

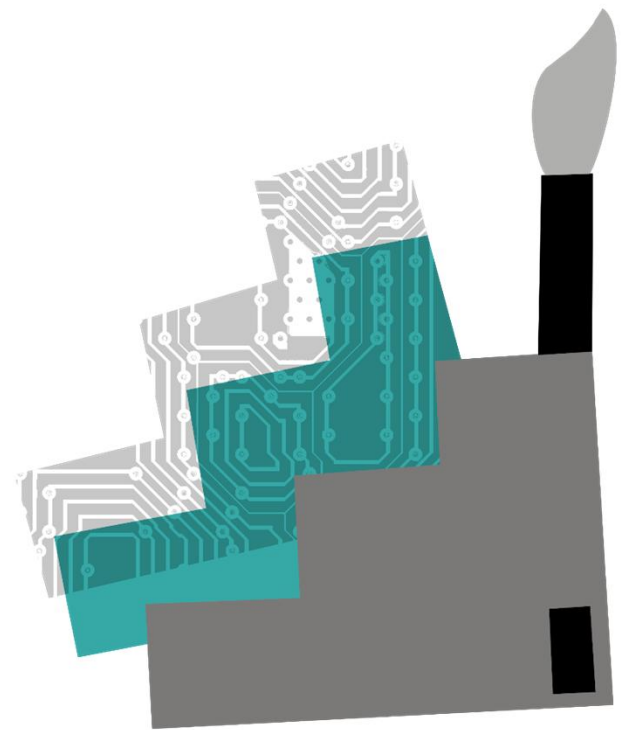
# Finnish Industrial Workers' Careers over time – Fragmented or Stabilized?

**Satu Ojala**, Postdoctoral Researcher,  
Tampere University TU

**Aart-Jan Riekhoff**, Senior researcher,  
The Finnish Centre for Pensions

**Pasi Pyöriä**, Senior Lecturer, TU

**Katri-Maria Järvinen**, University Lecturer, TU,  
**Liudmila Lipiäinen**, Statistician, TU



Fragmented Work Careers?  
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# Background: Long history of lost jobs

- TIME magazine story “The Automation Jobless” in 1961 (cited by David Autor 2015): “jobs lost to more efficient machines. . . Throughout industry, the trend has been to bigger production with a smaller work force. . . . automation is beginning to move in and eliminate office jobs too.”
- Jeremy Rifkin (1995): The brave new world of knowledge work is a zero-sum game in which one party’s gain is another’s loss, the few good jobs that are becoming available are in the knowledge sector.
- Ulrich Beck (1999): ‘the promise of full employment is an historical relic, a “zombie category” much in the same way as social class, because they are dead but somehow go on living, making us blind to the realities of our lives’ (p. 25).

# Erik Brynjolfsson and Andrew McAfee, *The Second Machine Age* 2014

- Rapid and accelerating digitization is likely to bring economic rather than environmental disruption, stemming from the fact that as computers get more powerful, companies have less need for some kinds of workers. Technological progress is going to leave behind some people, perhaps even a lot of people, as it races ahead.
- [...] there's never been a better time to be a worker with special skills or the right education, because these people can use technology to create and capture value. However, there's never been a worse time to be a worker with only 'ordinary' skills and abilities to offer, because computers, robots, and other digital technologies are acquiring these skills and abilities at an extraordinary rate. (P. 11, Cited by Autor 2015.)

