

LISER Internal Seminar
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Convergence or Continued Stratification? Late Working Lives and Retirement Trajectories in Germany

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Retirement as Trajectory/Process

- Retirement as an ‘institutionalized’ life course (Kohli, 2007)
- Retirement as an event, from working to the retired phase
 - Conceptual/measurement issue: pension receipt? non-working? terminating ‘main’ career?
 - Unemployment & disability as a bridge pathway to retirement
 - How about women with non-standard careers?
 - Partial retirement: reducing working time, transition to self-employment
- Understand retirement as a process/trajectory not a single event
 - Need to look into broader late working lives & trajectories

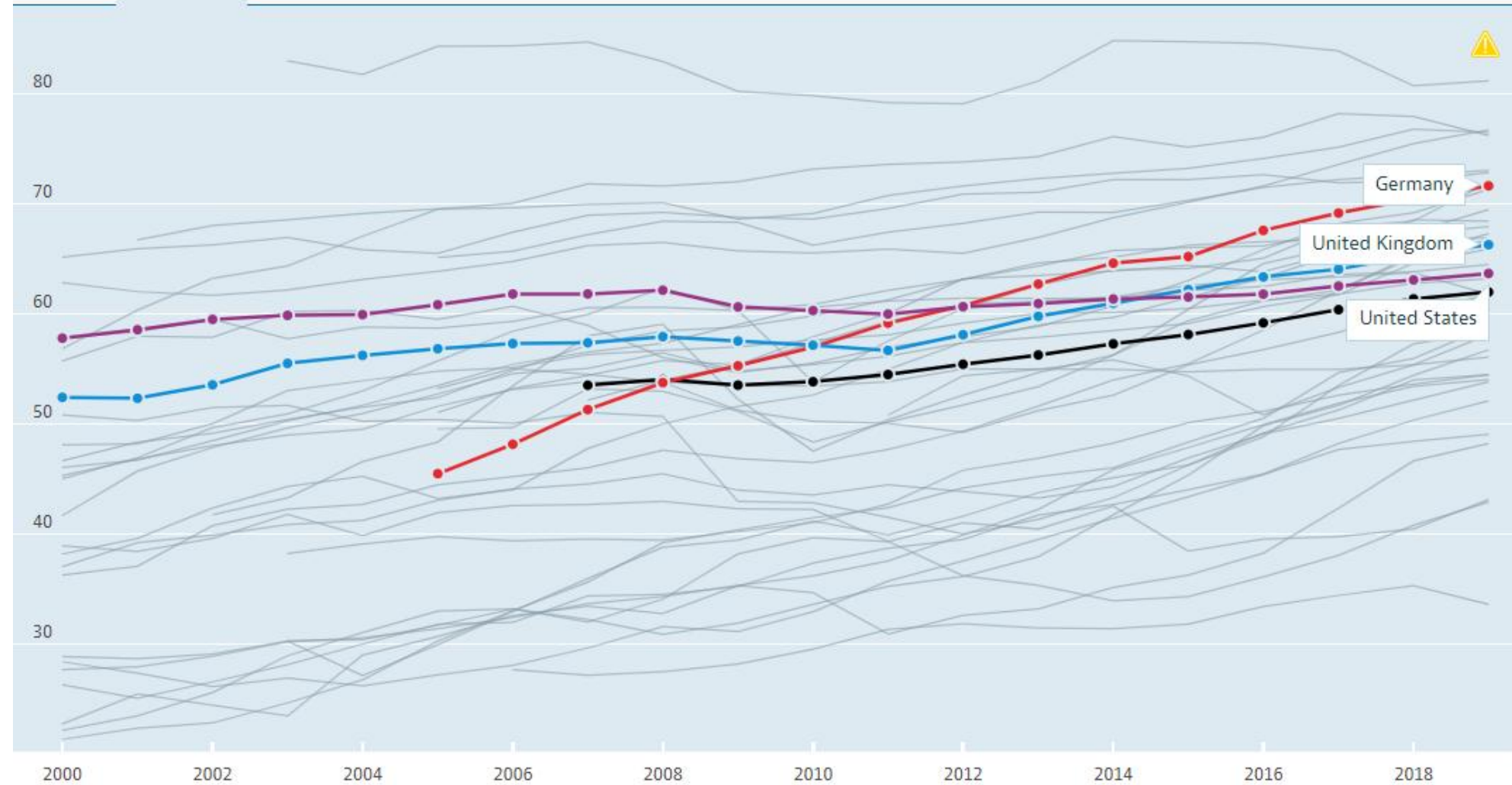
Late working lives & Social Stratification

