The geography of income mobility

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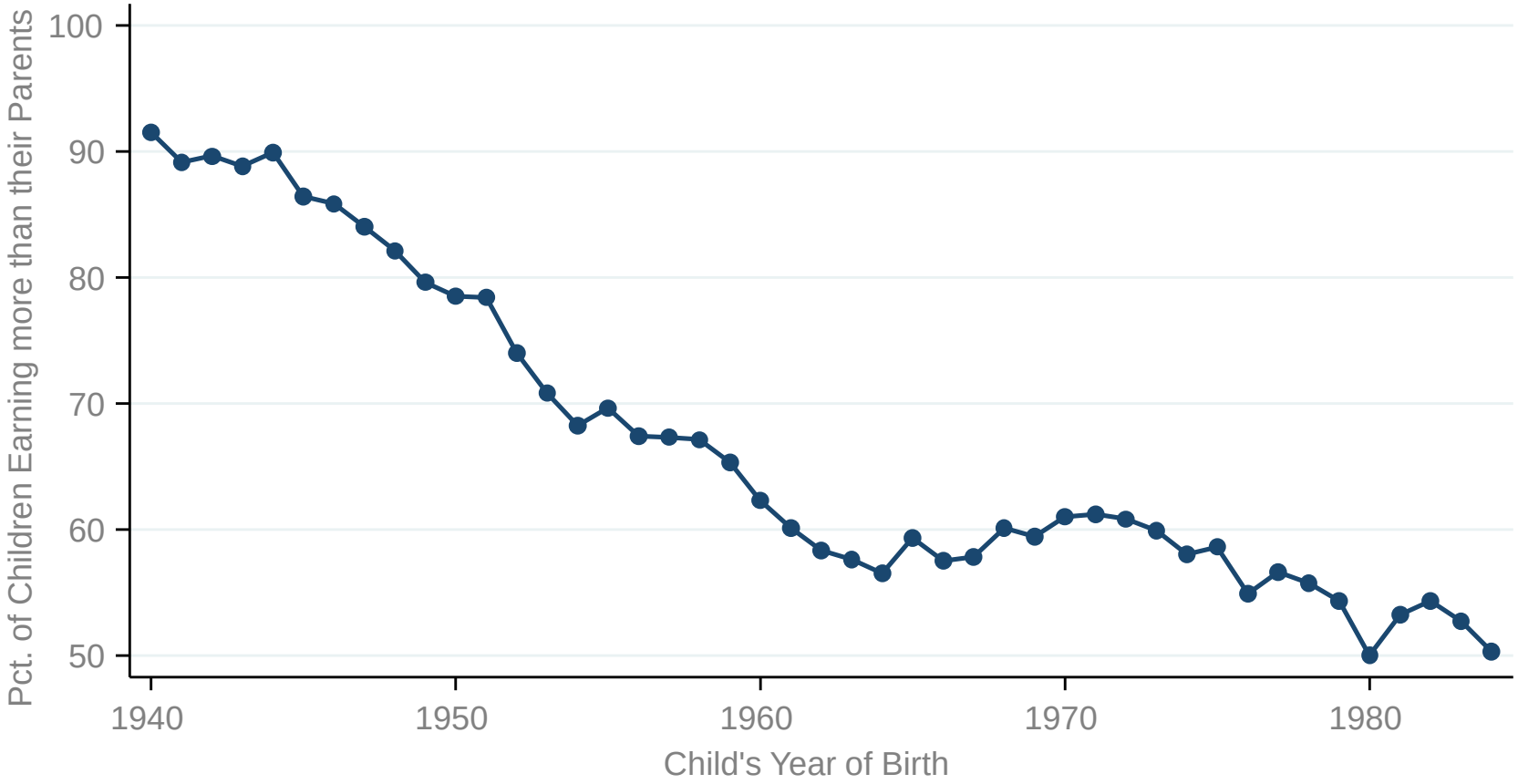
Research on income mobility has exploded over the past two decades

Many dimensions of mobility have been explored by economists and other social scientists, with a particular interest on whether or not there has been a decline in mobility

Today - examine to what extent location (within a country) has played a role in the dynamics of mobility

The Fading American Dream

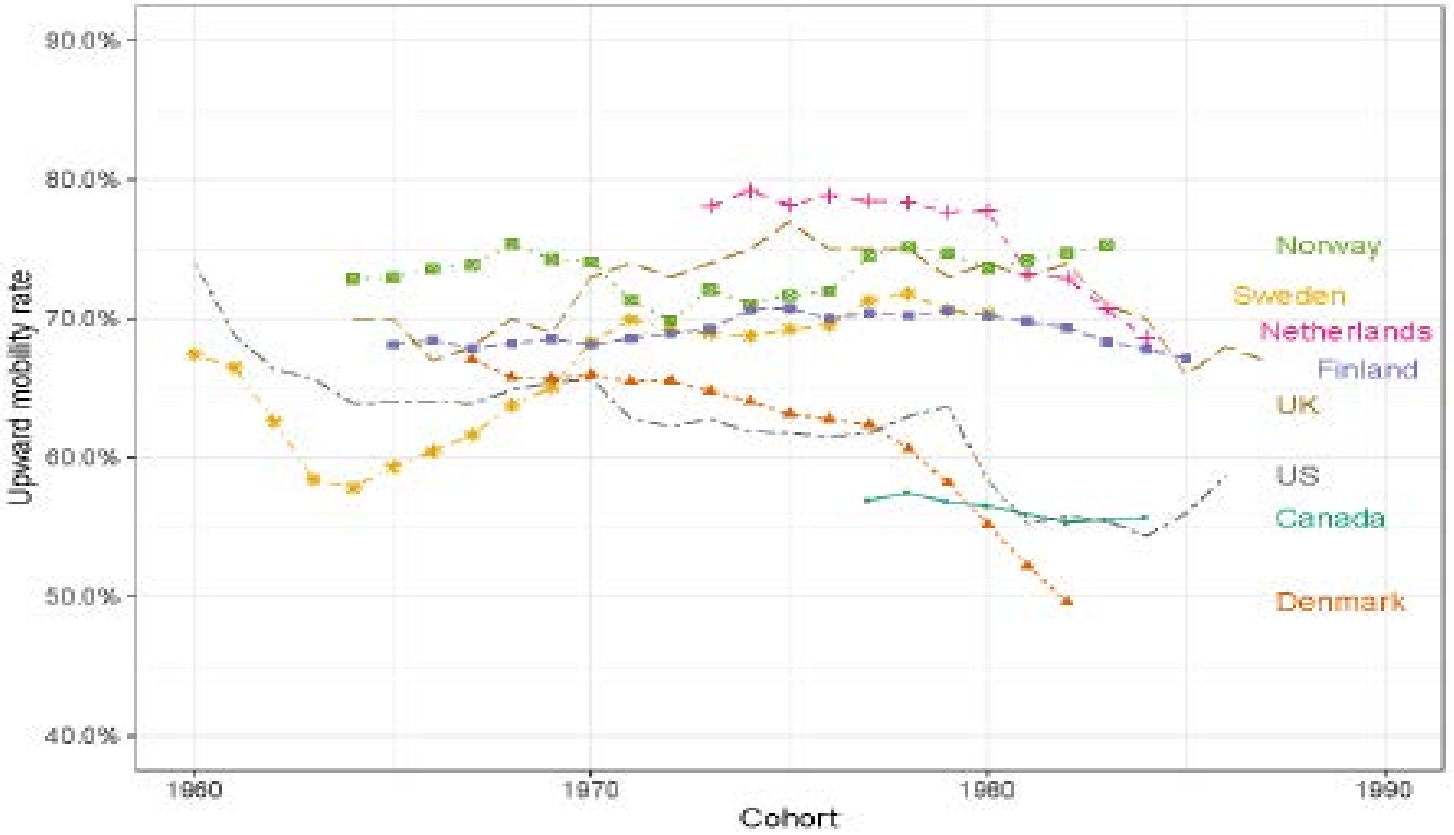
Percent of Children Earning More than Their Parents, by Year of Birth



Source: Chetty, Grusky, Hell, Hendren, Manduca, Narang (Science 2017)

Upwards absolute income mobility

Percent of Children Earning More than Their Parents, by Country and Year of Birth



Source: Manduca et al. 2020

Upwards mobility rate - % of children whose pre-tax, post-transfer family income at age 30 was higher than their parents family income at age 30

Why has income mobility declined in a number of countries?

- Why are children's chances of climbing the income ladder falling in some countries?
  - And what can we do to reverse this trend…?
- Why have we observed declines in mobility in some countries but not in others?
- Difficult to answer this question based solely on historical data on macroeconomic trends
  - Numerous changes over time makes it difficult to test between alternative explanations
  - Problem: only a handful of data points
- Until recently, social scientists have had limited data to study policy questions like this one

Why has income mobility declined in a number of countries?

- Research frontier in economics is moving towards administrative data sources → Applies likewise to mobility
- Increase in data availability has led to
  - Descriptive studies that describe intergenerational mobility more thoroughly and/or from new perspectives
  - Causal research designs to identify determinants of (lack of) mobility
- Much of this work has exploited geographical differences within countries
- What is this new literature on the geography of mobility teaching us?

