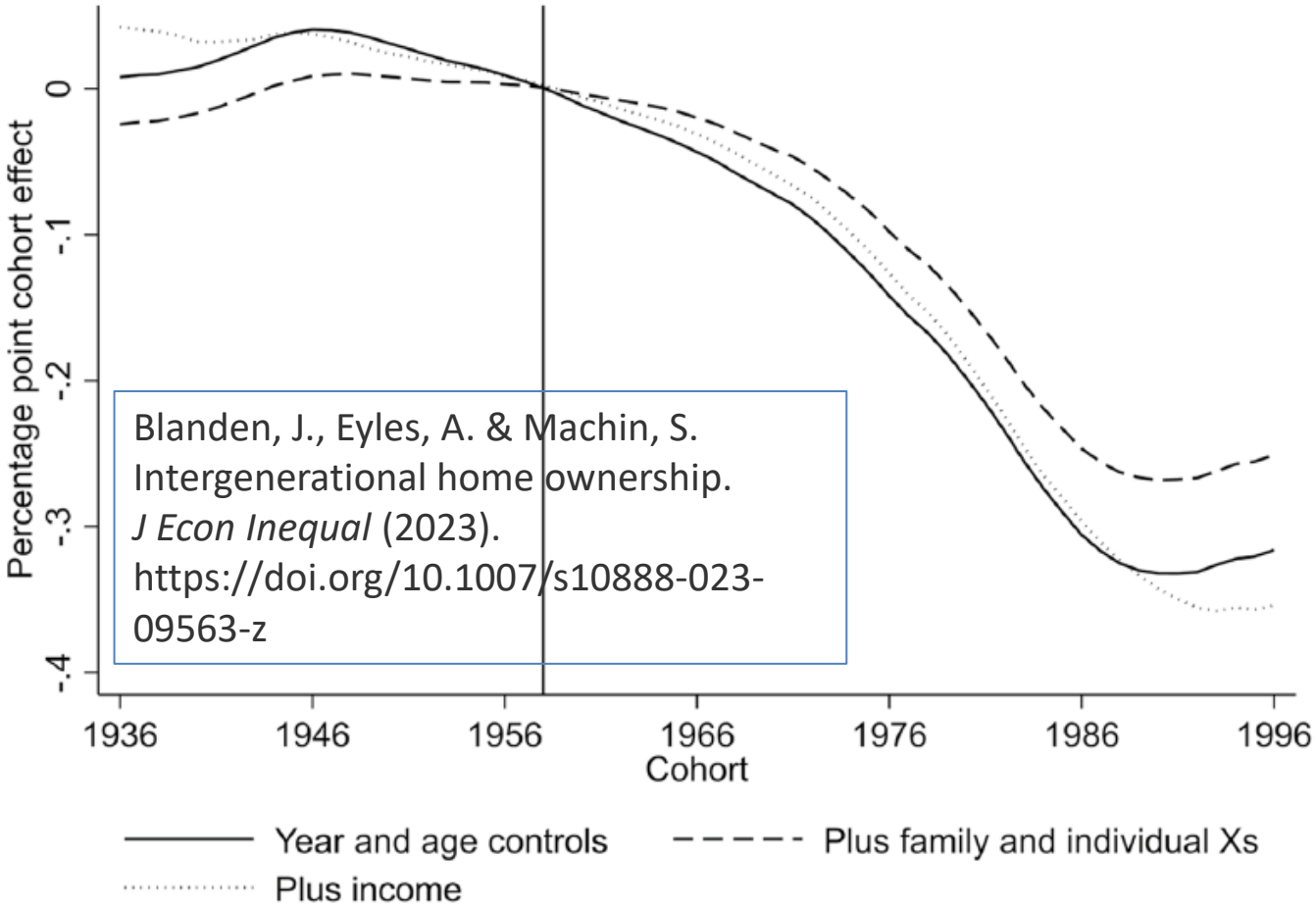
Notes: Labour Force Survey data from 1996 to 2016. The sample of observations is limited to household reference persons. Data are weighted using person weights provided by the LFS.

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



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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, maritial status, number of dependent children, ethnicity and, in the case of the dahsed 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 seperately 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

Owners by age group

a5 \ p5	2000	2005	2010	2015	2020
35	75%	72%	65%	56%	57%
40	77%	76%	71%	63%	63%
45	80%	78%	74%	69%	68%
50	83%	81%	77%	74%	73%
55	84%	83%	79%	77%	76%
60	81%	82%	82%	79%	77%
65	78%	80%	81%	81%	78%
70	75%	79%	80%	81%	81%
75	71%	77%	80%	80%	82%

Age

Period

Bar-Haim, E., Chauvel, L. & Hartung, A. More necessary and less sufficient: an age-period-cohort approach to overeducation from a comparative perspective. *High Educ* **78**, 479–499 (2019). https://doi.org/10.1007/s10734-018-0353-z

Home ownership status (HOS) binary

BIRTH COHORT INEQUALITIES / GENERATIONAL SCARS

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

I. *Permanent attractivity 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, welfare regimes …

INTER-COHORT INEQUALITIES // INTRA-COHORT INEQUALITIES

Data and measurements

- LIS 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 (**percentile rank of the HH**); education; migration; etc…

Methodology of APC-tlag
STATA subcommand in « ssc install apcgo »

APCTlag

WHAT TIME IS IT? Age-Period-Cohort

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Age

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Remember Whelpton and Frost

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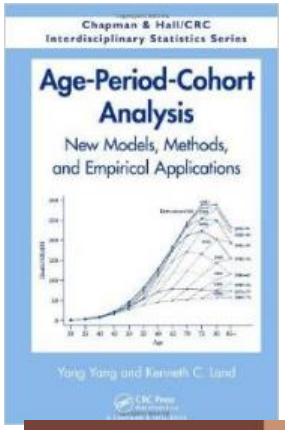

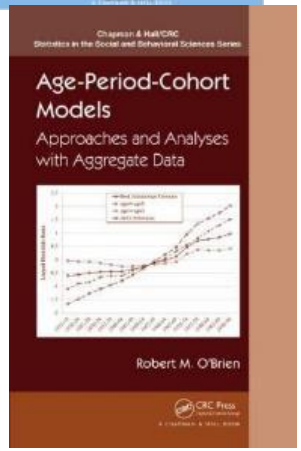

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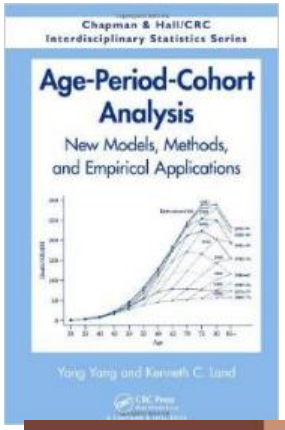

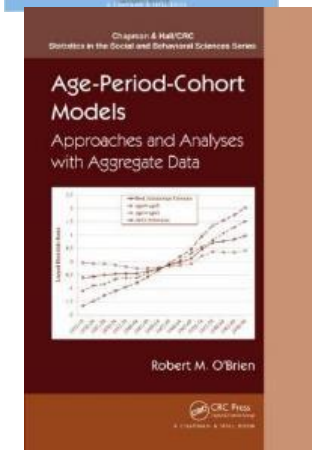

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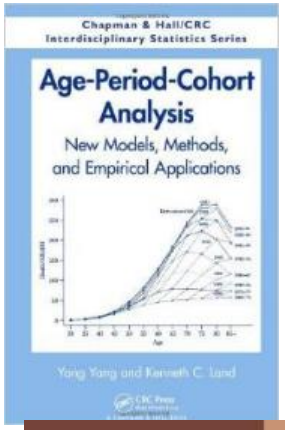
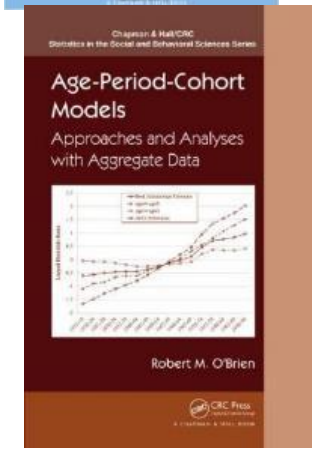
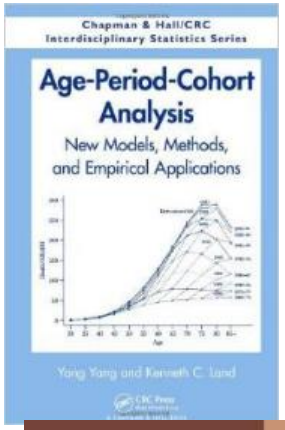
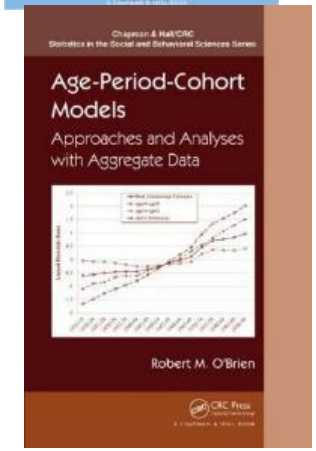




APC literature (2015-2017)