- Late working lives & retirement processes reflect cumulative (dis)advantages (Turek & Henkens, 2023)
 - Prior work history, health, skills, working conditions
 - Stratified by gender, education, occupation class
- Interaction between (later) life course and macro-social factors
 - Economic cycles/crisis, technological changes (*push*)
 - Welfare state institutions (*pull*: public pensions, early retirement, unemployment insurance, disability pensions)
 - Changes over time & across cohorts, due to distinct historical conditions
 - Interacts with individual characteristics (education, class, gender)

The German Context

- Interaction between life course and institutions/social structure
- (Conventional) social stratification in late working lives
 - Gender, education, occupational class
- Dramatic shift from early retirement to active ageing (Ebbinghaus & Hofaker, 2013)
 - Early retirement & welfare reforms (Hartz reforms)
 - Women's late working lives shaped by 'institutions of family' (Fasang, 2010) → Continuous rise in women's employment
 - East-West divide: Women in the East typically had a full-time career but retire earlier than men → **Reunification**

Employment Rate, Age 55-64, 2000-2019



Source: OECD Database

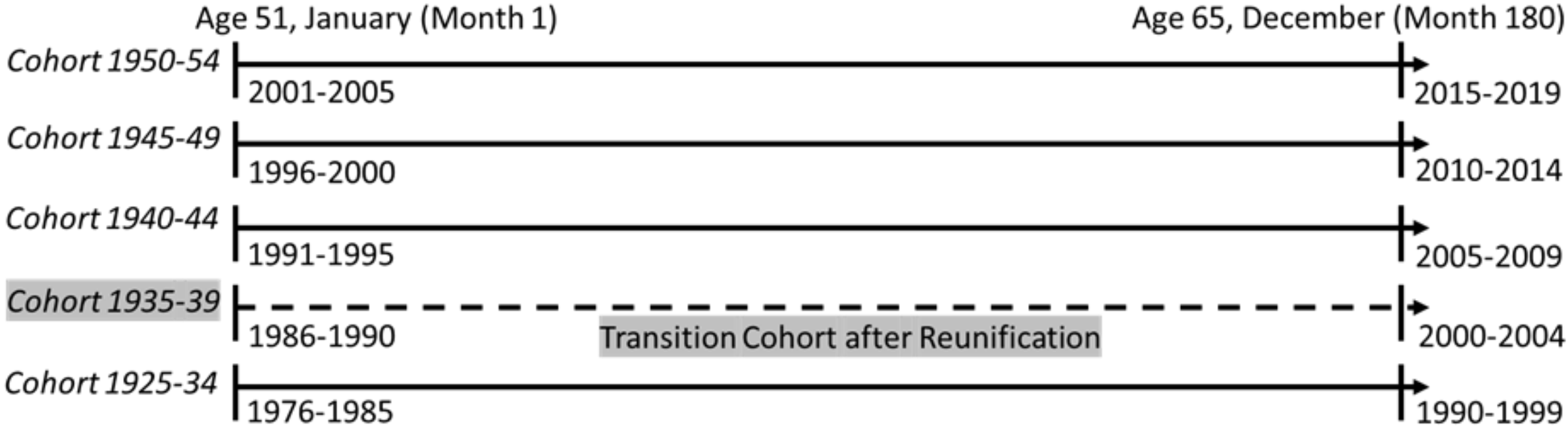
Purpose/Aims

- (1) Explore typical patterns of late working lives & retirement trajectories in Germany
- (2) Track the dynamics of social stratification in the retirement process over time, given institutional & socio-economic changes in Germany
 - *Convergence*: early retirement reforms (class), rising female employment (gender), reunification (East-West)
 - *Continued stratification*: multiple economic shocks
- (3) Examine the extent to which late working lives matter in shaping pension income inequality?