1. **Geographical variation in upwards intergenerational mobility**
2. **Mobility and polarization across US regions**
3. **Mobility across UK regions**
4. ***Intra-generational* mobility in France**

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Intergenerational mobility in the US

- Chetty, Hendren, Kline and Saez (2014)
  - Tax data from the US Internal Revenue Service: match records of parents and children to study intergenerational mobility
  - Core sample of nearly 10 million children born between 1980 and 1982 (14- to 16-year-olds), tracked until age 30
- Income definitions:
  - Parent's income: average total family income in 1996-2000
  - Children's income: measured over two years, 2011-2012
- Intergenerational mobility is often summarized by the intergenerational elasticity of income (IGE) → slope coefficient in the regression of log incomes of offspring on log income of parents

$$y = \alpha + \beta x$$

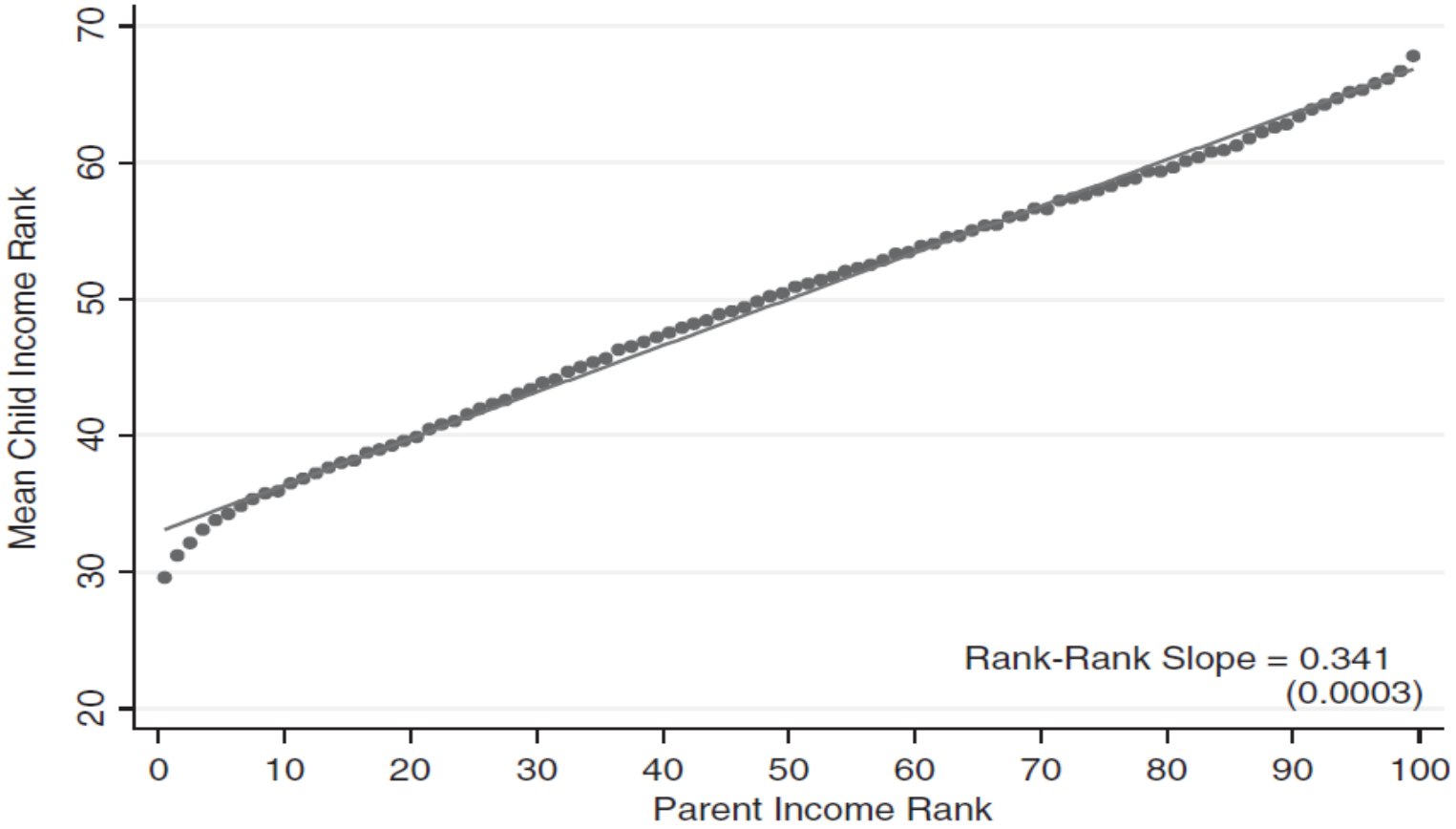
- More recent research often considers income ranks instead of log incomes (rank-rank regression or rank correlation)

Differences in Opportunity Across Local Areas

- How do children's chances of moving up vary across areas in America?
  - Are there some areas where kids do better than others? If so, what lessons can we learn from them?