# Should we be techno-optimists or techno-pessimists?

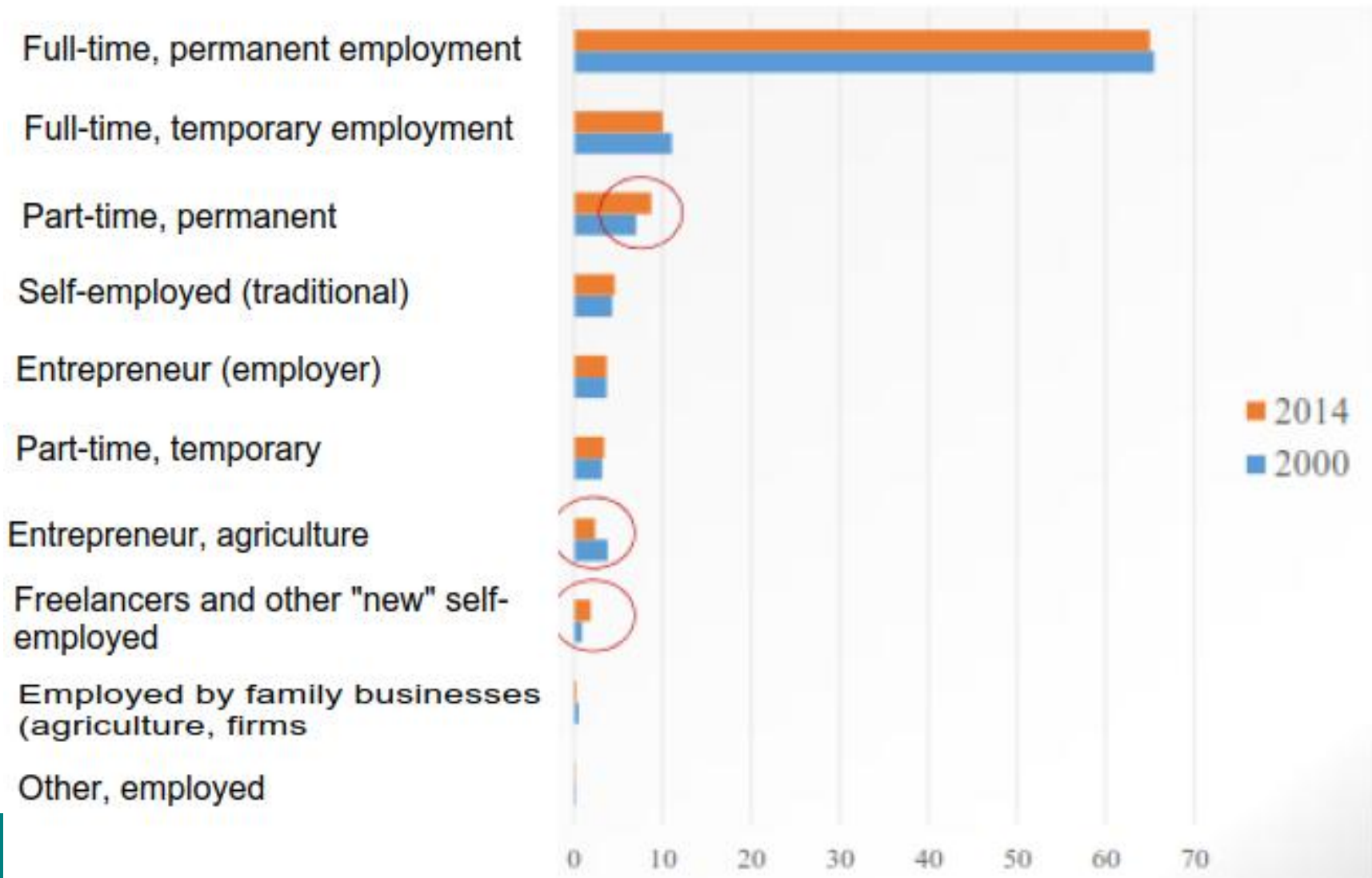
How realistic is the "replacement hypothesis"?

- McKinsey: "A million Finns must be re-educated"
- An occupation-based approach

Vs. Skills-based approach in Arnzt et al. (2016): 7% of Finnish jobs at "risk" due to automation (170.000)

- Out of 15–64 year-old population, in 2010s (Finland):
  - 2.3 – 2.5 million Finns are employed (68–72%)
  - about 200.000–300.000 are unemployed (6–8%)
  - 400.000 are studying (12%)
  - 250.000 are pensioners (8%)
  - 150.000-170.000 outside labour force (5%)

# Employment types in Finnish Labour Force Survey in 2000 and 2014 (Pärnänen 2015)



# David Autor (2015) Why are there still so many jobs?

- “Automation does indeed substitute for labor—as it is typically intended to do. ”
- “[C]ommentators tend to overstate the extent of machine substitution for human labor and ignore the strong complementarities between automation and labor that increase productivity, raise earnings, and augment demand for labor.”
- “Changes in technology do alter the types of jobs available and what those jobs pay. ” i.e. polarization hypothesis
  - Evidence on polarization depends on the years and countries selected for the analysis (Eurofound, 2017; Horemans, 2016; Kalleberg, 2012; 2018)

# Constant flux

(e.g. Bukodi and Goldthorpe, 2011)

- In contrast to what is often suggested:
  - insecurity is *typical*
  - high mobility rates are *necessary* functions of the labor market, i.e. there are high number of transitions between employment statuses every year
    - Both voluntary and involuntary mobility
  - Constant flux is pertinent to Nordic and other dynamic labor markets (Möhring, 2016).
- Change is both *cyclical* and *periodic*
- Hence, work careers repeatedly reconstruct rather than weaken.