Data & Methods

- SHARE-RV (Börsch-Supan et al. 2020): linked administrative records from German Pension Insurance (*Rentenversicherung: RV*) to SHARE
 - DRV: **Monthly labour market & benefit status**, total month of employment, total pension points (top/bottom coded), gender, residence, partnership
 - SHARE: cross-sectional weights (wave 5, 2013), job episode panel (yearly data), education, number of children, occupation
 - Sample selection: individuals participated in SHARE wave 5 & pension record available (N = 3953) → birth cohorts from 1925 to 1954 (total N=2765)
 - Limitation: some of civil servants, self-employed and foreign work not included

Longitudinal Sequence Data Structure



Defining State Categories

- FT: Employment, full-time
- PT: Employment, part-time/flexible
 - Self-reported part-time status from SHARE Job Episode Panel
- SE: Self-employment
 - DRV & SHARE JEP
- UN: Unemployed – registered unemployment (with & without benefits)
- DIS: Sick or Disabled – receiving disability & reduced incapacity pensions
- FAM: Family care – periods of care credit or self-reported family care (SHARE)
- PEN: Retirement Pension – receiving old-age pensions
- PENw: Pension & partial working – **not always accurate!**
- M: Missing/others – mostly non-employed (+ civil servants, self-employed, foreign work)

Step 1: Sequence & Cluster Analysis

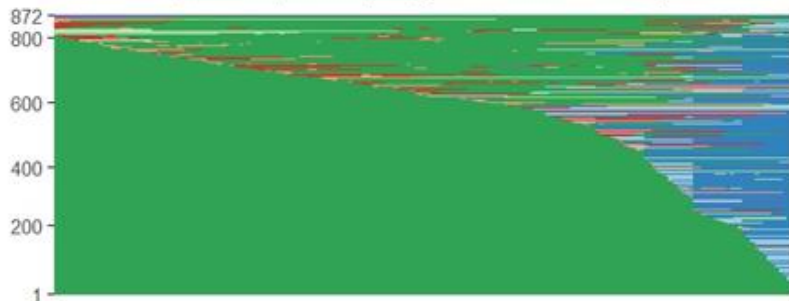
- Sequence analysis
 - FT – FT – FT – FT – UN – UN – UN – UN – PEN – PEN
 - FT – FT – PT – UN – UN – UN – PEN – PEN – DIS
- Dissimilarity (distance) matrix: theory-based optimal matching (OM)
 - Insertion/deletion cost = 1
 - Substitution cost: working states (FT, PT, SE, PENw) vs non-working states (UN, DIS, FAM, PEN, M) – within-group=1, between-group=2
 - Substituting between PEN and PENw is 1
 - Robustness check using Dynamic Hamming Distance
- Clustering: Partition around Medoids (PAM) algorithm
 - Initial clusters set by hierarchical clustering (Ward's distance method)

Table 2. Matrix of substitution costs between sequence states

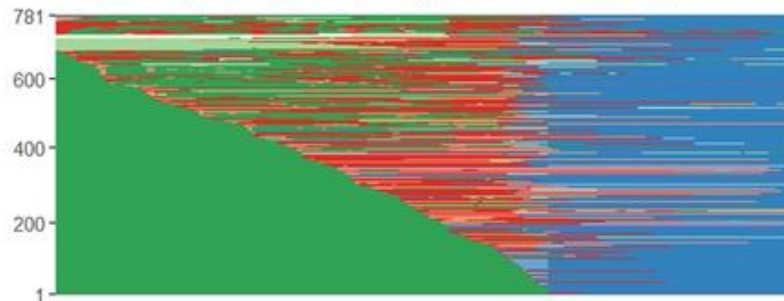
	FT	PT	SE	UN	DIS	FAM	PEN	PENw	M
FT	0	1	1	2	2	2	2	1	2
PT	1	0	1	2	2	2	2	1	2
SE	1	1	0	2	2	2	2	1	2
UN	2	2	2	0	1	1	1	2	1
DIS	2	2	2	1	0	1	1	2	1
FAM	2	2	2	1	1	0	1	2	1
PEN	2	2	2	1	1	1	0	1	1
PENw	1	1	1	2	2	2	1	0	2
M	2	2	2	1	1	1	1	2	0

Note: FT=full-time employment; PT=part-time/flexible employment; SE=self-employment; UN=unemployment; DIS=sickness or disability; FAM=family care; PEN=full retirement; PENw=partial work & pension receipt; M=others/missing.