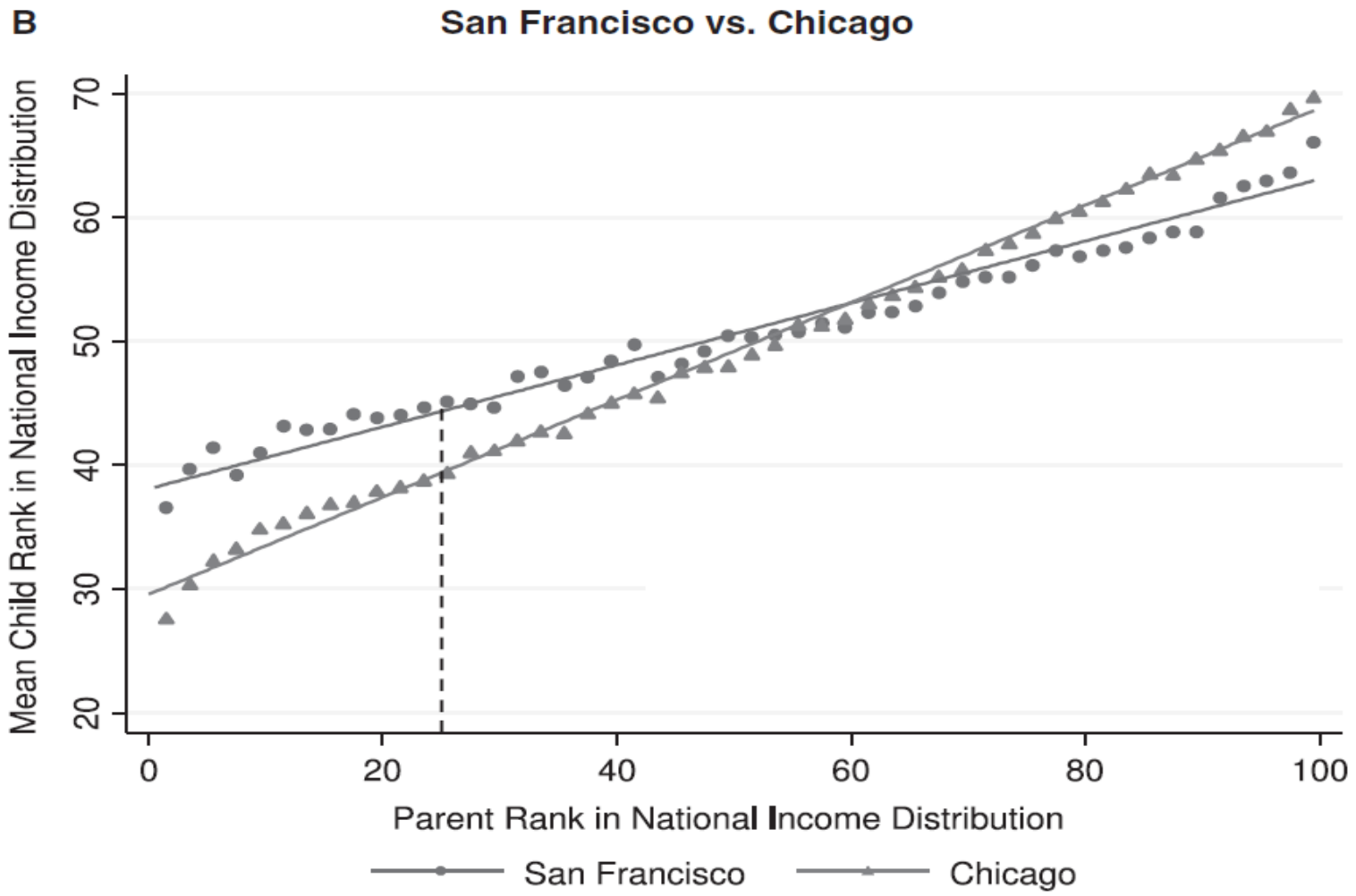
Mobility – Parent and child income rank

Figure: Mean Child Income Rank vs Parent Income Rank in the US



Chetty et al. 2014

Mobility – Parent and child income rank



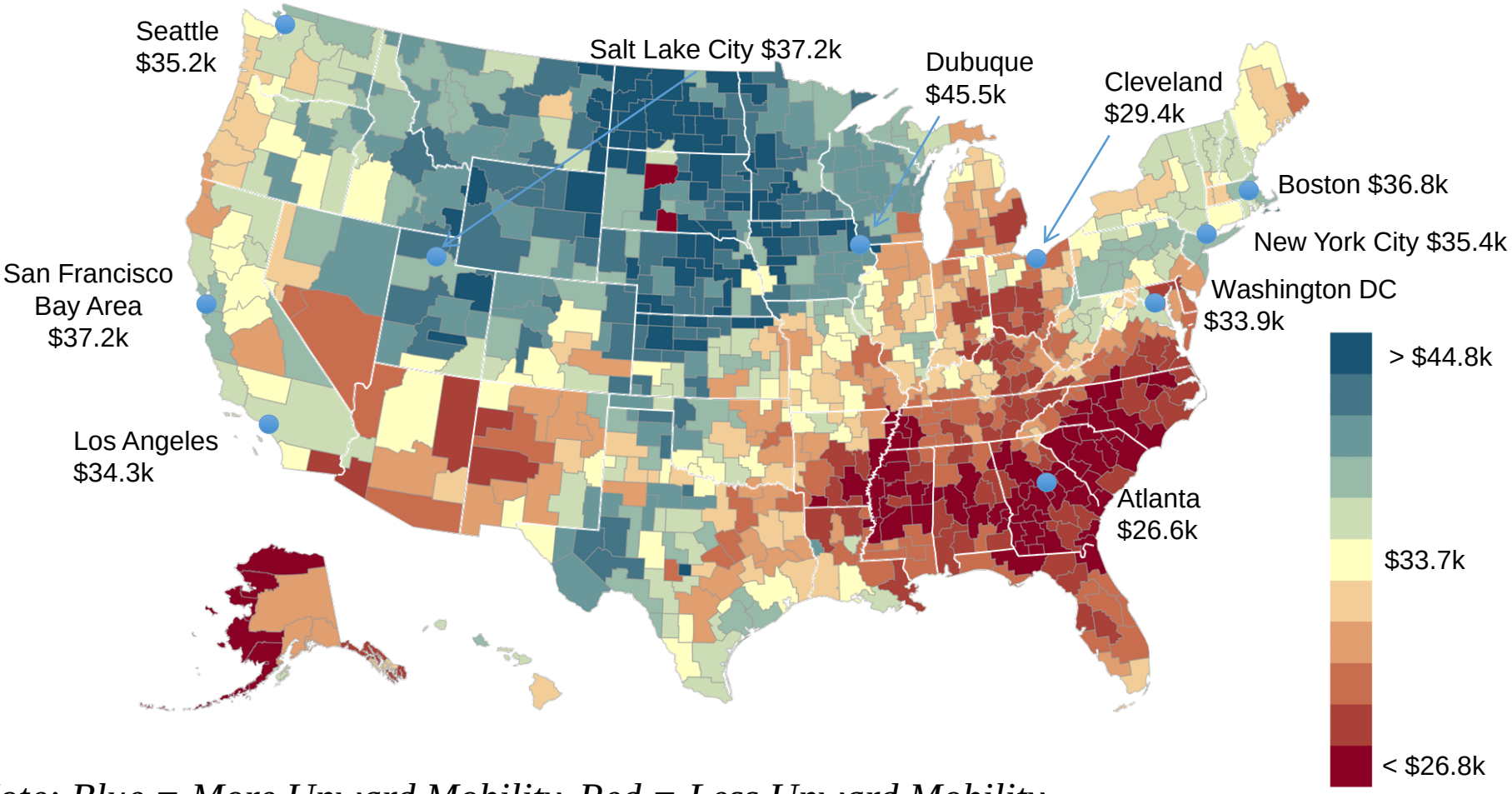
Chetty et al. 2014

The *Opportunity Atlas*

- *The Opportunity Atlas.* Chetty, Friedman, Hendren, Jones, Porter 2018
- Data sources: Anonymized Census data covering U.S. population
  - Linked to federal income tax returns from 1989-2015
  - Link children to parents based on dependent claiming on tax returns
- Target sample: Children in 1978-83 birth cohorts (96% coverage rate)
- Income measures
  - Parents' household incomes: 1994-2000 average reported on tax return
  - Children's measured from tax returns in 2014-15 (ages 31-37)
  - Focus on percentile ranks in national distribution
  - Rank children relative to those born in the same year and parents relative to other parents
- Run a separate regression using data for children who grow up in each Census tract in America

The Geography of Upward Mobility in the United States

Average Household Income for Children with Parents Earning $27,000 (25th percentile)



Note: Blue = More Upward Mobility, Red = Less Upward Mobility

Source: The Opportunity Atlas. Chetty et al. 2018

Many similar papers for other countries …

- Sweden: Heidrich (2017) and Branden (2019)
- Norway: Risa (2019) and Bütikofer, Dalla-Zuanna and Salvanes (2018)
- Denmark: Eriksen and Munk (2020)
- Canada: Connolly, Corak and Haeck (2019), Connolly, Haeck and Lapierre (2019), Corak (2020)
- Italy: Acciari, Polo and Violante (2016)
- Australia: Deutscher and Mazumder (2019)
- UK: Bell, Blundell and Machin (2022)

Regional Mobility in Norway

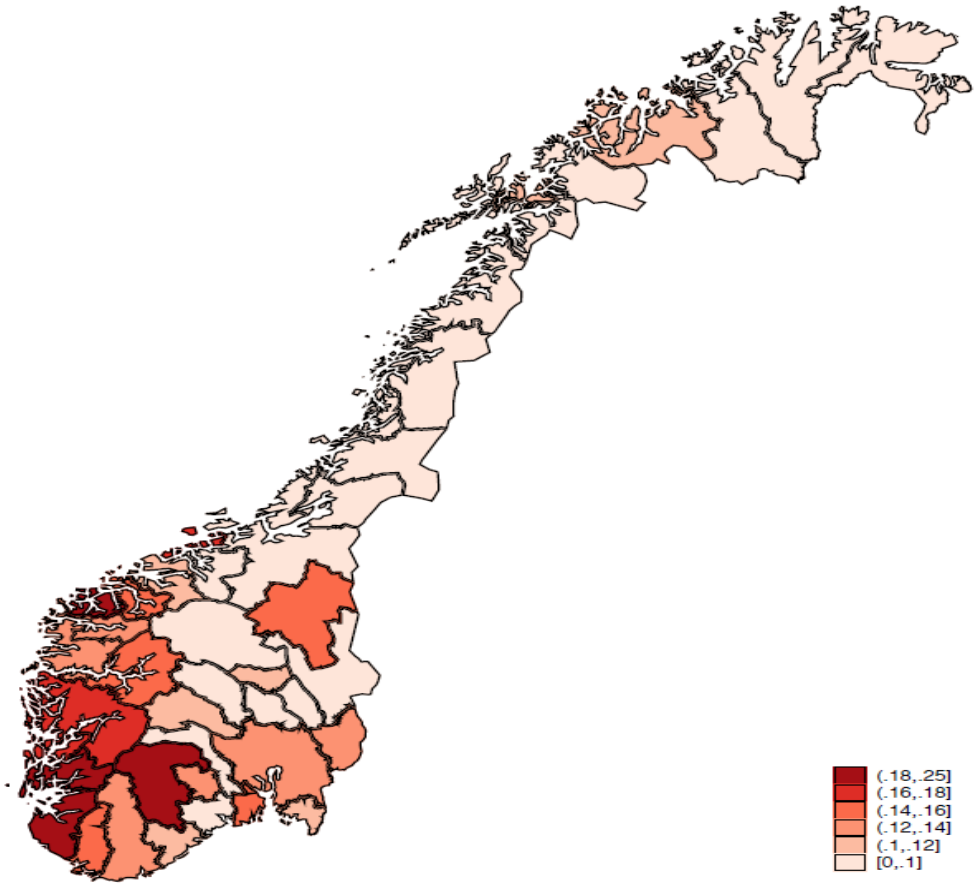
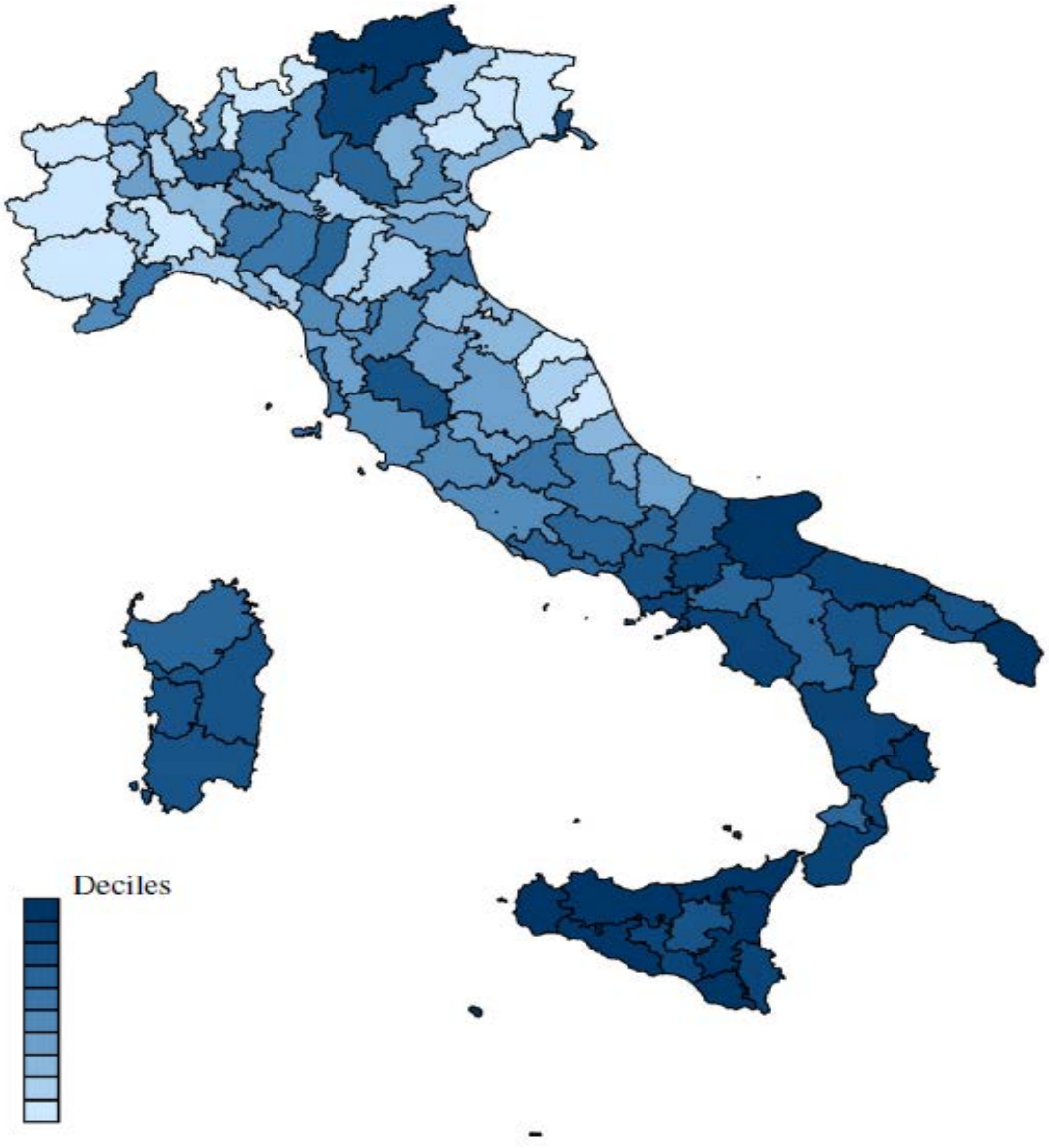


Figure: Probability of reaching the top income quintile when the father was in the lowest quintile (Bütikofer, Dalla-Zuanna and Salvanes, 2018)

Regional Mobility in Italy



Guell et al. 2014

Conceptual issues

- Region-level estimates of intergenerational mobility can be noisy
- Few regions but many regional characteristics that might influence mobility
- A popular design is the “area” or “spatial correlation” approach:
  - Estimate mobility by region and cohort/period
  - Use these measures as dependent variable in a difference-in-differences or event study design
- How to deal with individuals who move?
  - We have to control for selection, as choice of neighbourhood is likely to be correlated with children’s potential outcomes
- Causal mover design - as used in Chetty et al (2018a, 2018b):
  - Ideal experiment: Randomly assign children to new neighbourhoods at a certain age (for the rest of childhood)

Today

- Focus on spatial correlation approach
- Think about some novel aspects of geography, so far ignored by the literature