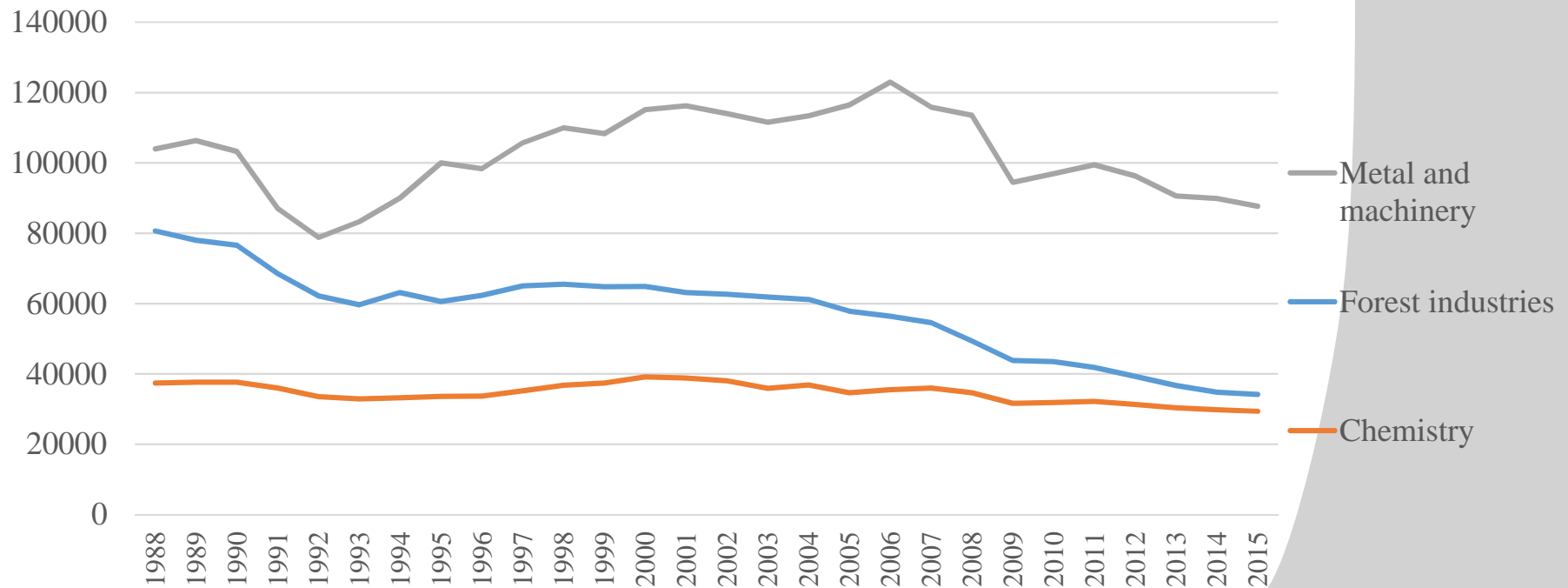
# Longitudinal evidence on work careers?

- Expected: The alleged decline of the standard employment relationship has coincided with a destabilization in work careers (Potter, 2015), i.e. growing heterogeneity and unpredictability in career trajectories.
- Findings: No any overall de-standardization of employed populations' work careers over time, neither in the US, Europe, nor in Finland. Overall, the empirical evidence remains mixed or even opposite to the fragmentation hypothesis (Biemann et al., 2011; Hollister, 2011; Van Winkle and Fasang, 2017).



# The focus on Finnish export industries i.e. forest, metal and chemical sectors

- In recent decades, these sectors have been most subject to globalization, exogenous shocks (economic crises) and technological development.