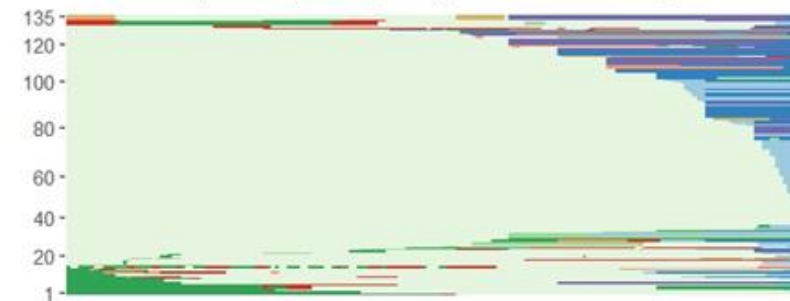
Cluster A. Standard Work to Retirement (29.7%)
(872 sequences; weighted n=4755514.62)



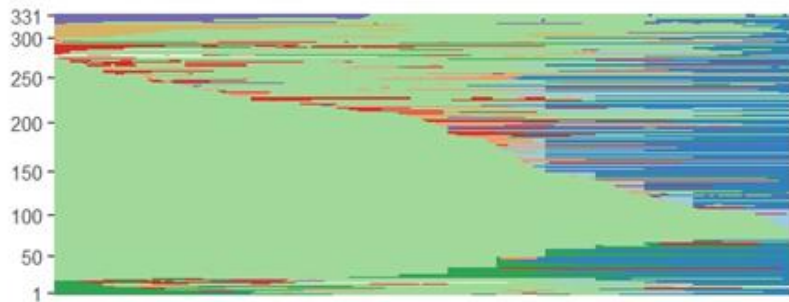
Cluster B. Early Retirement (28.5%)
(781 sequences; weighted n=4557847.97)



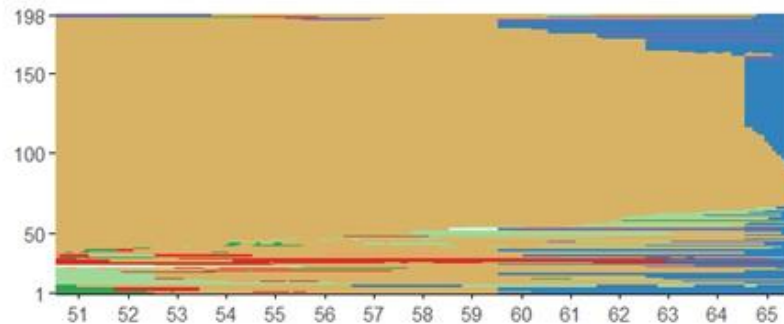
Cluster C. Self-employment & Partial Retirement (4.6%)
(135 sequences; weighted n=731458.71)



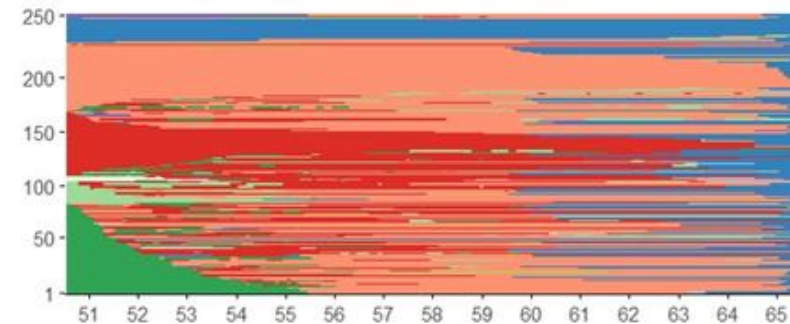
Cluster D. Flexible Work to Retirement (11.6%)
(331 sequences; weighted n=1848976.25)



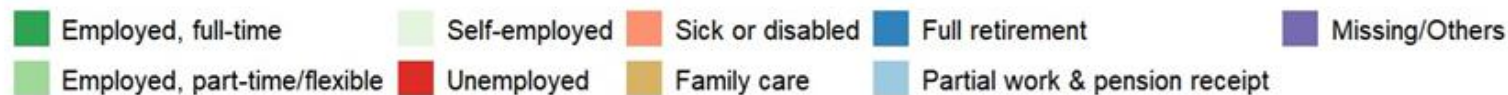
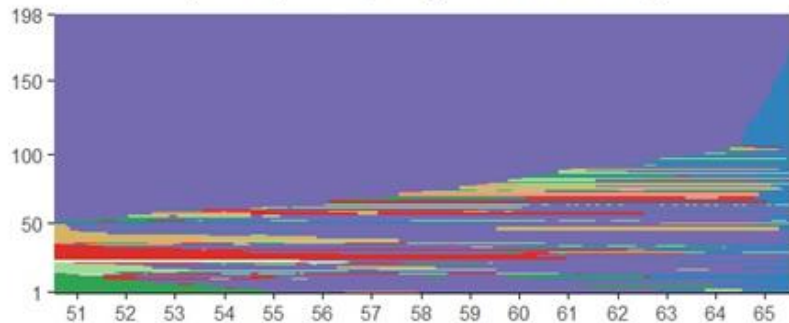
Cluster E. Family Care & Partial Working (8.5%)
(198 sequences; weighted n=1361741.94)