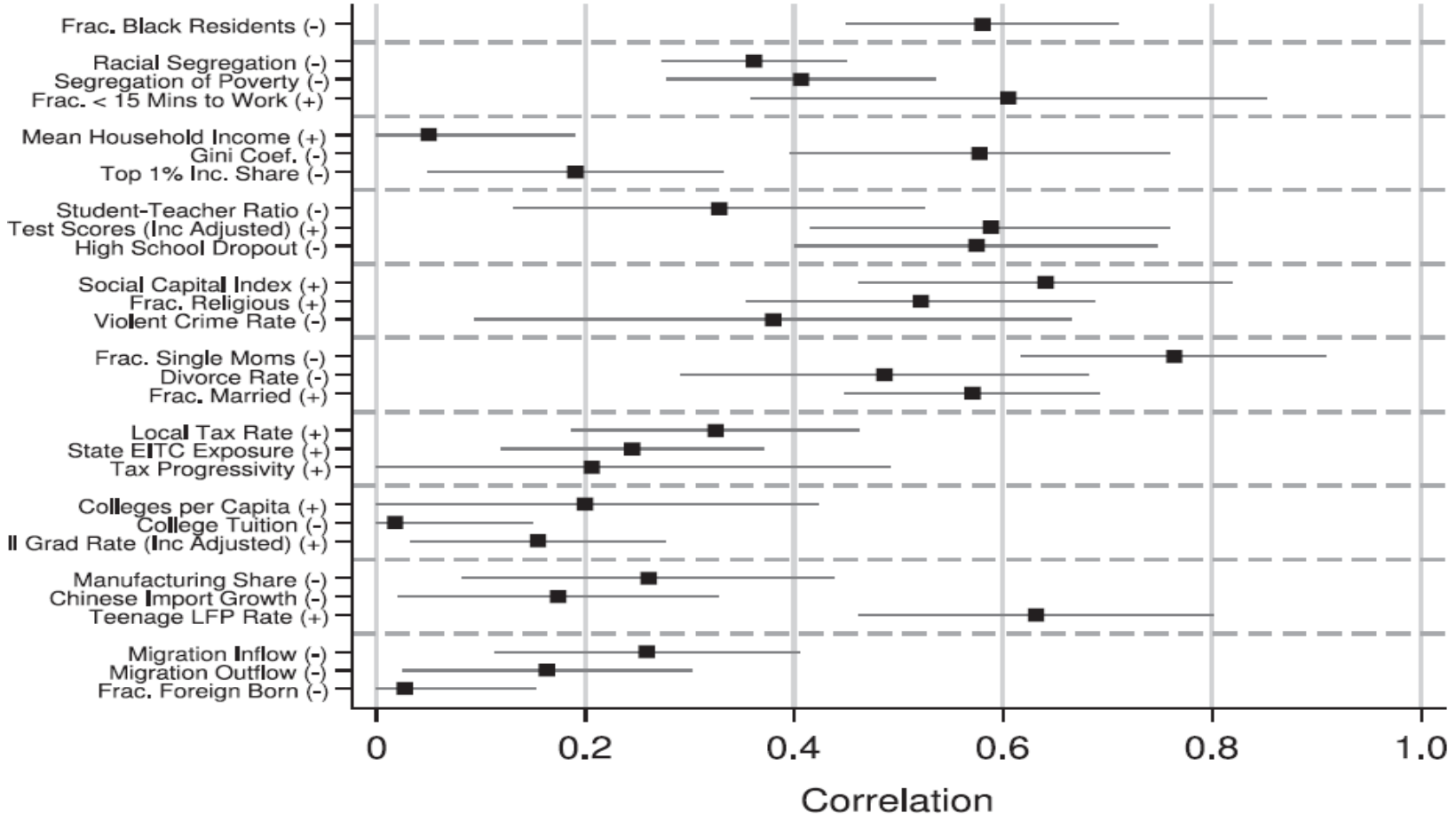
1. Geographical variation in upwards intergenerational mobility
2. **Mobility and polarization across US regions**
3. Mobility across UK regions
4. Causal Effects and Neighborhood Choice

Explaining differences across regions

- Many reasons why mobility differences across regions may arise
- The debate in the US has, to a large extent, focused on
  - Policy choices as much of education/welfare policy is local
  - Peer effects and ethnic/migrant composition

Explaining differences across regions

Figure: Correlates of Upward Mobility



Chetty et al. 2014

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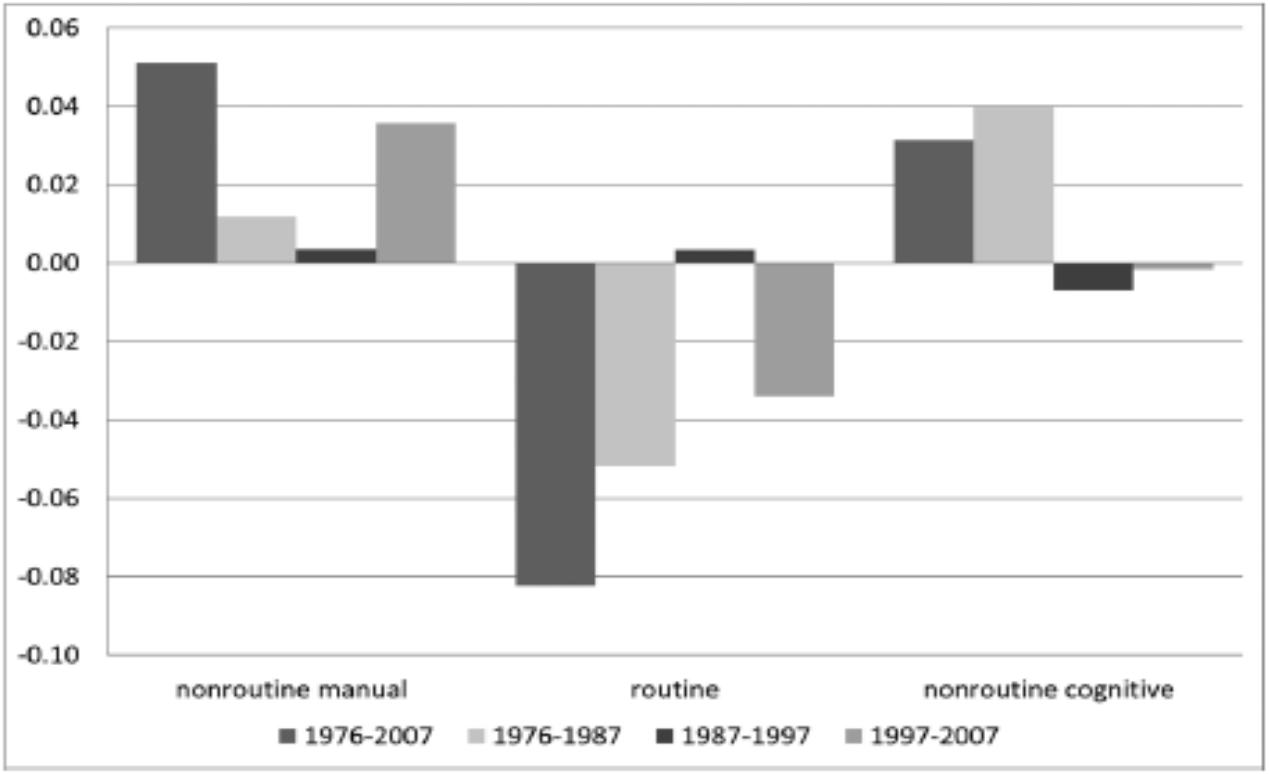
Explaining differences across regions

- Many reasons why mobility differences across regions may arise
- The debate in the US has, to a large extent, focused on
  - Policy choices as much of education/welfare policy is local
  - Peer effects and ethnic/migrant composition
- But evidence of a decline in mobility in other countries raises questions on these factors as
  - policies tend to be national
  - many exhibit little ethnic diversity
- What other factors can differ across location?
  - Labour market opportunities
  - Notably the structure of jobs available in a location
- Are differences in employment polarization behind observed geographical differences in mobility?