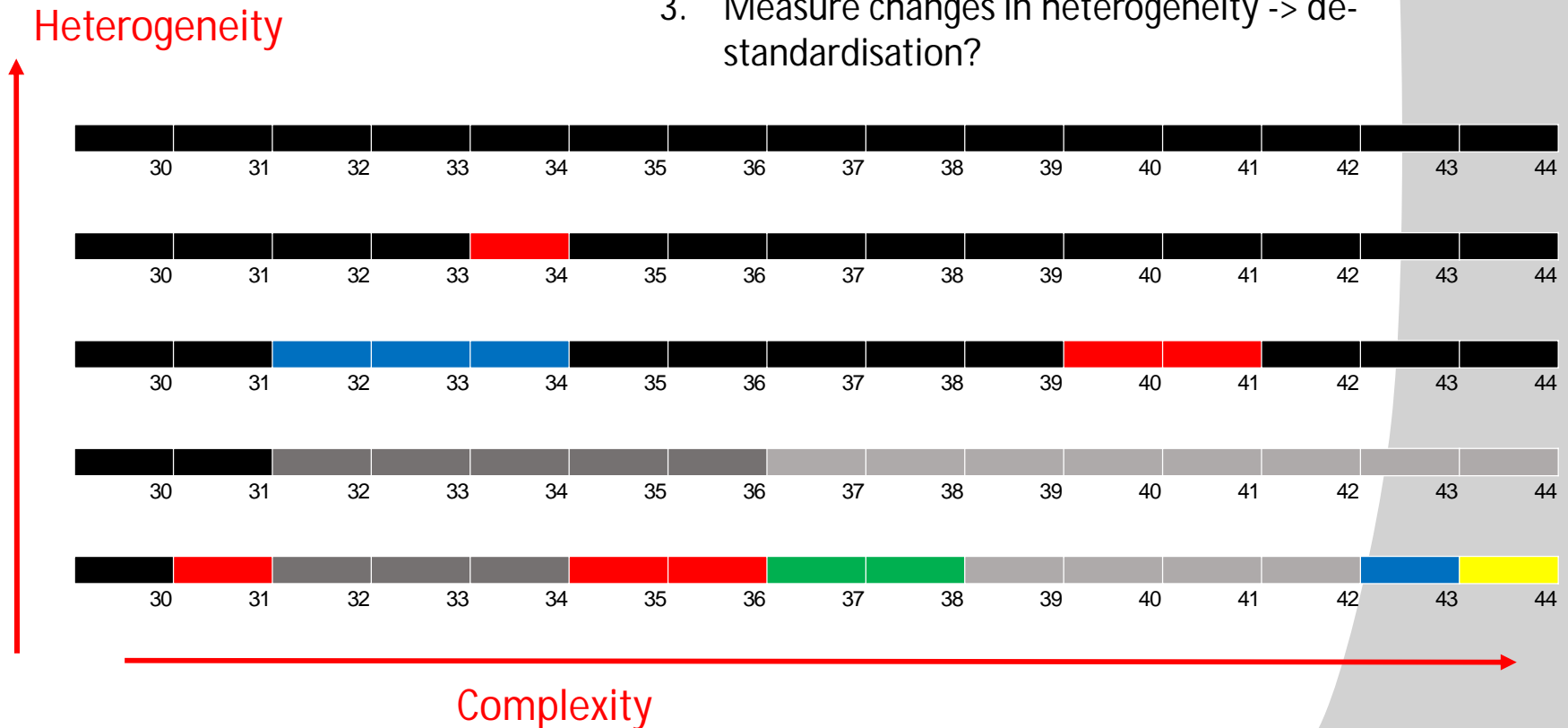
# Interest to analyze the hypotheses of de/stabilization and de/standardization of work careers

- We use FLEED – the linked employer-employee total data of Statistics Finland from 1988 until 2016 – and select industrial employees who were born in 1958–1971, to compare their careers as they were aged 30–45.
- We examine the annual main labor market statuses (employed, unemployed, student, disabled, retired, out of labor force), adding estimators for changes of workplace and industry.
- Our methodological approach is an application of sequence analysis suitable to estimate the stability of careers across cohorts and over time.