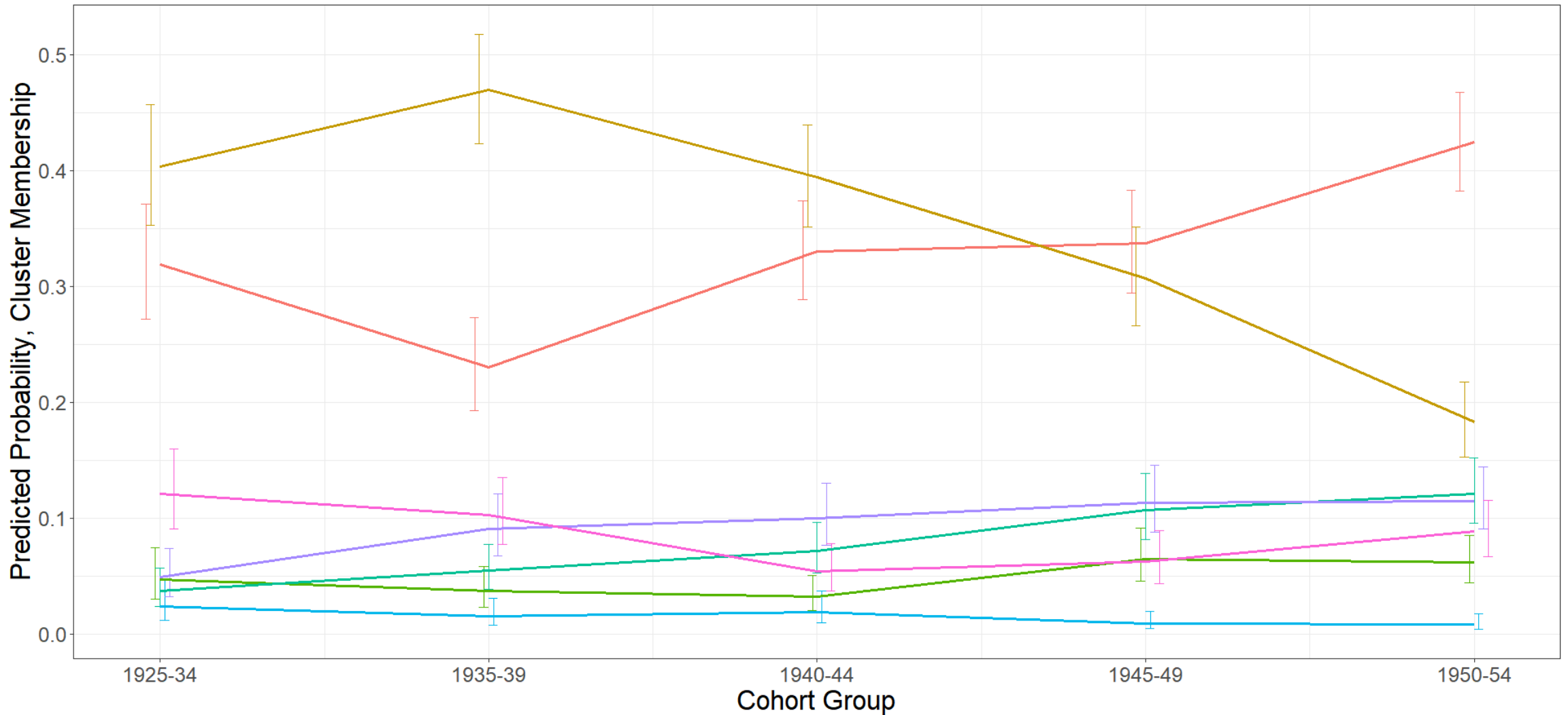
Cluster F. Long-term Unemployment & Disability (9.5%)
(250 sequences; weighted n=1525582.34)