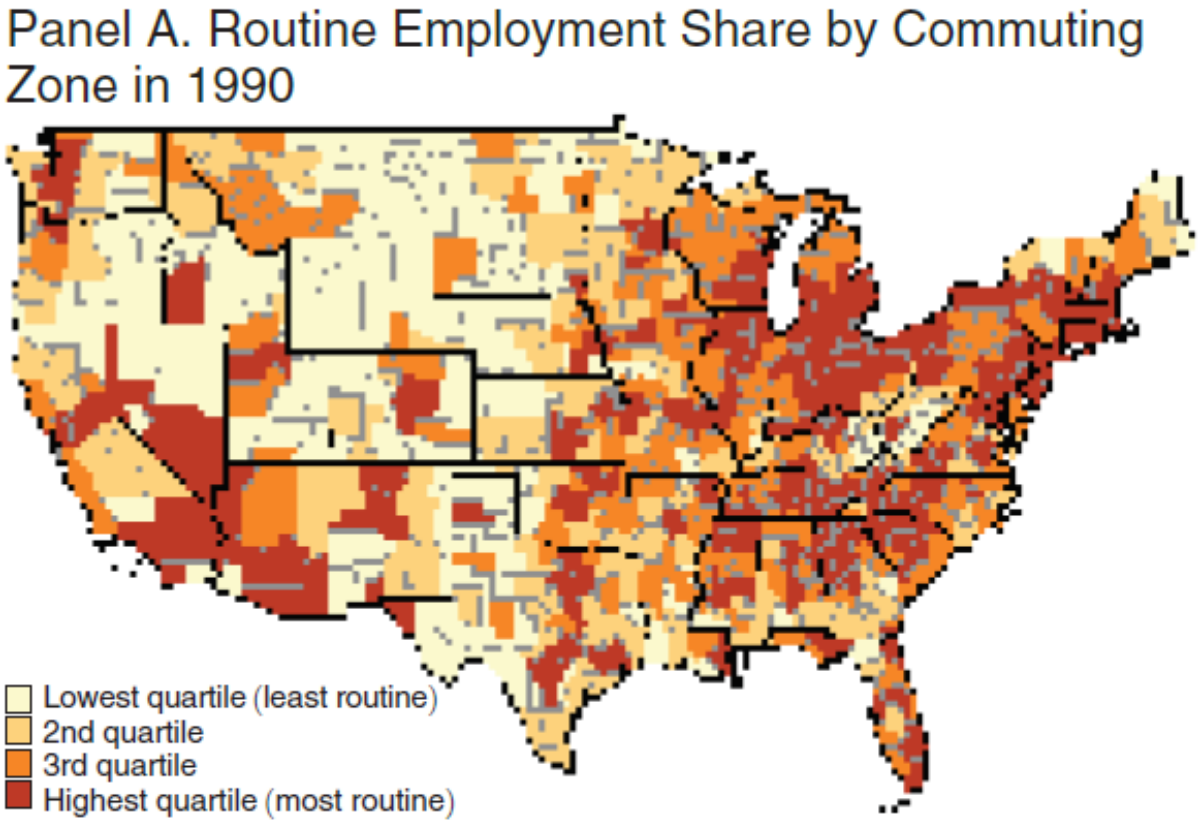
Employment polarization in the US

Changes in employment shares for broad occupational groups, men, PSID, 1976-2007



Cortes 2016

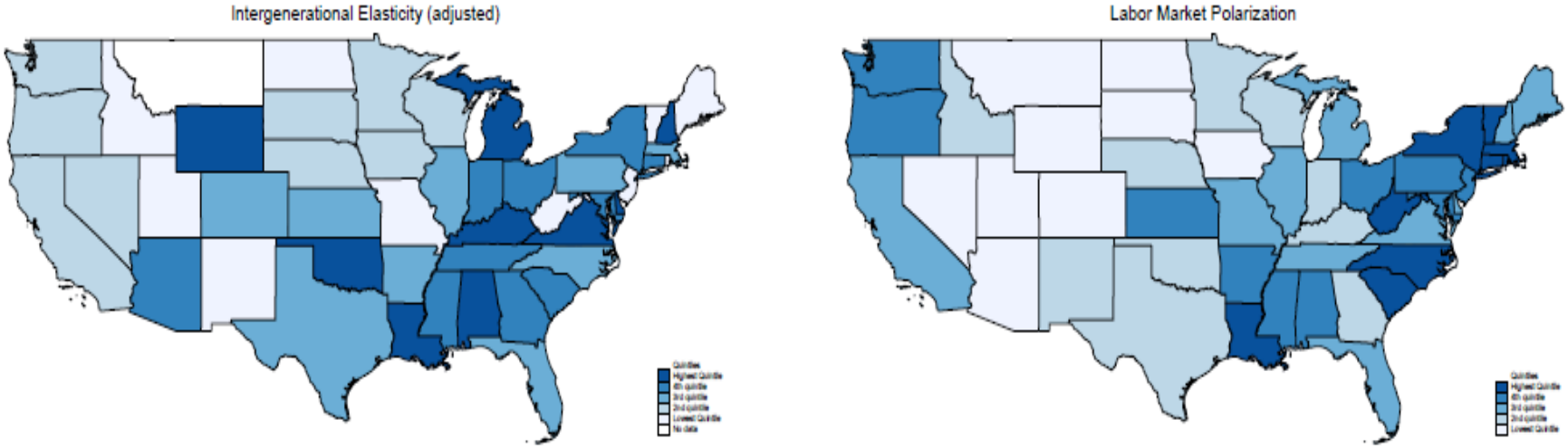
Employment polarization in the US



Autor et al. 2013

Mobility and labour market polarization

Figure: IGE and LMP across the United States



(a) Intergenerational Elasticity

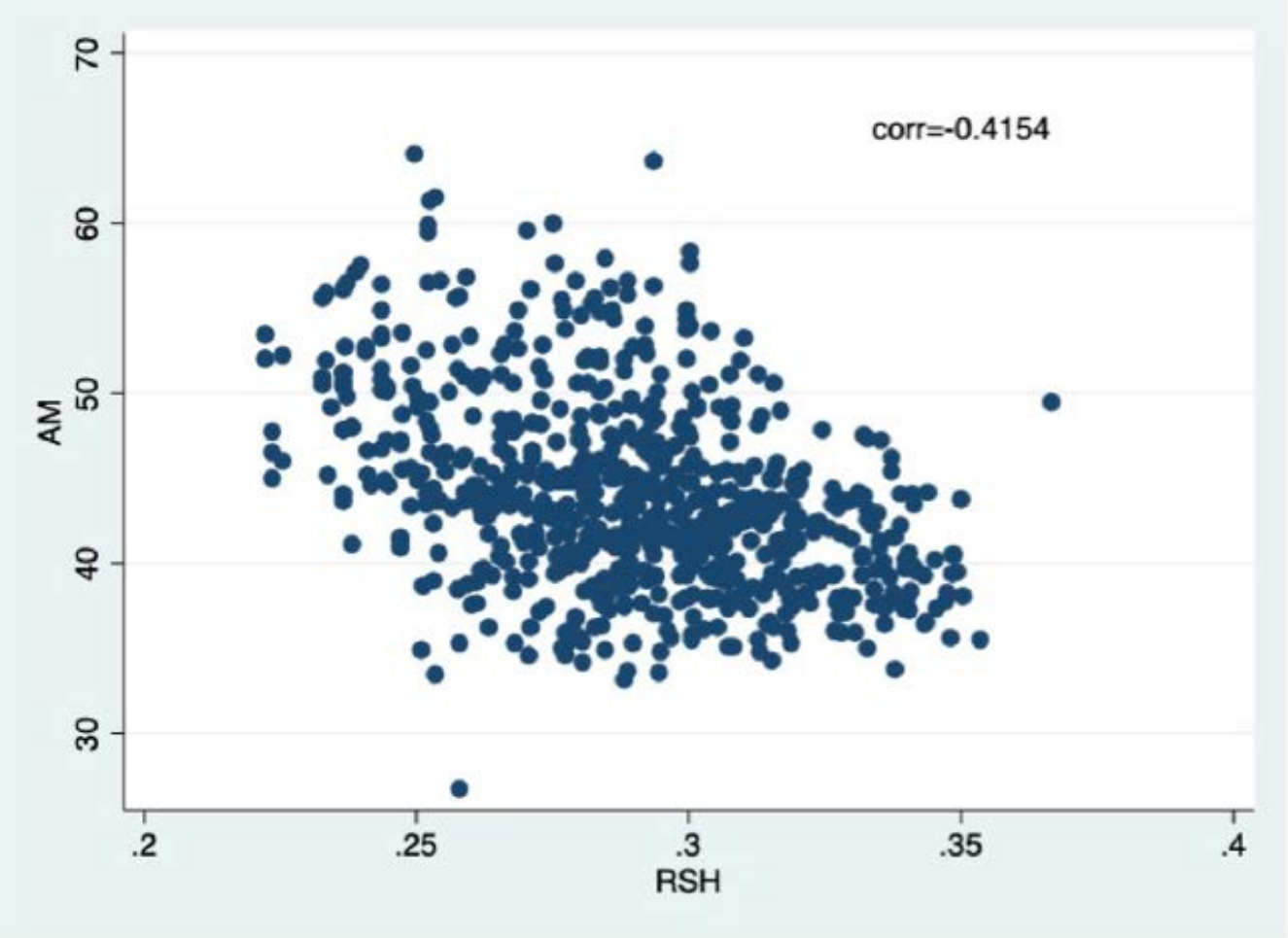
(b) Labor Market Polarization

Hennig 2022

Routine task intensity and mobility

- Three recent papers have considered the relationship between mobility and the structure of employment
- Two of them focus on the US, the third on the UK
- Guo (2022)
  - Use's Chetty et al.'s estimates of upwards mobility
    - Absolute mobility (AM) – defined as expected income percentile of children with parents at the 25th percentile of the income ranking
  - Correlate it to share of routine employment (RSH) in 2000
  - Level – commuting zone
  - Find strong negative association between RHS and upwards mobility

Absolute mobility and routine-jobs share



(a) AM and RSH

Guo 2022

Labour Market Polarization and Intergenerational Mobility in the US

- Henning (2022) also focuses on the US and on education
- Polarization can affect IGM via labour demand and supply
- Labour Demand
  - Firms demand less routine labour due to rising automation
  - More difficult to enter the “middle class”
- Labour Supply
  - Declining routine wages incentivize individuals to choose “extreme” levels of educational attainment
  - Children from low-income families face financial barriers to obtain tertiary education → they choose a lower level of education
- Crucial – financial cost of education

Labour Market Polarization and Intergenerational Mobility Across Space

- Close to Guo (2022)
- Focus on commuting zones
- Use's Chetty et al.'s estimates of upwards mobility
  - Absolute mobility (AM) – defined as expected income percentile of children with parents at the 25th percentile of the income ranking
- LMP is measured as the change in routine employment between 1990 and 2010
- IV – ICT investment per worker

LM Polarization and mobility across space

I. 2nd Stage	(1) OLS	(2) OLS	(3) IV	(4) OLS	(5) OLS	(6) IV
t-Ratio Wage Polarization	-0.134***	-0.090***	-0.403***			
	(-5.91)	(-3.70)	(-4.40)			
Decline Routine Employment				-0.302***	-0.155***	-0.856***
				(-6.88)	(-3.91)	(-3.78)
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	Yes	No	Yes	Yes
Observations	693	693	693	693	693	693
R^2	0.66	0.72	0.57	0.68	0.74	0.57
Partial R^2			0.12			0.07
F-Statistic			29.42			24.59
II. 1st Stage						
ICT Investment per Worker			0.322***			0.122***
			(5.42)			(4.96)