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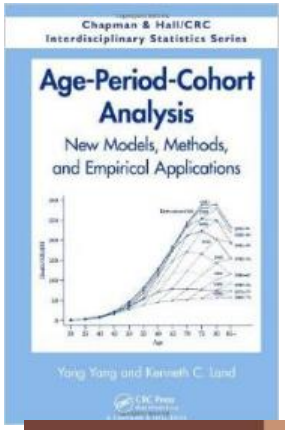

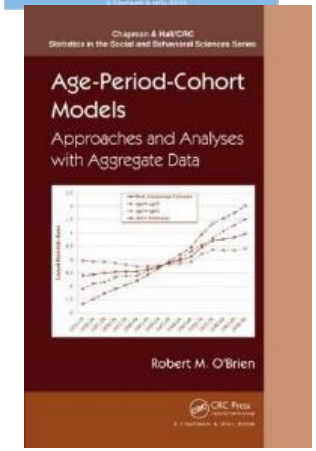

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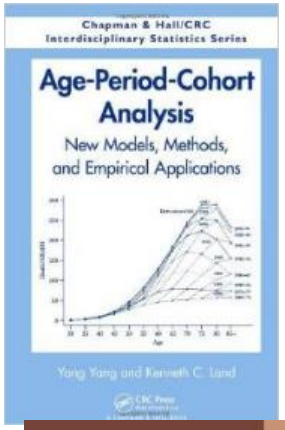

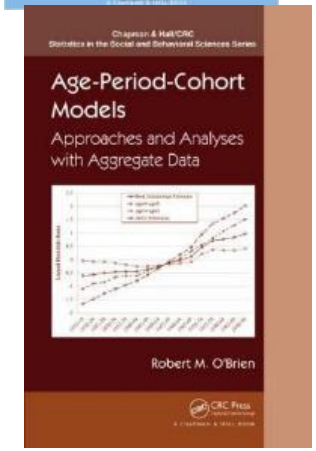

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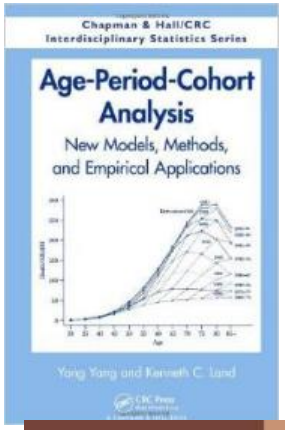

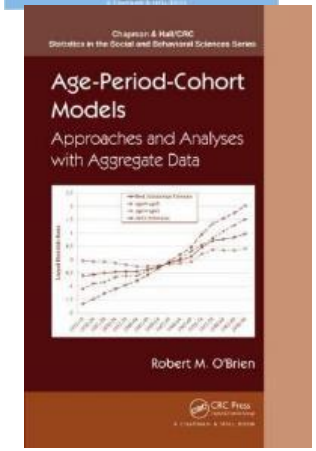

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Methodology of APC-tlag
STATA subcommand in « ssc install apcgo »

APCTlag

WHAT TIME IS IT? Age-Period-Cohort

UK= United Kingdom

Owners by age group

a5 \ p5	2000	2005	2010	2015	2020
35	75%	72%	65%	56%	57%
40	77%	76%	71%	63%	63%
45	80%	78%	74%	69%	68%
50	83%	81%	77%	74%	73%
55	84%	83%	80%	77%	76%
60	81%	82%	82%	80%	77%
65	78%	80%	81%	81%	80%
70	75%	79%	80%	81%	81%
75	71%	77%	80%	80%	82%

Age

Birth cohort 1960

Period

Bar-Haim, E., Chauvel, L. & Hartung, A. More necessary and less sufficient: an age–period–cohort approach to overeducation from a comparative perspective. *High Educ* **78**, 479–499 (2019). https://doi.org/10.1007/s10734-018-0353-z

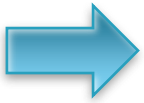
The larger APC family (with STATA ssc install)

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 (hystersis) 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.)

Methodology of APC-tlag APCD
STATA subcommand in « ssc install apcd »

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'.

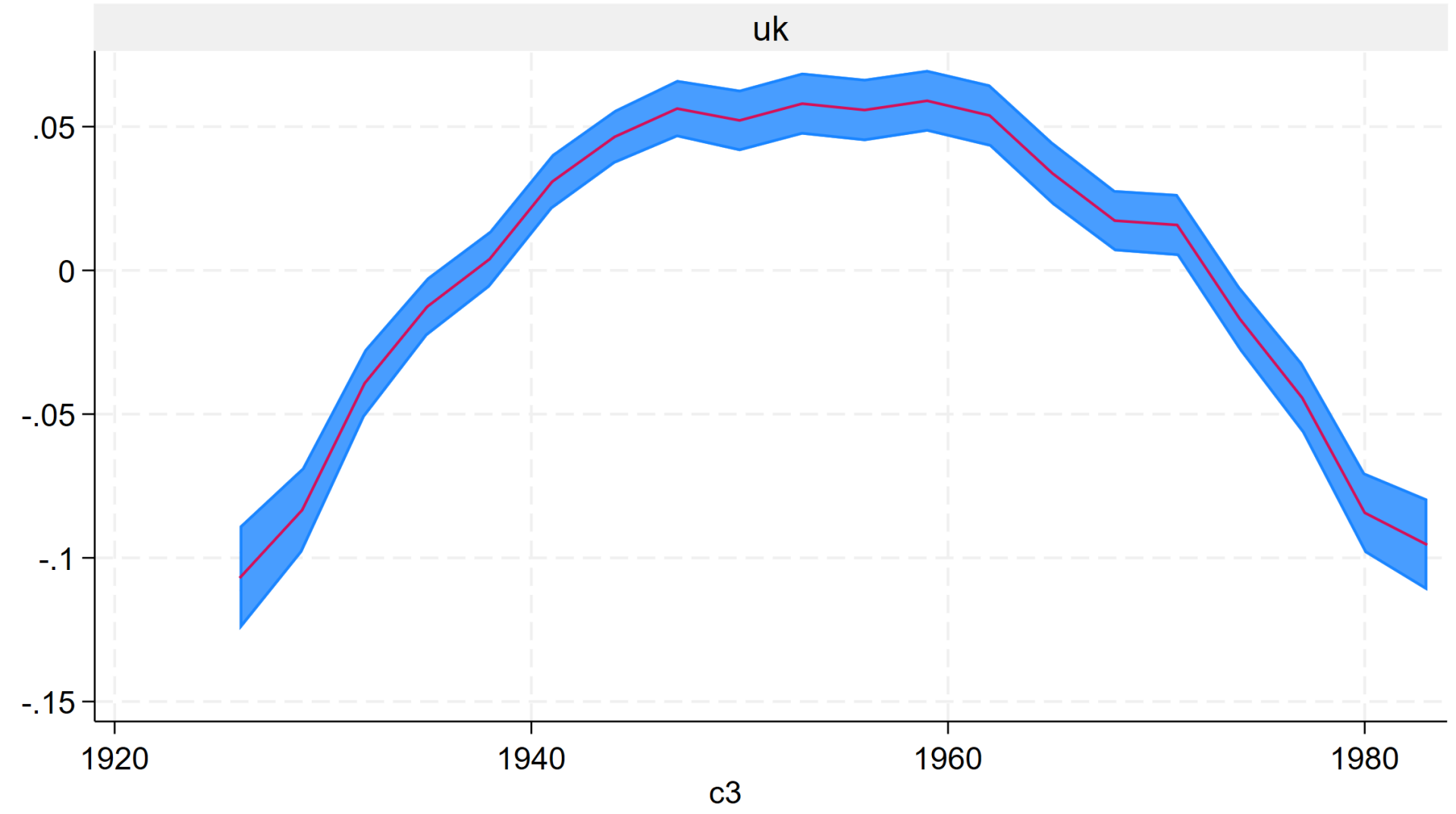
$$\begin{cases} y^{apc} = \alpha_a + \pi_p + \gamma_c + \alpha_0 rescale(a) + \gamma_0 rescale(c) + \beta_0 + \sum_j \beta_j x_j + \varepsilon_i \\ \begin{cases} p = c + a \\ \sum_a \alpha_a = \sum_p \pi_p = \sum_c \gamma_c = 0 \\ Slope_a(\alpha_a) = Slope_p(\pi_p) = Slope_c(\gamma_c) = 0 \\ \min(c) < c < \max(c) \end{cases} \end{cases} \quad \text{(APCD)}$$

STATA ssc install apcd
=> available ado file

- **PLZ see more on**
www.louischauvel.org/apcdex.htm

Chauvel, L. and Schröder M., (2014). Generational inequalities and welfare regimes. Social forces 92 (4):1259-1283.