Cluster G. Other Non-Work (Missing) (7.6%)
(198 sequences; weighted n=1216318.6)



Cluster Membership, Cohort Average



- Cluster A. Standard Work to Retirement
- Cluster B. Early Retirement
- Cluster C. Self-employment & Partial Retirement
- Cluster D. Flexible Work to Retirement
- Cluster E. Family Care & Partial Working
- Cluster F. Long-term Unemployment & Disability
- Cluster G. Other Non-Work (Missing)

Step 2: Multinomial Logistic Regression

$$\log \frac{\Pr(\text{CL})}{\Pr(\text{REF})} = \alpha + \beta_1 \text{Cohort} + \beta_2 \text{Cohort} \times \text{Gender} + \gamma \text{SD} \quad (1)$$

$$\log \frac{\Pr(\text{CL})}{\Pr(\text{REF})} = \alpha + \beta_1 \text{Cohort} + \beta_2 \text{Cohort} \times \text{Education} + \gamma \text{SD} \quad (2)$$

$$\log \frac{\Pr(\text{CL})}{\Pr(\text{REF})} = \alpha + \beta_1 \text{Cohort} + \beta_2 \text{Cohort} \times \text{Region} + \gamma \text{SD} \quad (3)$$

- CL: Cluster memberships
- REF: Cluster A – Standard Work to Retirement
- SD: Education (low/mid/high), gender, region (East/West), marriage/partner status, number of children
- Model (3) is estimated separately by gender

Cluster Membership, Cohort*Gender



Cluster Membership, Cohort*Edu



Cohort*Region (Women)



Cohort * Region (Men)



Step 3: Predicting Pension Income

$$\text{Pension} = \alpha + \beta\text{CL} + \gamma_1\text{SD} + \gamma_2\text{yrswork} + \gamma_3\text{occupation} + \varepsilon$$

- OLS Regression with heteroskedasticity-consistent SE
- Whether pension income significantly differs between late working life clusters, net of other major characteristics
 - SD: cohort, education, gender, region, partner, number of children
 - Pension contribution record: *years of work* (before 51)
 - Occupational differences (*ISCO-08*): 10 occupational groups

Cluster Membership (ref. Standard Retirement)	Model 1	Model 2	Model 3	Model 4
Early Retirement	-197.25 ***	-183.67 ***	-242.84 ***	-198.11 ***
Self-Employment & Partial Retirement	-783.43 ***	-769.00 ***	-308.21 ***	-297.27 ***
Flexible Work to Retirement	-637.50 ***	-404.69 ***	-211.66 ***	-209.24 ***
Family Care & Partial Working	-1064.75 ***	-786.63 ***	-228.20 ***	-187.05 ***
Long-term Unemployment & Disability	-565.11 ***	-444.88 ***	-259.71 ***	-215.01 ***
Other Non-work (Missing)	-992.72 ***	-858.95 ***	-372.63 ***	-333.68 ***
Demographic Controls	No	Yes	Yes	Yes
Control: Years of Work	No	No	Yes	Yes
Control: Occupation type	No	No	No	Yes
N / adj. R ²	2765 / 0.31	2765 / 0.39	2765 / 0.68	1917 / 0.68

Key Findings

- Overall gradual decline in early retirement trajectories, replaced with standard/late retirement trajectories
- Significant educational differences and stratification persistent (if not worsened)
 - Low-educ group: increasing long-term unemployment & disability
- Women's rising late LM participation is mainly through 'part-time/flexible' trajectories (more so in the West)
- Some convergence between East & West (more among men)
- Differences in late working life trajectories significantly explain pension income differences (net of other characteristics)

Discussions

- Persistence of (if not a rise in) social stratification, by gender & education level, despite series of welfare reforms
- Structural labor market constraints (push) & prior disadvantages may matter more for the low-educated/women
- Overall rise of standard retirement trajectories are likely driven by changing educational compositions (Riekhoff & Kuitto 2024)
 - Low-educated persons becoming more selective group
- Stratification in late working lives likely contribute to post-retirement income inequality (underestimated in our study)
 - Highest wage in late working lives (seniority)
 - Some omitted variables? (prior working lives)