1. Geographical variation in upwards intergenerational mobility
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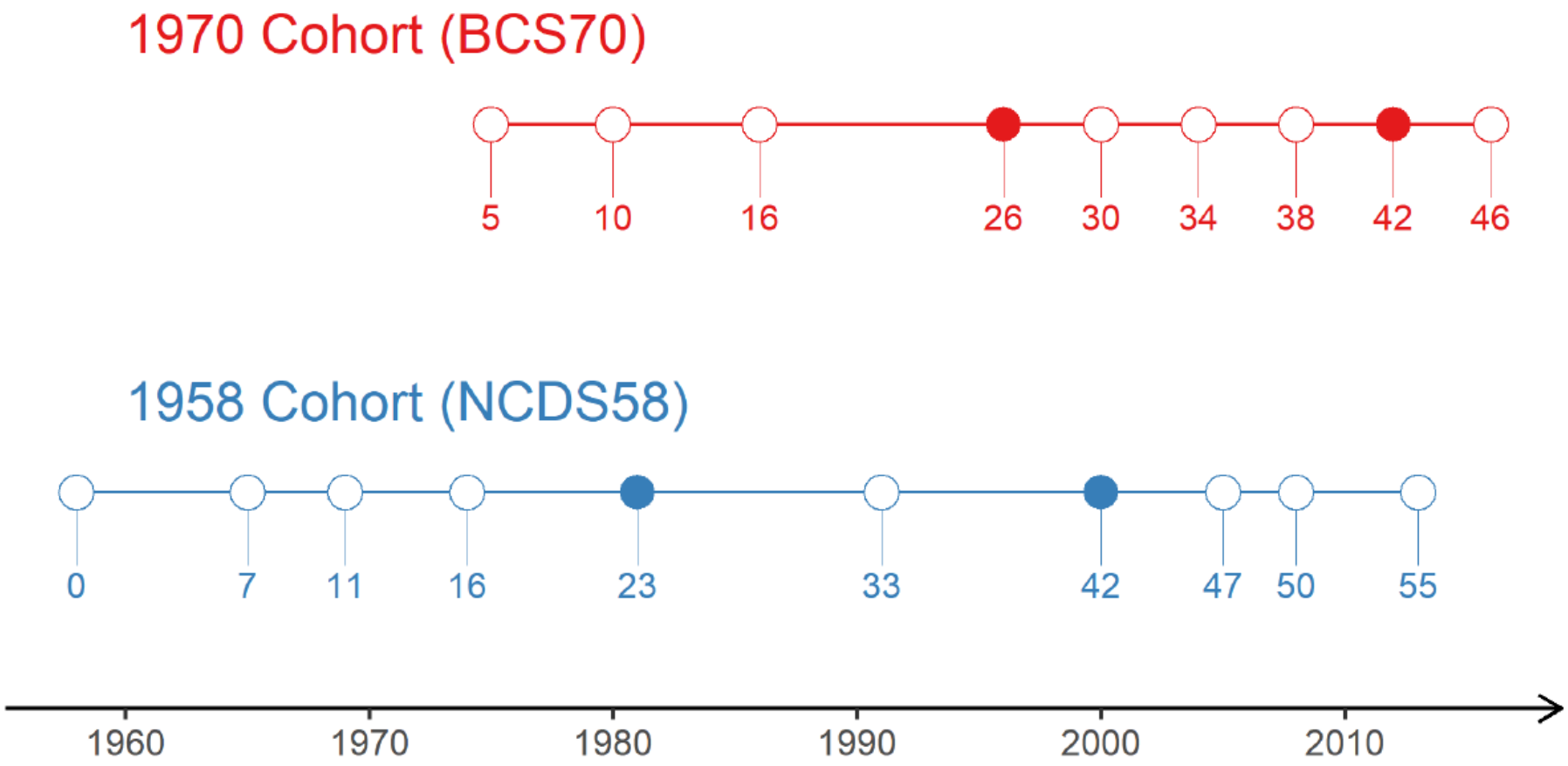
4. *Intra-generational* mobility in France

Can workers still climb the social ladder as middling jobs become scarce?

- García-Peñalosa, Petit, and van Ypersele (2022)
- Use data for two British cohorts



Conceptual framework

- Two types of parental background: low-income and high-income
- Child's innate ability: high with probability π and low otherwise
  - Does not depend on parental type
  - High ability permits to on-the-job-learning when young
- First-period productivity: determined by parental background
- Second-period productivity: determined by first-period productivity, ability and job
  - so that ability can induce learning that offsets family background
- Extent of on-the-job-learning depends on occupation, highest for high-paying jobs and lowest for low-paying jobs
  - Fewer middling jobs create fewer learning possibilities for low-parental-income individuals and hence reduce mobility

Empirical approach

- Define child's outcomes in terms of occupation, classifying them as the polarization literature has done, into low-paying, middling and high-paying + out-of-work
- Compare mobility across the two cohorts
- Perform a two step estimation
  - Child's initial outcome on parental income

$$\log\left(\frac{p_j}{p_O}\right) = \alpha_{1j} + \beta_{1j} Y^p + \gamma_{1j} X$$

  - Child's mature outcome on initial occupation and parental income

$$\log\left(\frac{p_k}{p_O}\right) = \alpha_{3k} + \sum_j \eta_{kj} \mathbb{1}_j + \beta_{3k} Y^p + \gamma_{3k} X,$$

- Perform analysis at the regional level

Result 1 – The conditional probabilities of changing occupations are high

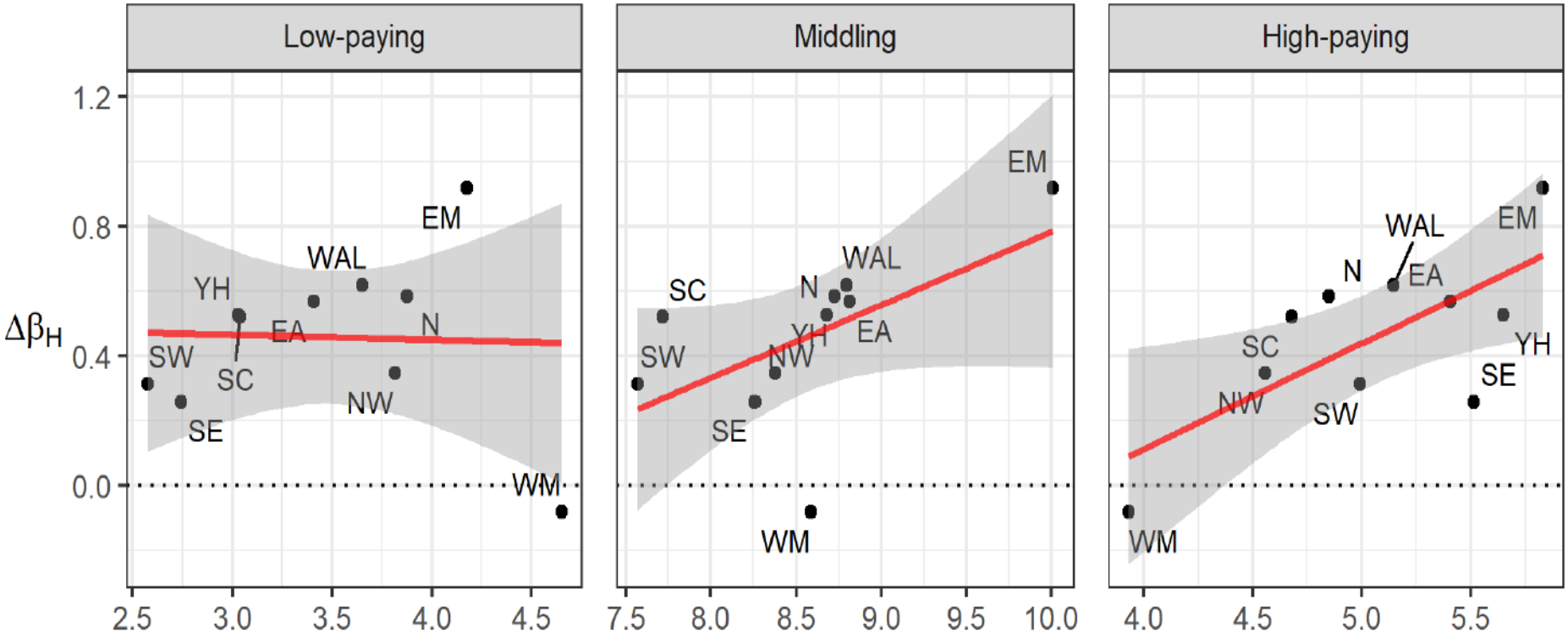
Probability of being in each second-period occupation (columns) conditional on the first-period occupation (rows)

	BCS70				NCDS58			
Occupation	Out	Low	Mid	High	Out	Low	Mid	High
Out-of-work	33.8	25.3	14.5	26.4	27.4	24.7	20.7	27.3
Low-paying	13.6	45.1	17.5	23.8	16.3	40.0	20.3	23.4
Middling	10.5	13.8	44.9	30.8	10.4	15.4	43.4	30.8
High-paying	8.3	8.2	11.0	72.6	8.5	8.1	12.3	71.2

Result 2 – There has been a change in intra-generational mobility across cohorts

Result 3 - Regional changes in mobility are greater where polarization increased the most

Correlation between mobility and polarization, $\Delta\beta_H^r = \delta_H + \eta_H \Delta Pol^r$



Absolute between-cohort change in the share of each type of employment

1. Geographical variation in upwards intergenerational mobility
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The geography of *intra*-generational mobility

- Does geography matter for intra-generational income mobility too?
- Bertrand Garbinti, Cecilia García-Peñalosa, Vladimir Pecheu, Frédérique Savignac (2022)
- Question:
  - What has been the evolution of earnings over the lifecycle for individuals born after WWII in France?
  - Existing analysis: snapshots of inequality at different points in time – yet there are changes in individual's income position over time
- Comparable methodological setup as Guvenen et al. (2021) on US data

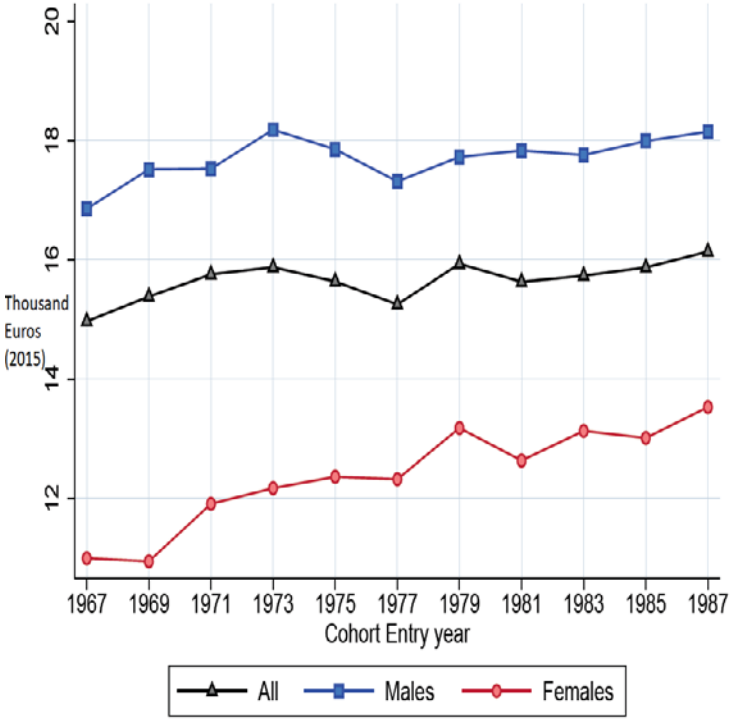
  => Novelty: role of geography

The geography of intra-generational mobility

- Data: *Permanent Demographic Sample*
  - combines several sources: notably DADS firm data with the census
- Lifetime earnings (LTE):
  - average of earnings (i.e. labour income), between ages 25 and 55 for each individual
- Data restrictions/definitions
  - Labour income only
  - Private sector
  - Focus mainly on individuals born between 1942 and 1962 -i.e. we observe their entire lifetime, with the latter entering the labour market in 1987 and exiting in 2017