APCD estimates of HOS in the UK, Silc source



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

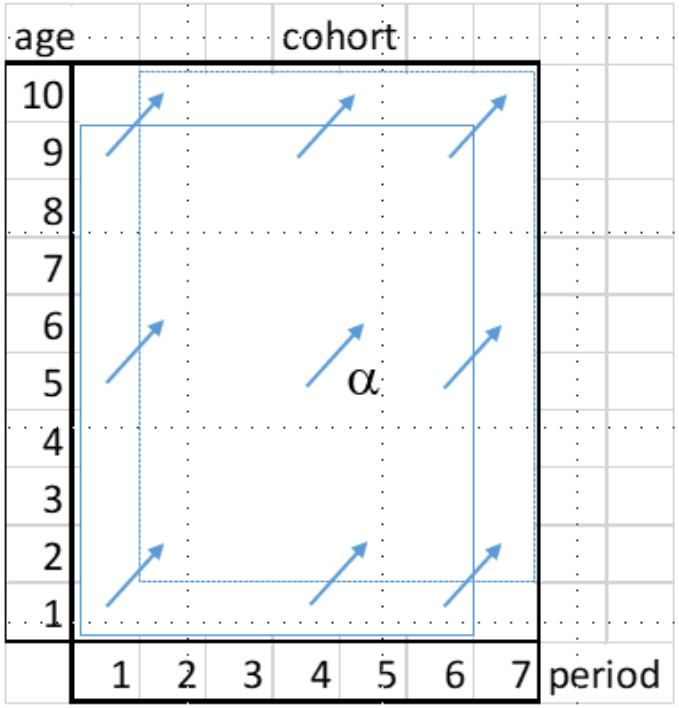
- APC-Detrended as an identifiable solution of age, period and cohort non-linear effects (Chauvel, 2013, Chauvel and Schröder. 2014, Chauvel et al., 2016)

$$u^{apc} = \alpha_a + \pi_p + \gamma_c + \alpha_0 rescale(a) + \gamma_0 rescale(c) + \beta_0 + \varepsilon\,(APCD)$$

- where $\alpha_a, \pi_p, \gamma_c$ are sum zero and trend zero; α_0 and γ_0 absorbage and cohort trend
- β_0 is the constant
- $\alpha_0 rescale(a) + \gamma_0 rescale(c)$ 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 α_a = the average of the longitudinal shift observed in u_{apc}

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

•The APC-lag solution



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

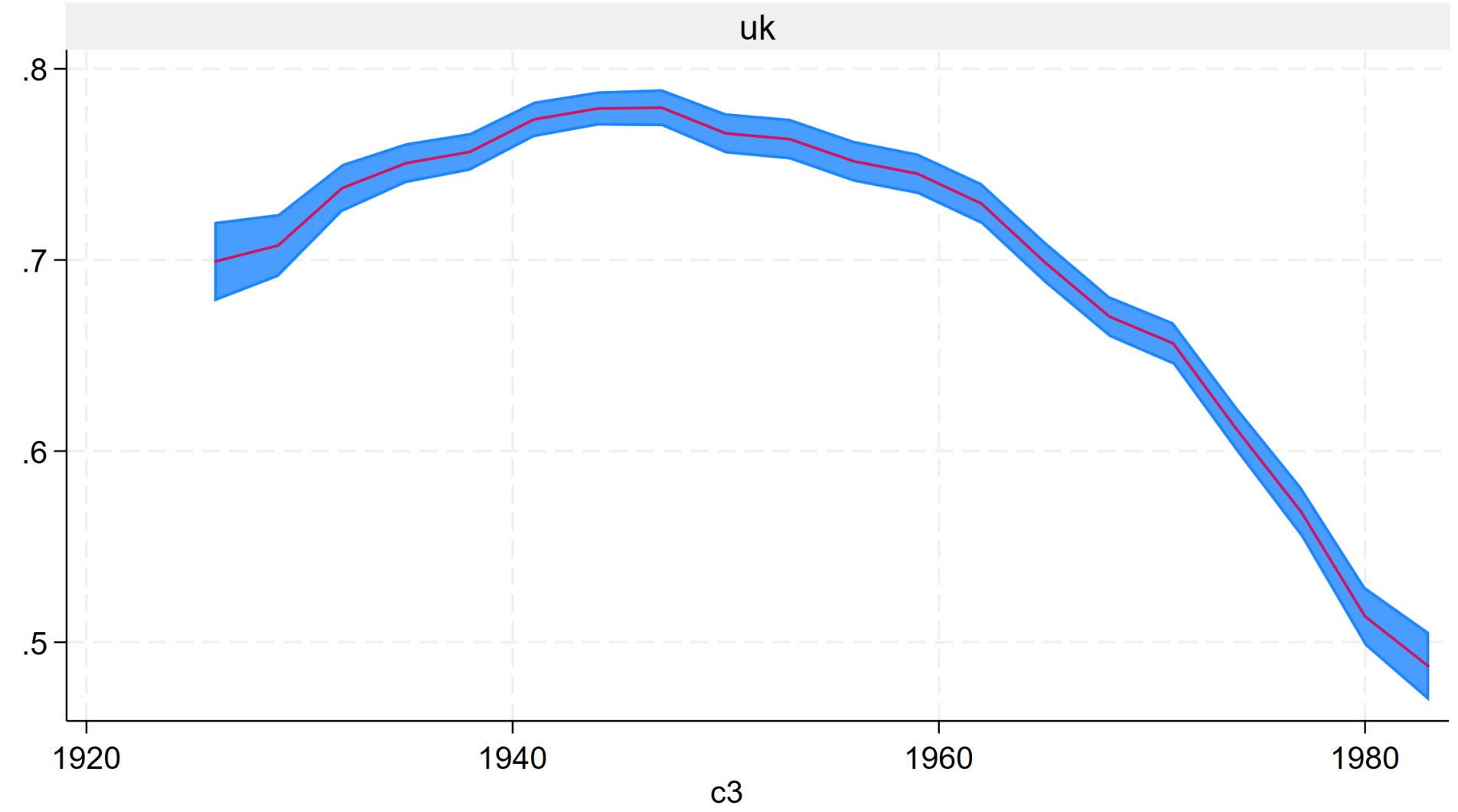
α is the average longitudinal age effect along cohorts

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

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

- APC-lag delivers a unique estimate of vector γ_c a cohort indexed measure of gaps
- Average γ_c is the general intensity of the gap
- Trend of γ_c measures increases/decreases of the gap in the window of observation
- Values of γ_c show possible non linearity
- The γ_c can be compared between countries

APCTlag estimates of HOS in the UK, Silc source



Towards APC-DISCO for discontinuity assessment

UK= United Kingdom

Owners by age group

a5 \ p5	2000	2005	2010	2015	2020
35	75%	72%	65%	56%	57%
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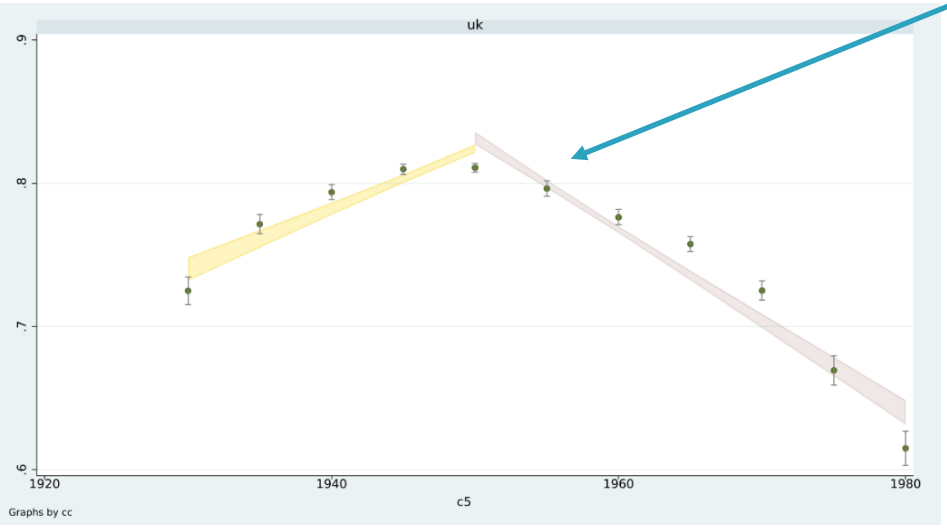
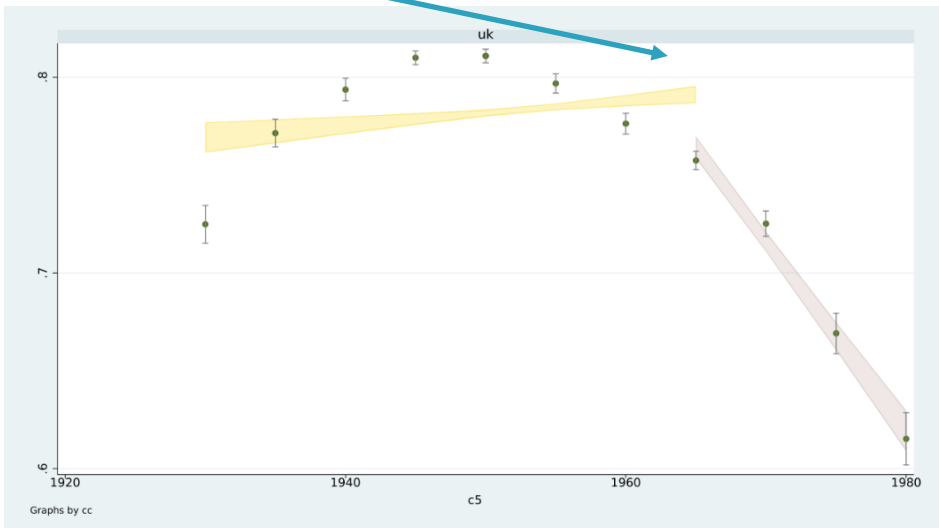
65	78%	80%	81%	81%	78%
70	75%	79%	80%	81%	81%
75	71%	77%	80%	80%	82%