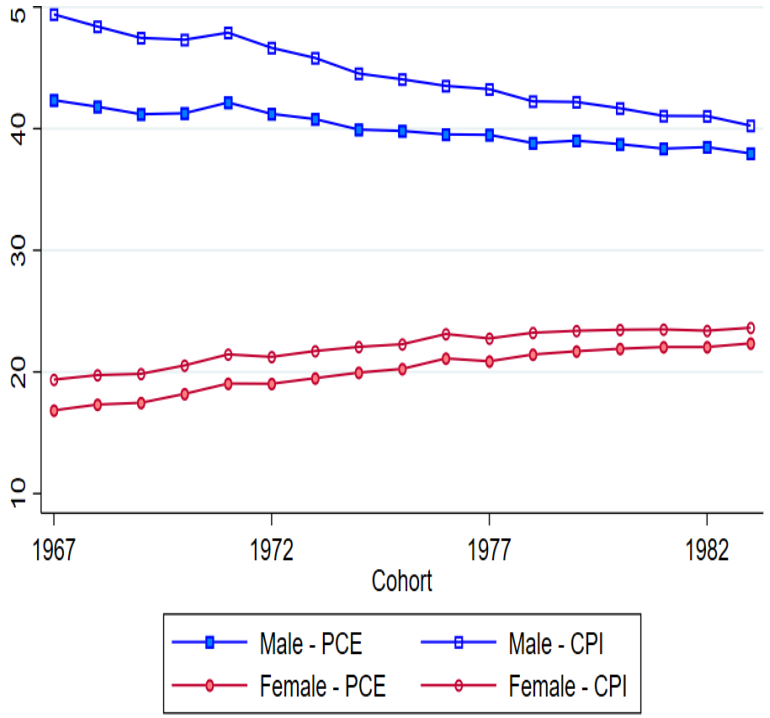
Median Lifetime Earnings (LTE) by cohort and gender

France



United States

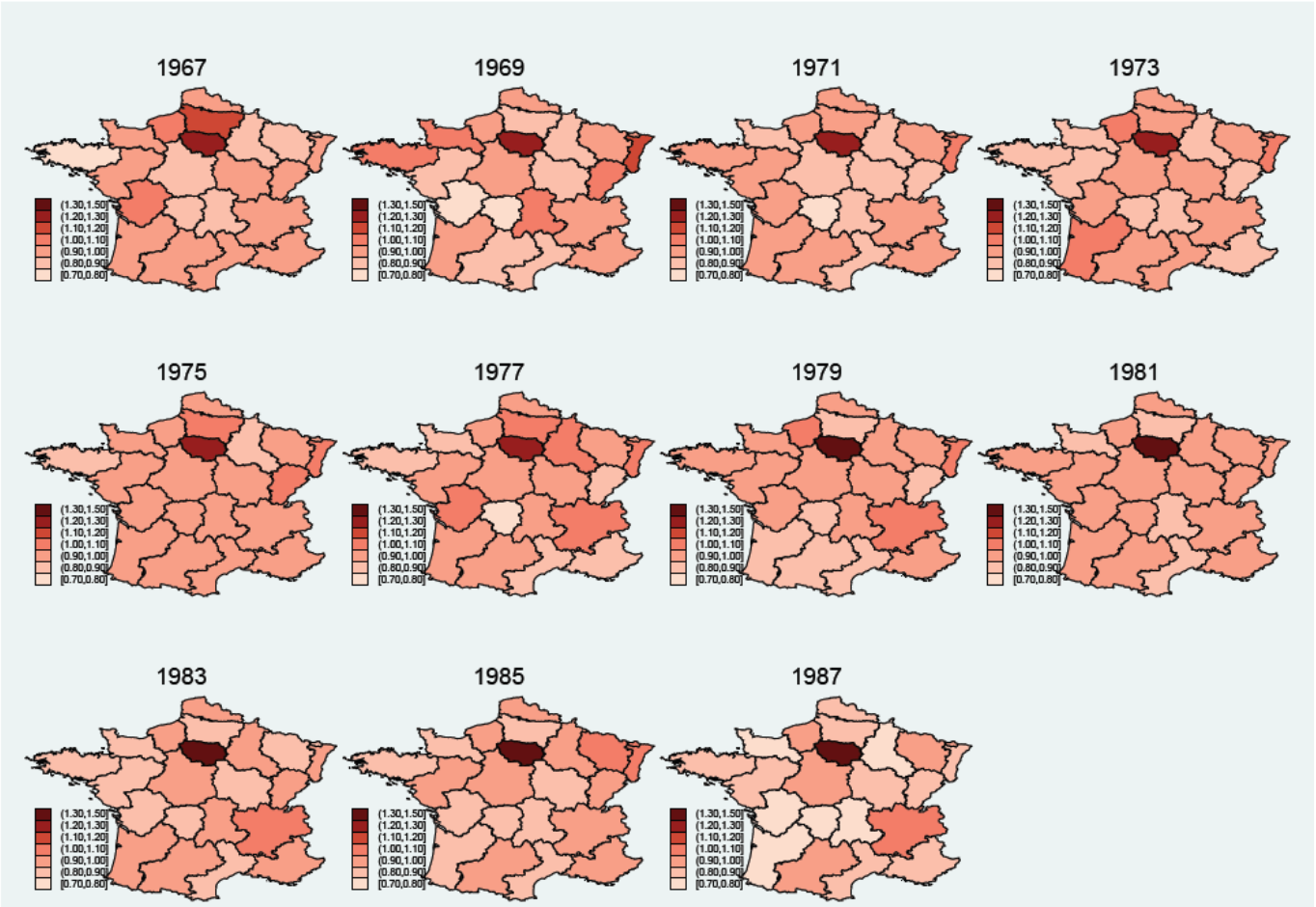
(Source: Guvenen et al. (2021)



- **X axis**: year at age 25
- **Individual Life time earnings**: mean of yearly labour income between ages 25-55 (Guvennen et al. , 2021)
- Labour income: net of all social security contributions but not of income taxes. Deflator: CPE (robustness: CPI)

Differences in LTE across locations: the role of the end of career…

- Regional differences in median LTE when looking a the place of th last employment
  => less geographical differences for the 60's cohorts compared to 80's ones