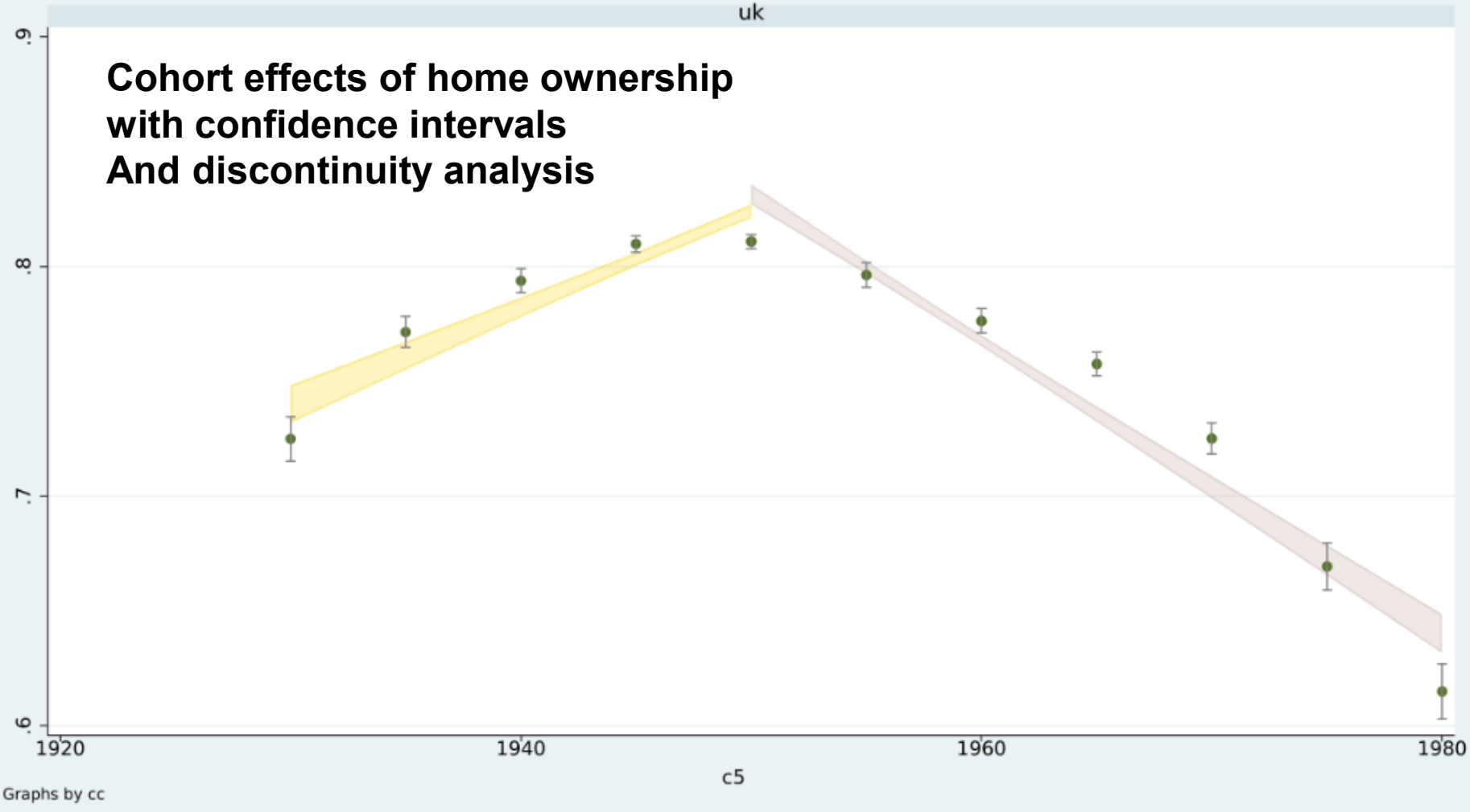
Cohort effects of home ownership with bootstrapped confidence intervals And discontinuity analysis

Discontinuity:
cohort born in 1950 or 1965?





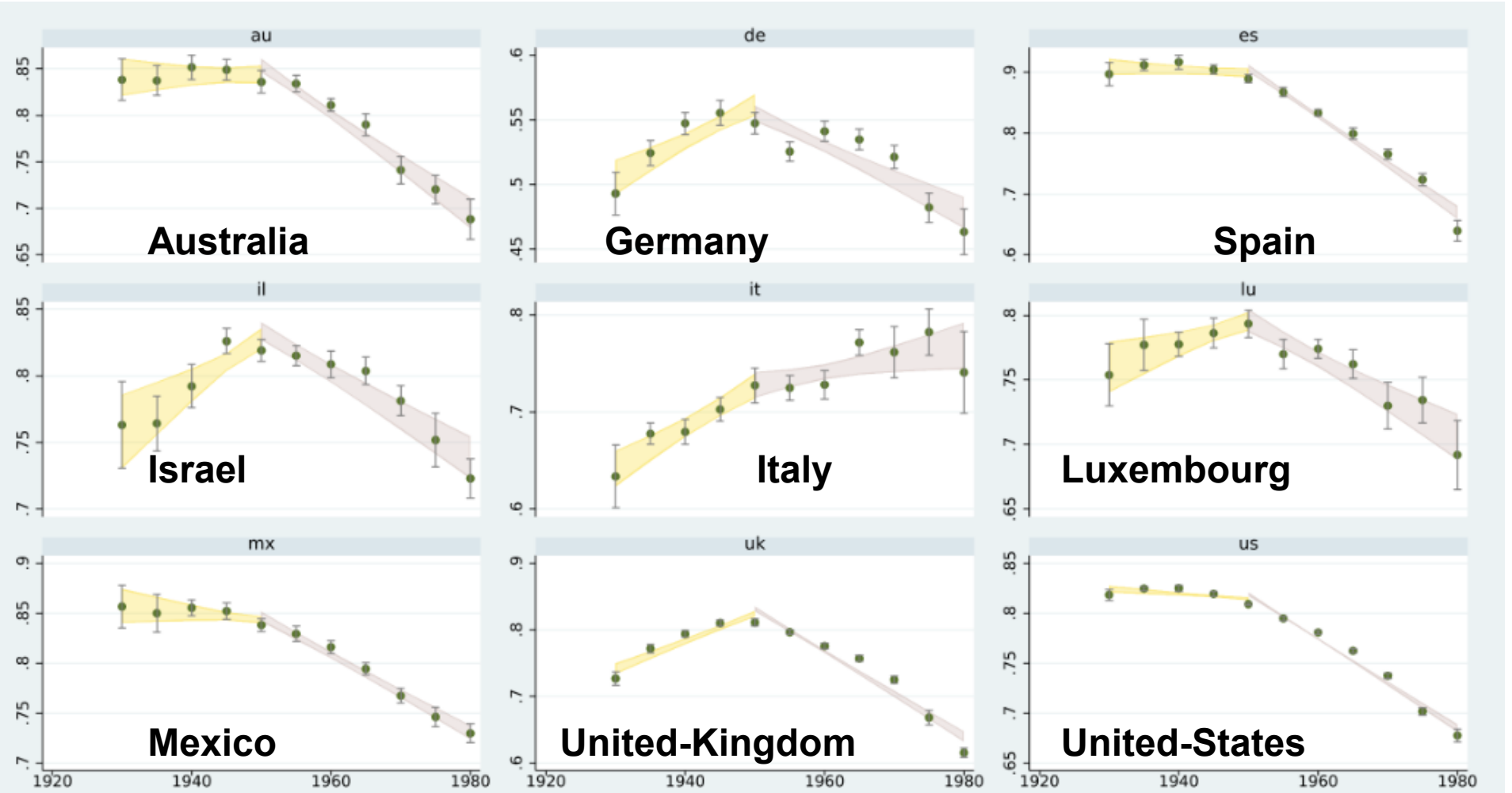
0. Cohort coefficients (APC-disco) of home ownership in the UK (Y: proportion of owners, X: birth cohorts) 95% confidence intervals NO CONTROL (model 1) Test of discontinuity at cohort 1960



Data and measurements

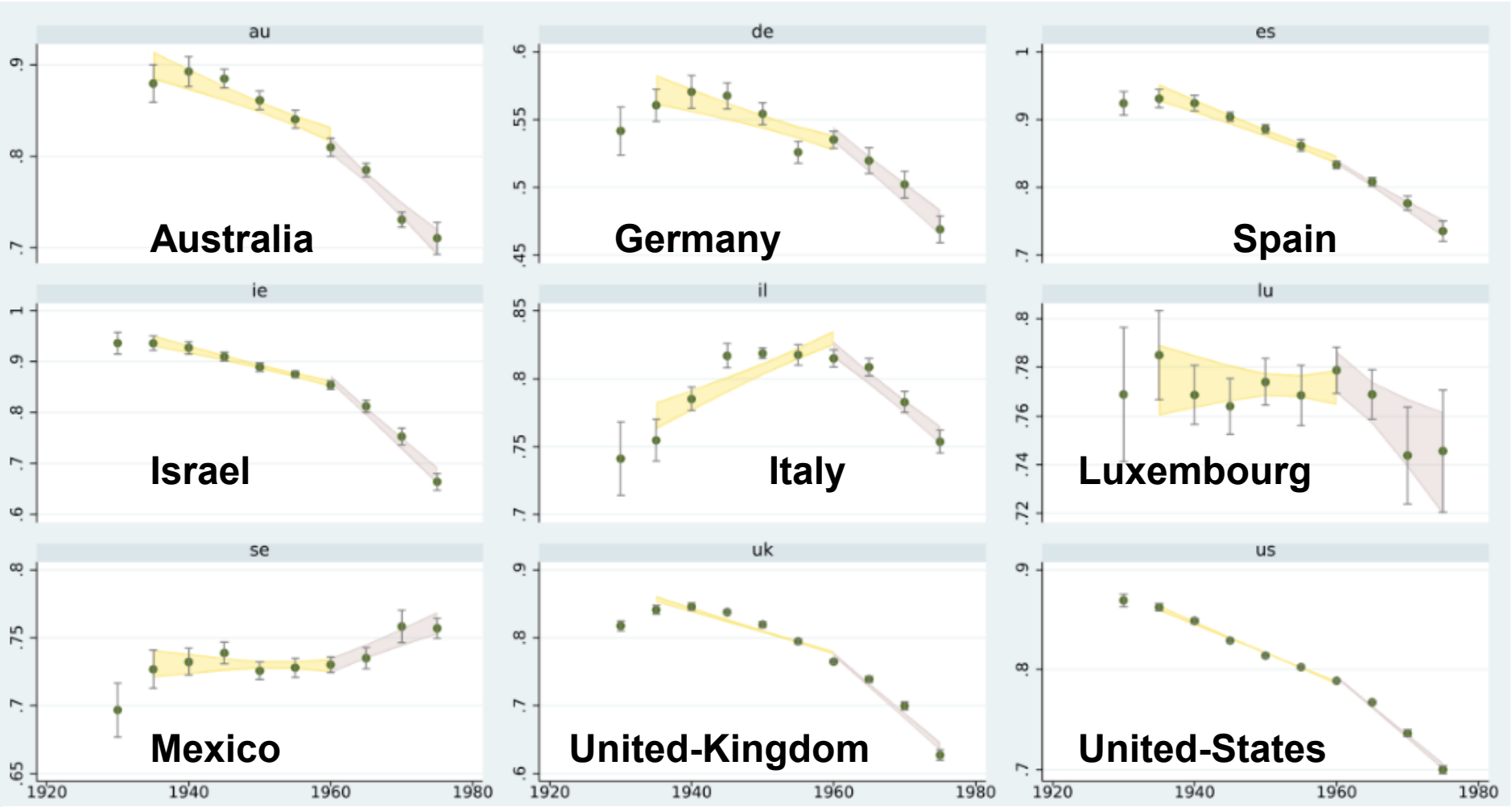
- LIS www.lisdatacenter.org
  - Main countries **au de es il it lu mx uk us**
    (Australia Germany Spain
    Israel Italy Luxembourg
    Mexico United-Kingdom Untied-States)
  - Window of observation: 2000 to most recent
  - Age groups from age 35 to 79 (before too early, after too late …)
  - Excluding 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 (**percentile rank of the HH**); education; migration; etc…

Cohort effects of home ownership with confidence intervals And discontinuity analysis (ALL INCOMES) INTER COHORT DISCONTINUITIES // INEQUALITIES



1. Cohort coefficients (APC-disco) of home ownership in 9 countries (Y: proportion of owners, X: birth cohorts) 95% confidence intervals NO CONTROL (model 1) Test of discontinuity at cohort 1960

Cohort effects of home ownership with confidence intervals NOW WITH CONTROL OF INCOME AND EDUCATION OF REPONDANT HH



2. Cohort coefficients (APC-disco) of home ownership in 9 countries (Y: proportion of owners, X: birth cohorts) 95% confidence intervals controlled by EDUC AND INCOME (model 3)

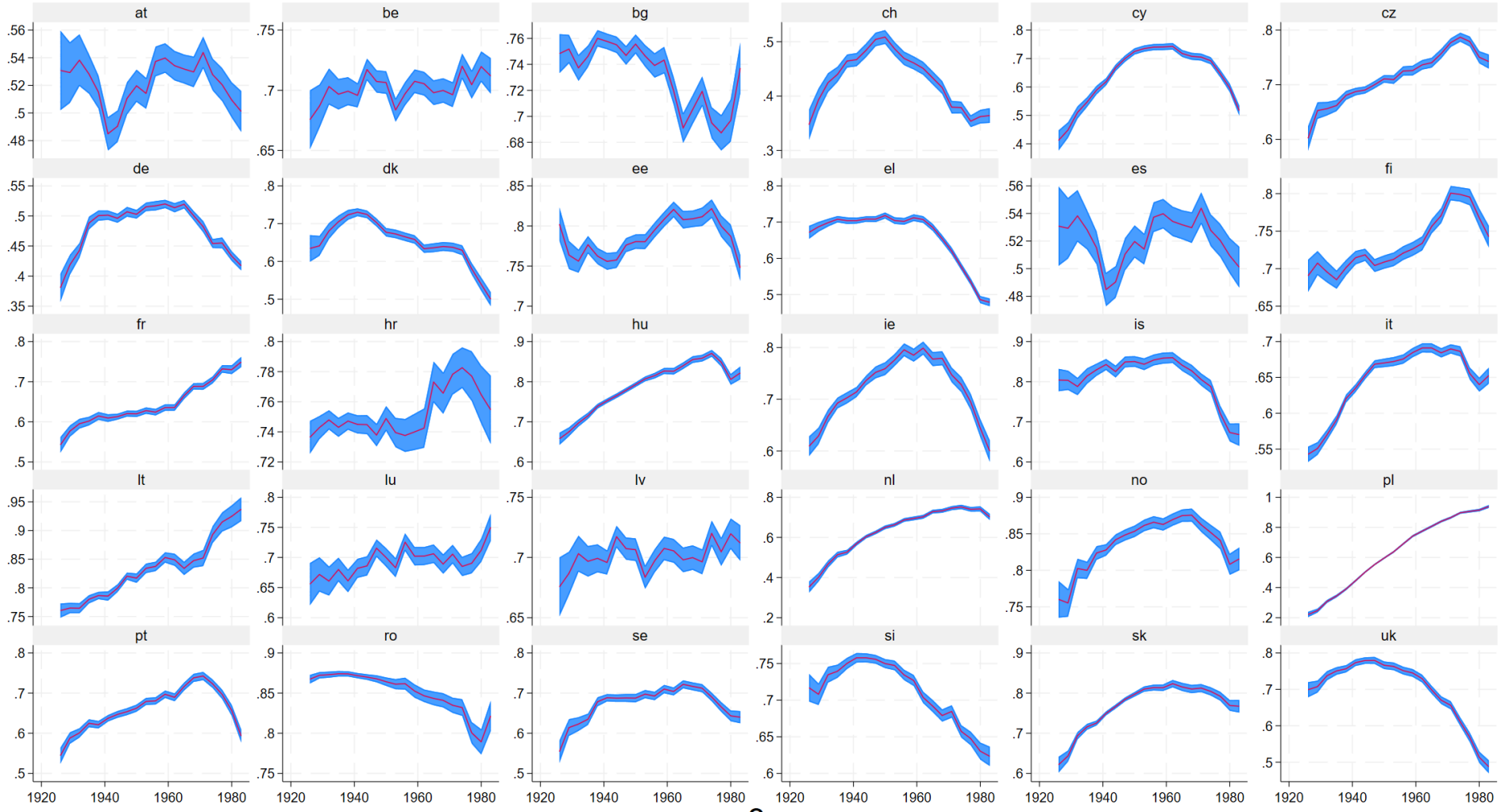
Data and measurements

- EU-SILC
  - 30 countries
    at be bg ch cy cz de dk ee el es fi fr hr hu ie is it lt lu lv nl no pl pt ro se si sk uk
    Window of observation: 2004-2020 (or most recent)
  - Age groups from age 25 to 79

- 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 (**percentile rank of the HH**); education; migration; etc…