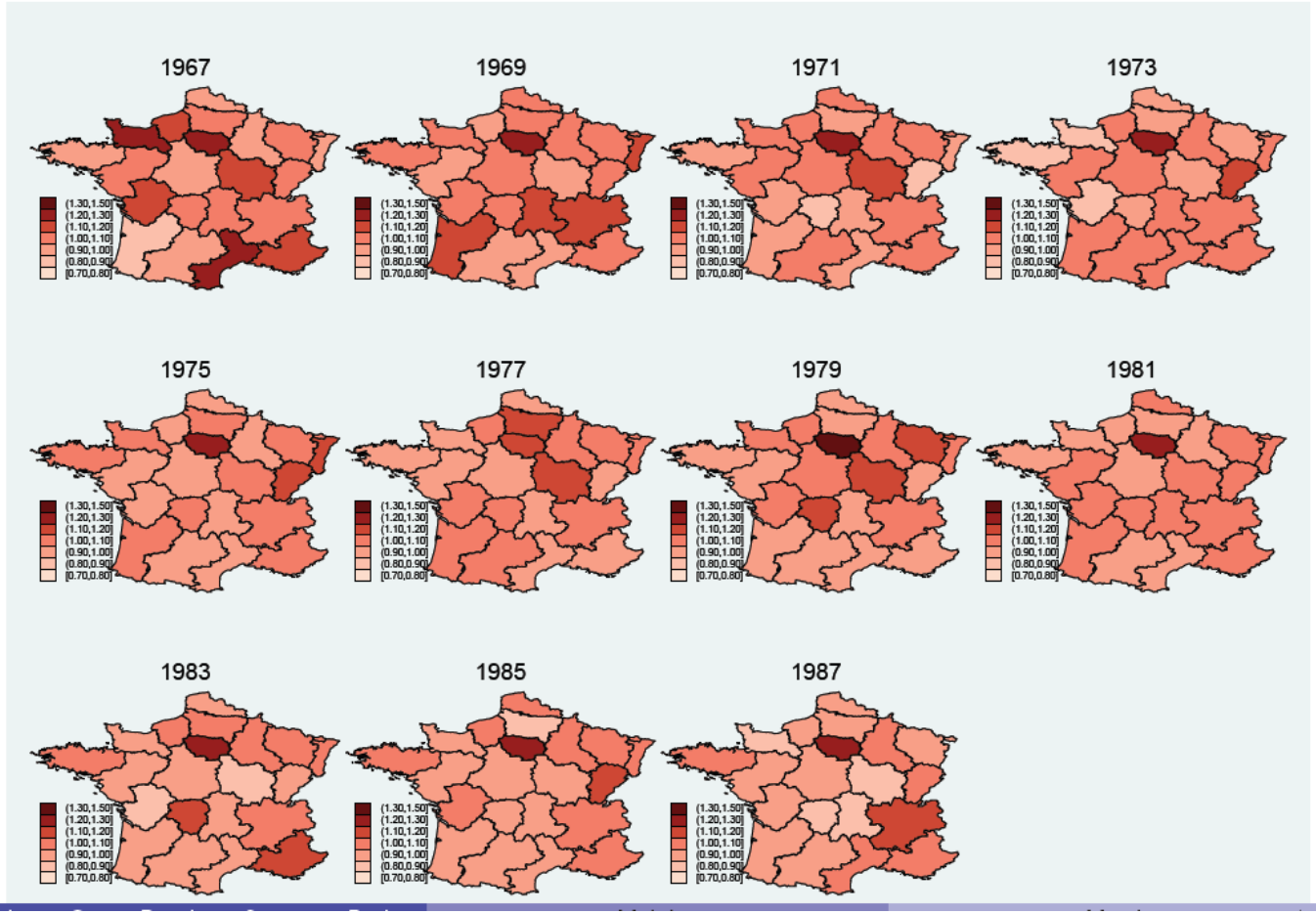


But the place of birth also matters …

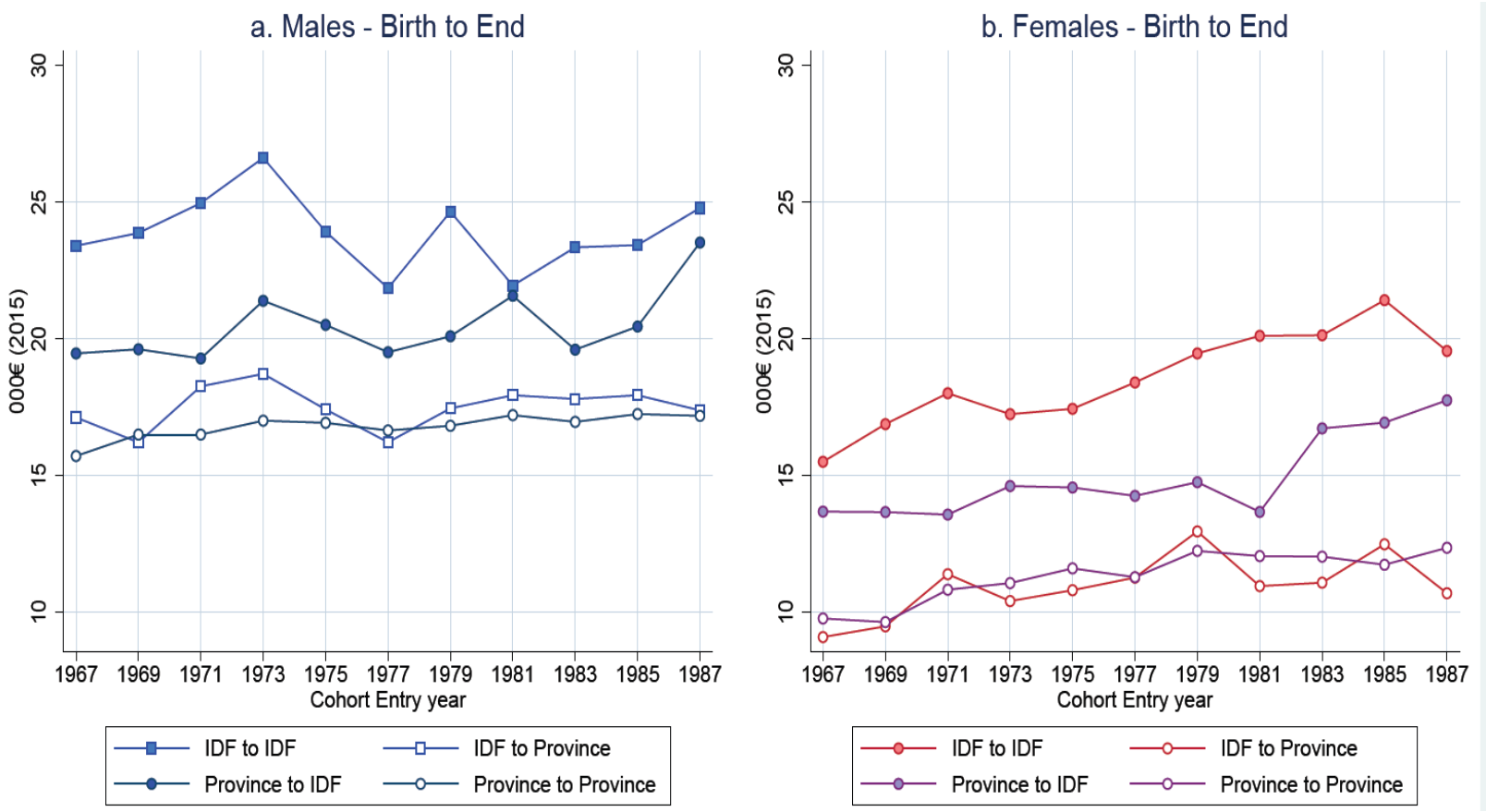
- Over cohorts: change in median LTE depending on the birth region
- For end 60s cohorts: more regions with higher median LTE than for the mid 80s cohorts
- Geographical differences still matter when controlling for education, household composition, part time, etc. (regression)

⇒ **Raises questions about equality of opportunities**

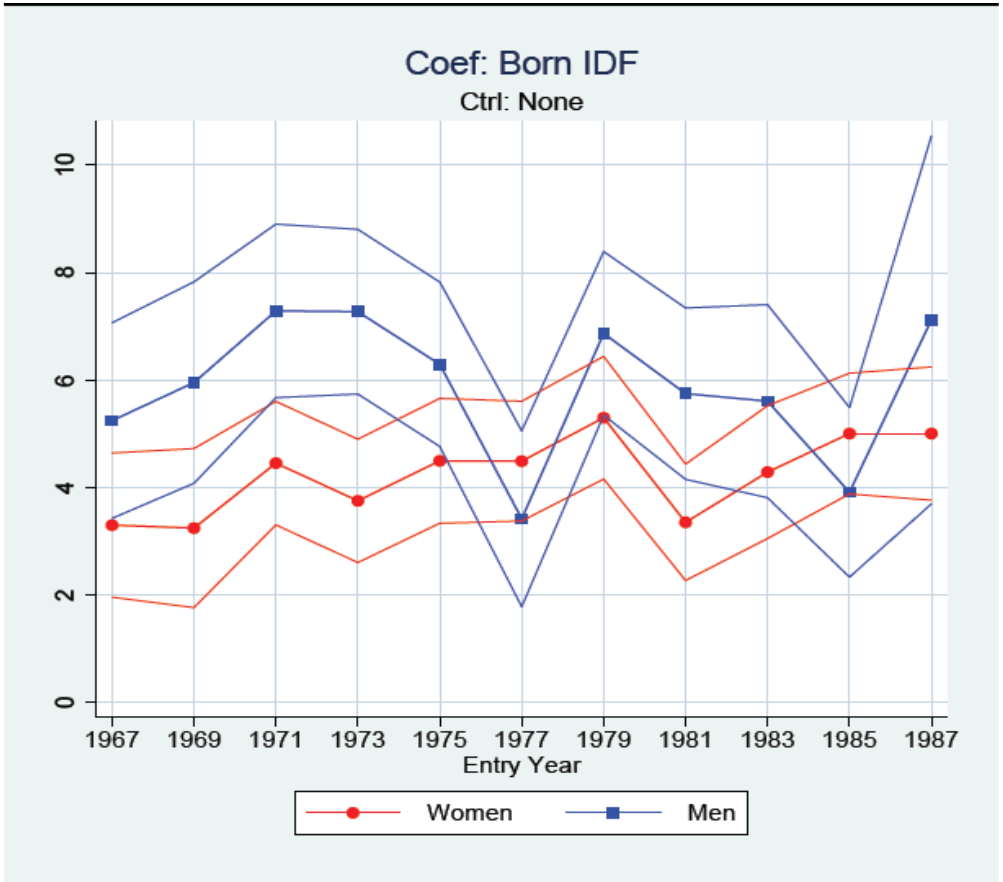
Median LTE by place of birth, 1967-1987



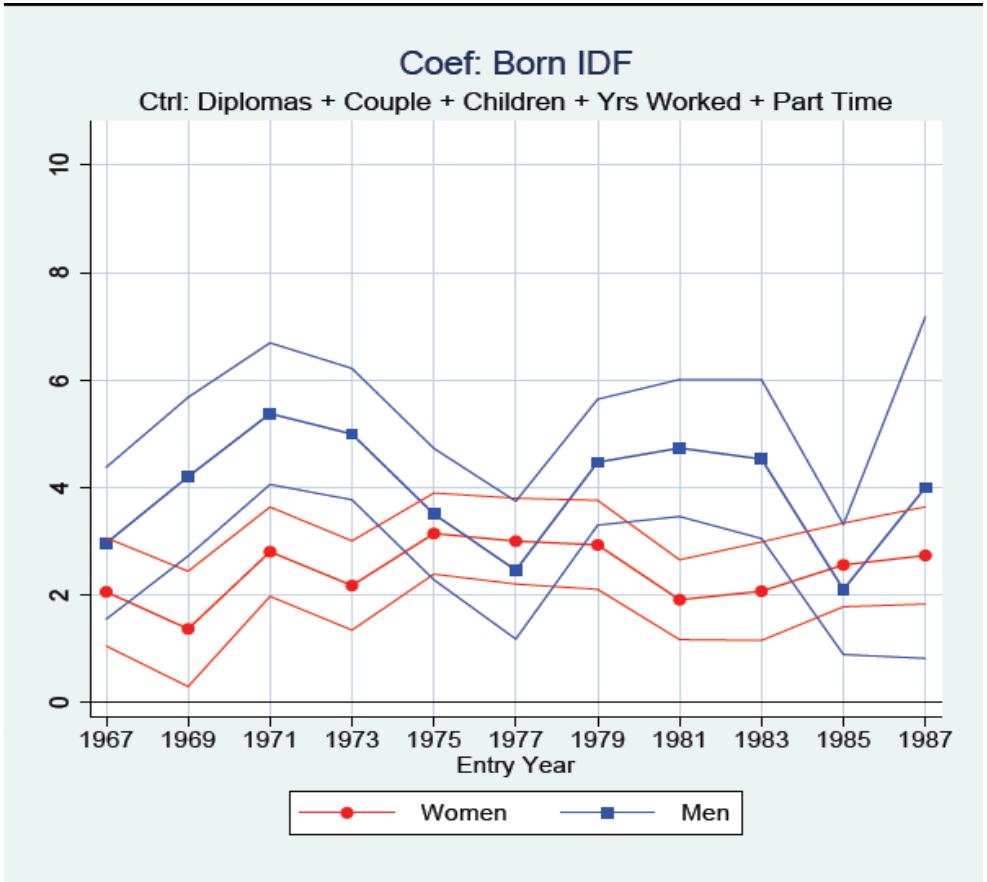
Median LTE by birth and end of career regions



Estimated coefficient on LTE for being born in Ile de France



Estimated coefficient on LTE for being born in Ile de France - Including controls



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Conclusions

Conclusion: The geography of mobility

- Recent work on mobility has examined differences across a country's regions in the degree to which parental background affects the child's income
- Consistent result across countries
  - Large regional differences in the extent of mobility
- Correlates
  - Evidence from the US indicates that policy matters, less clear for other countries
- Focus on the structure of the labour market
  - Employment polarization is a possible explanation
  - What other features of local labour markets may matter for mobility?

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