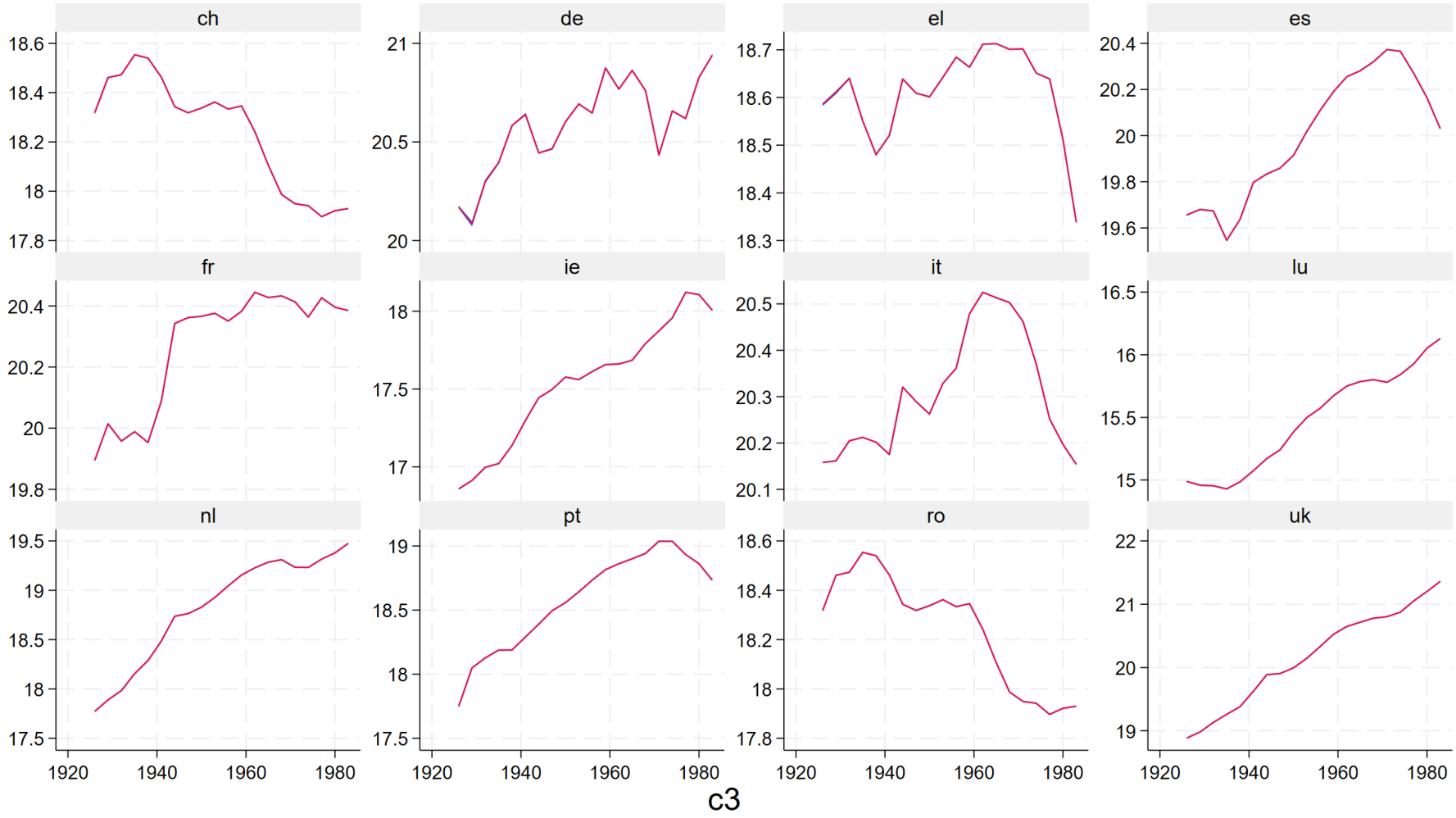
- Method:
  - APCTlag

APCTlag Cohort effects of home ownership



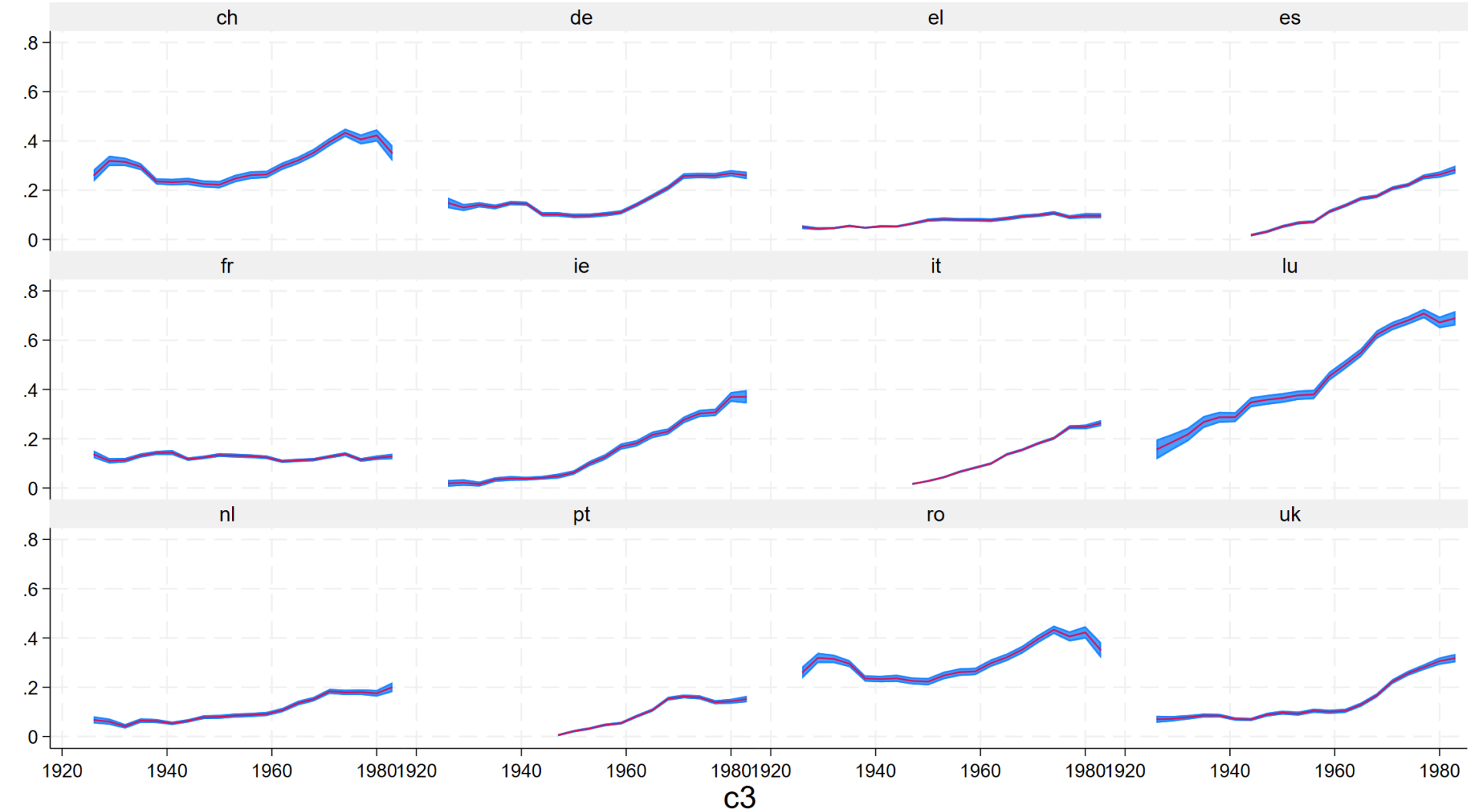
1. Cohort coefficients (APCTlag) of home ownership in 30 countries (Y: proportion of owners, X: birth cohorts) 95% confidence intervals NO CONTROL (model 1)

APCTlag Cohort effects of Logged population size



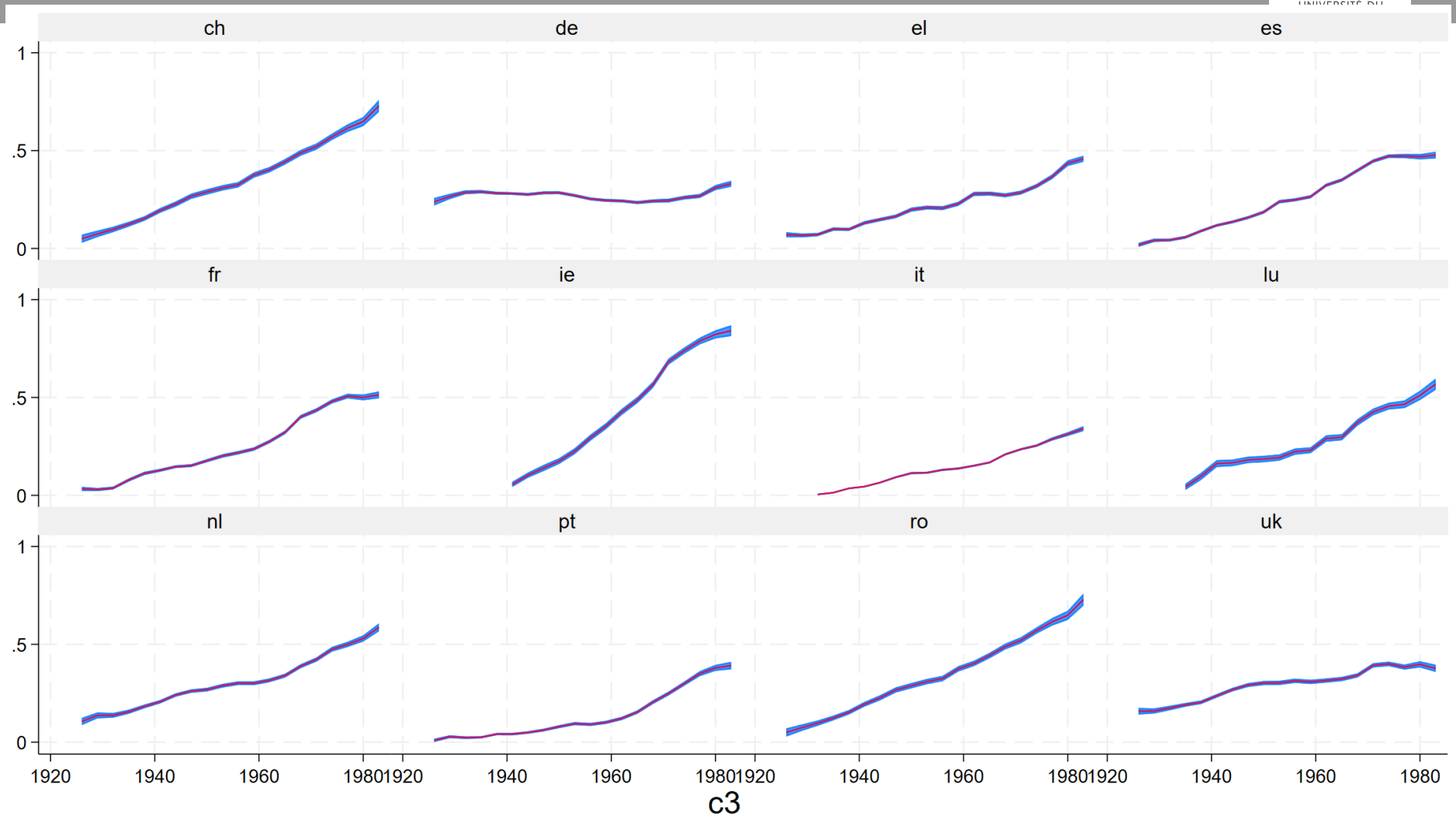
1. Cohort coefficients (APCTlag) of logged population size 9 countries

APCTlag Cohort effects of migrants share in the resident population



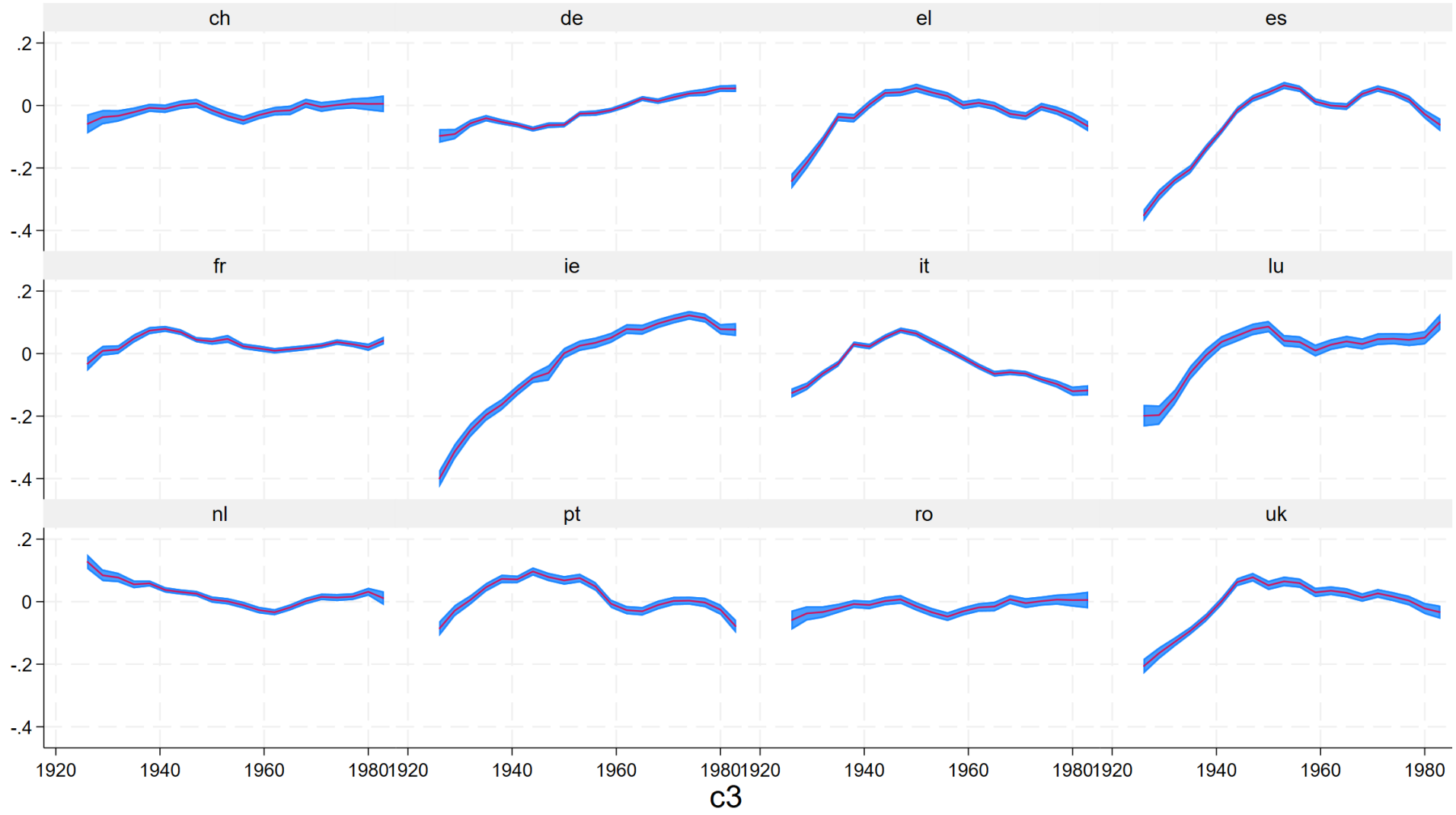
1. Cohort coefficients (APCTlag) of migrants' share 9 countries NO CONTROL (model 1)

APCTlag Cohort effects of higher education diploma



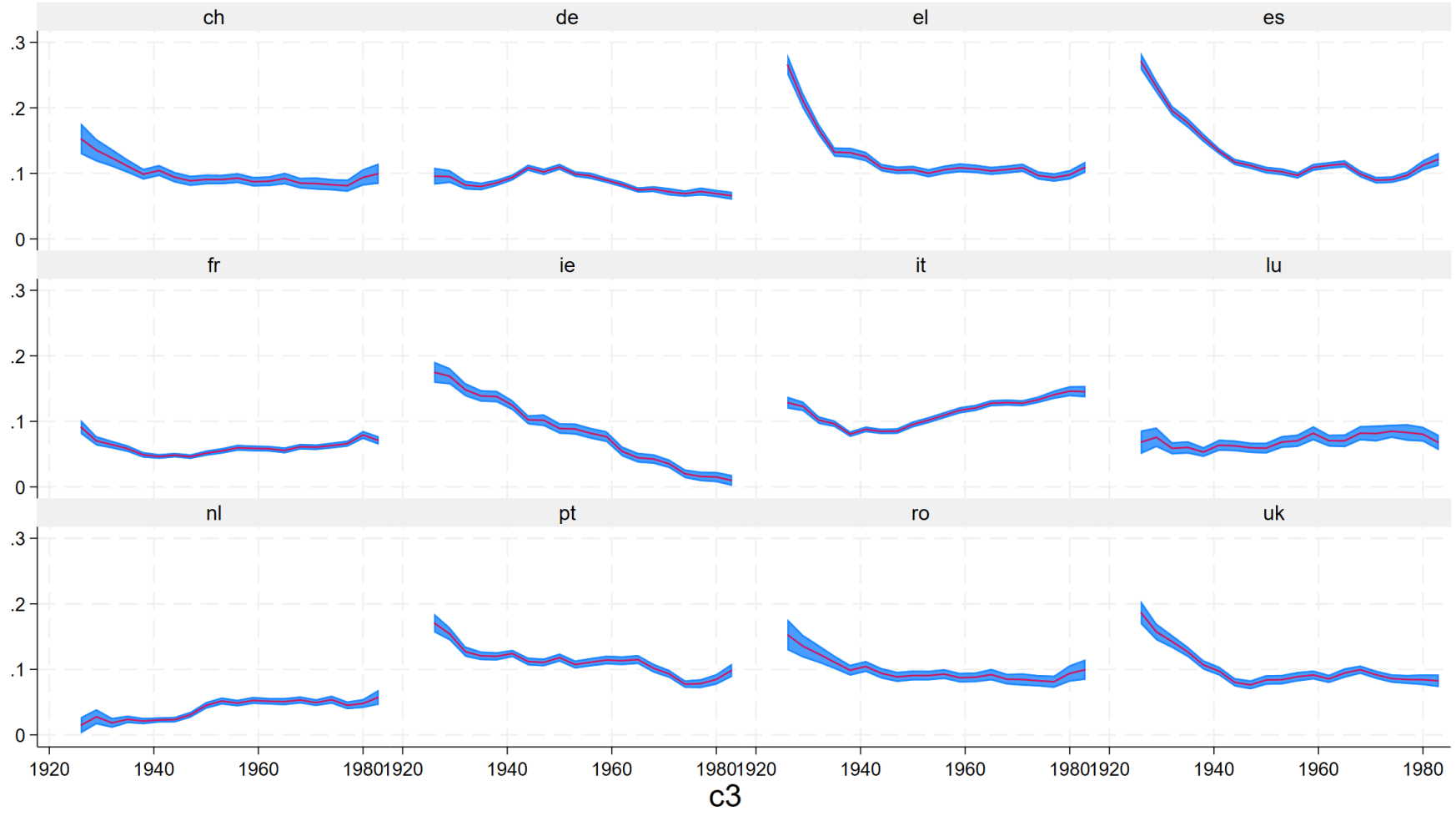
1. Cohort coefficients (APCTlag) of higher education 9 countries NO CONTROL (model 1)

APCTlag Cohort effects of Logged equiv income



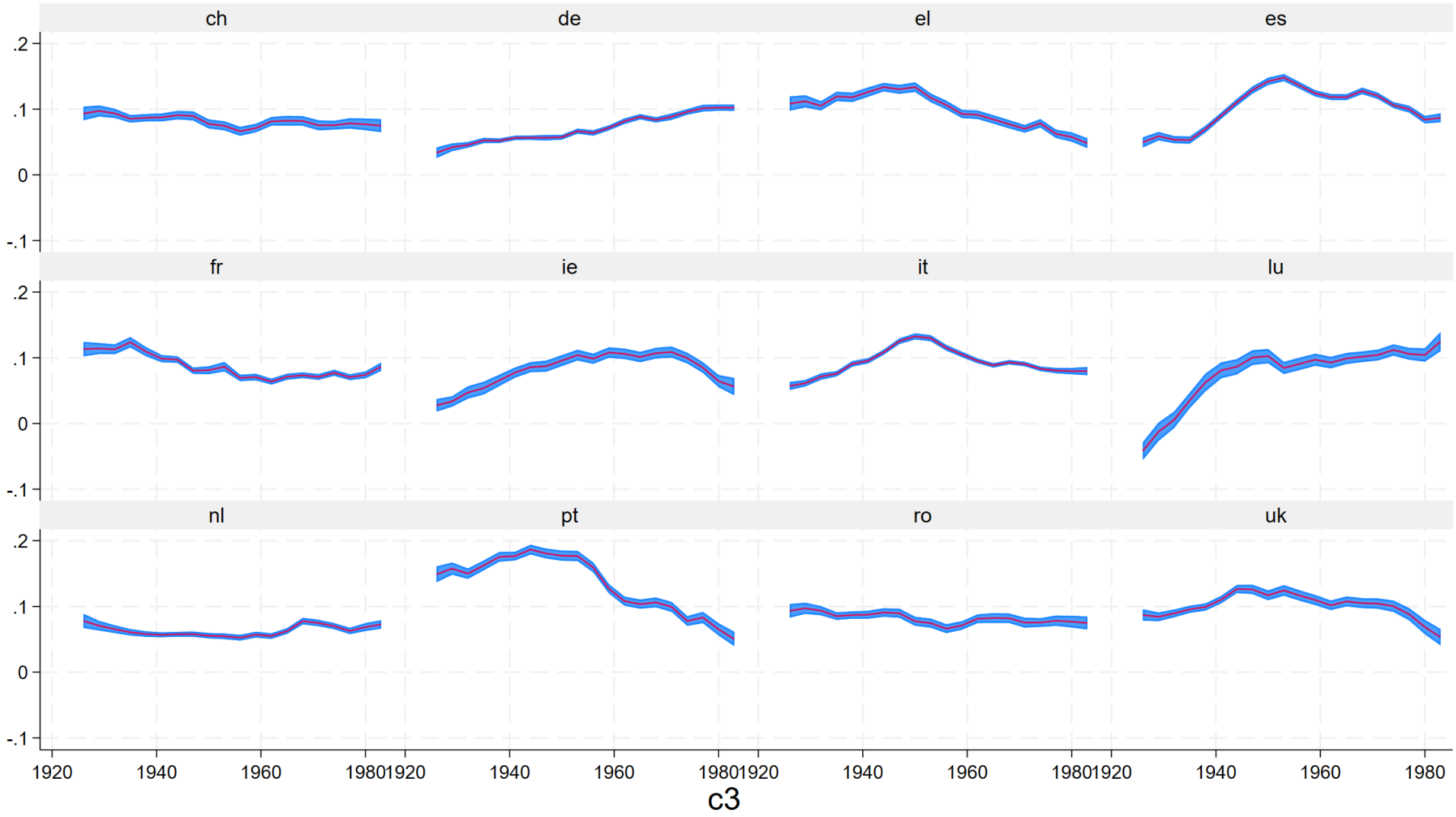
1. Cohort coefficients (APCTlag) of logged income 9 countries NO CONTROL (model 1)

APCTlag Cohort effects of at risk of poverty 50% of the median



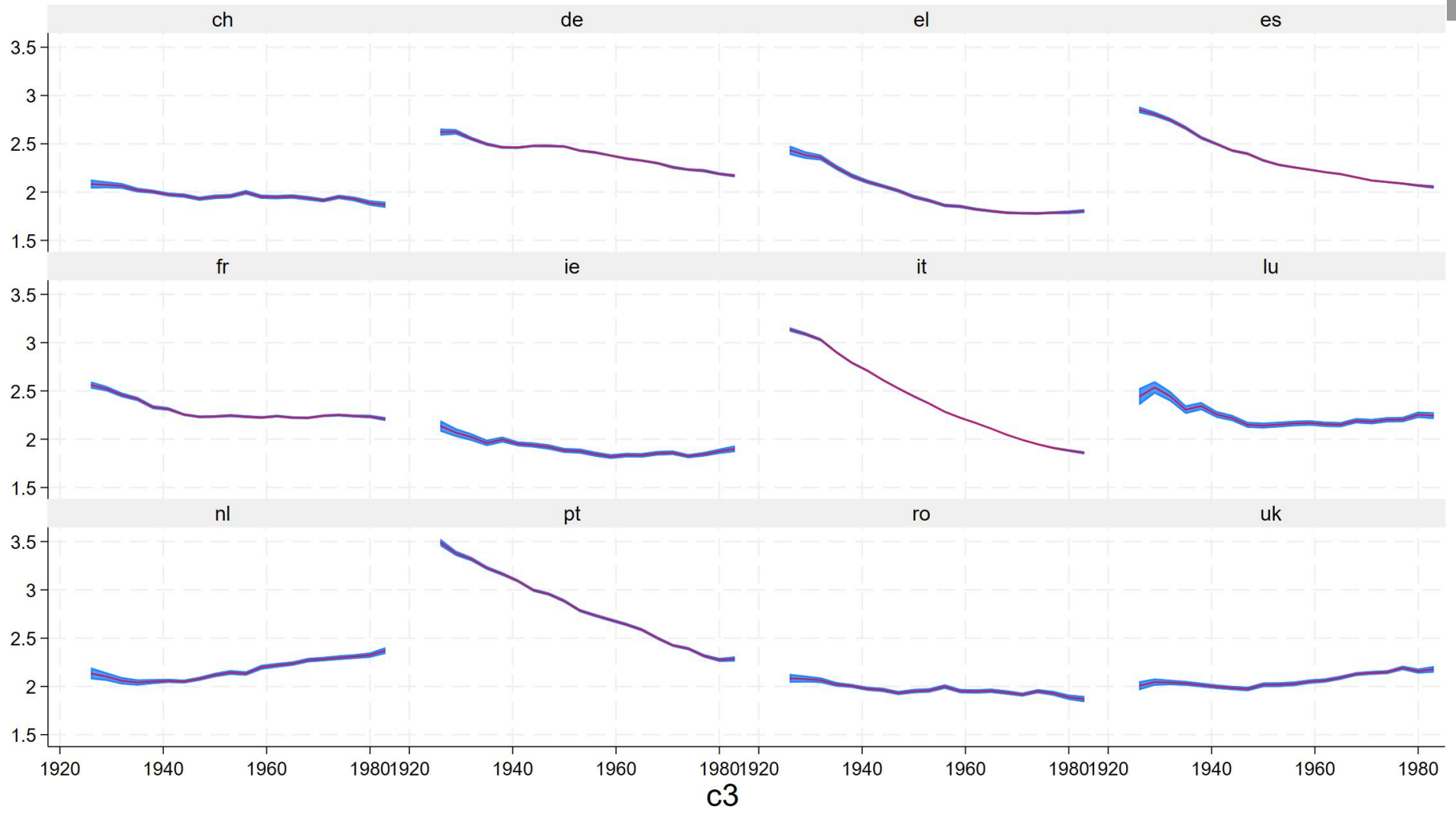
1. Cohort coefficients (APCTlag) of at risk of poverty 50% of the median 9 countries NO CONTROL

APCTlag Cohort effects of at risk of richness 200% of the median



1. Cohort coefficients (APCTlag) of at risk of richness 200% of the median 9 countries NO CONTROL

APCTlag Cohort effects of self-assessed health scale



1. Cohort coefficients (APCTlag) of self-assessed health scale 9 countries NO CONTROL

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
(see: Ortiz-Gervasi, McGuinness 2018; Standing 2010)

IV. With increasing gaps ➔ squeezing the middle?

V. FAMILY BACKGROUND

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 !