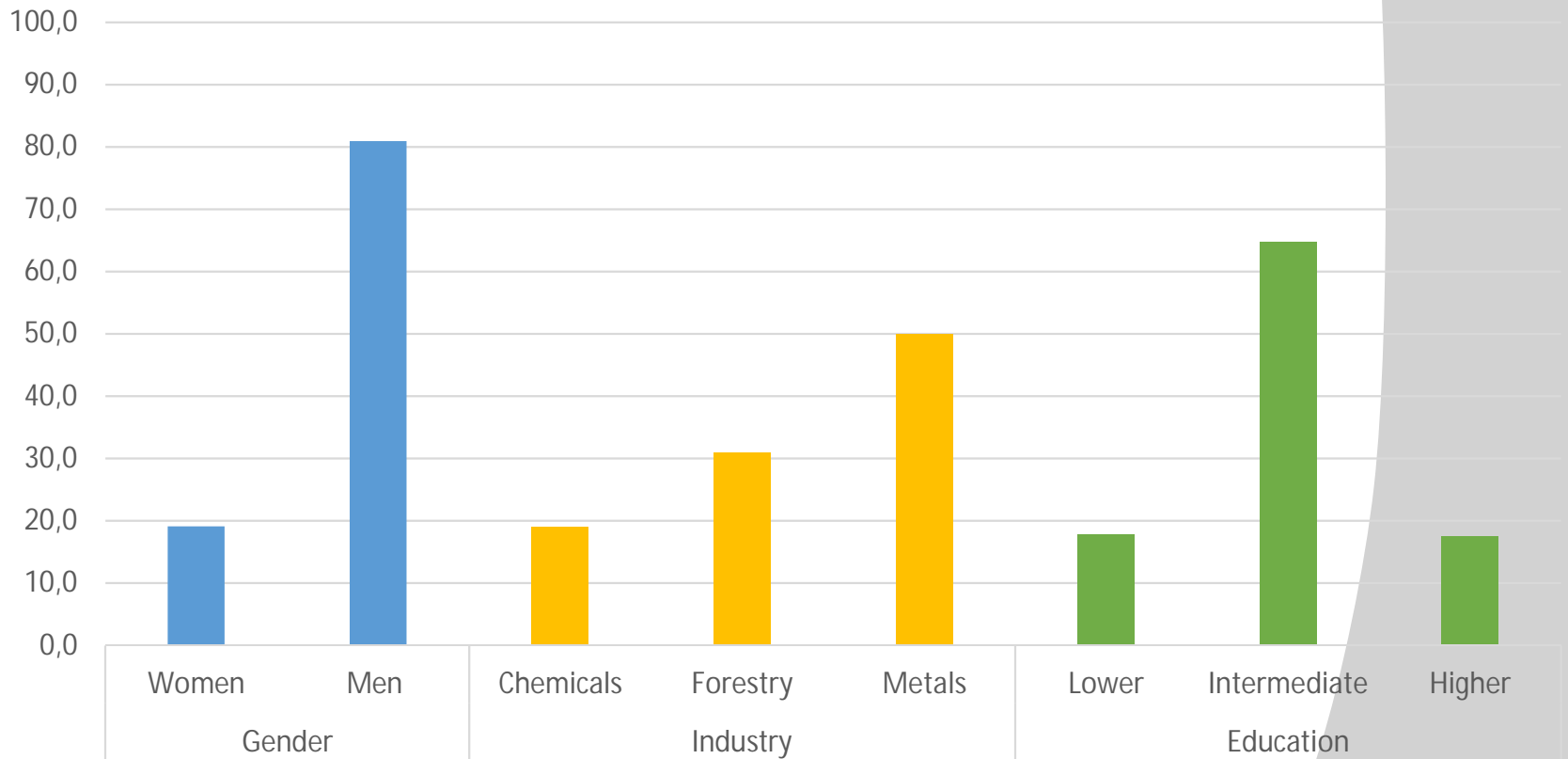
# Sequence-analysis approach to careers

We can:

1. Use algorithms and clustering to decide on the similarities between types sequences
2. Measure changes in complexity -> destabilisation?
3. Measure changes in heterogeneity -> de-standardisation?



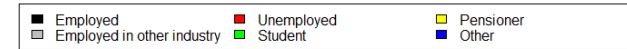
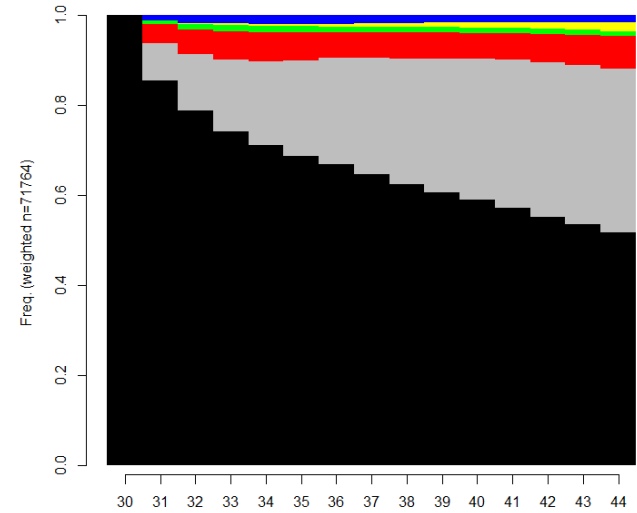
# FLEED, cohorts 1958-1971, N = 71,764



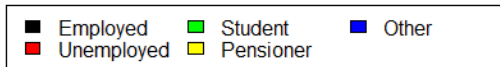
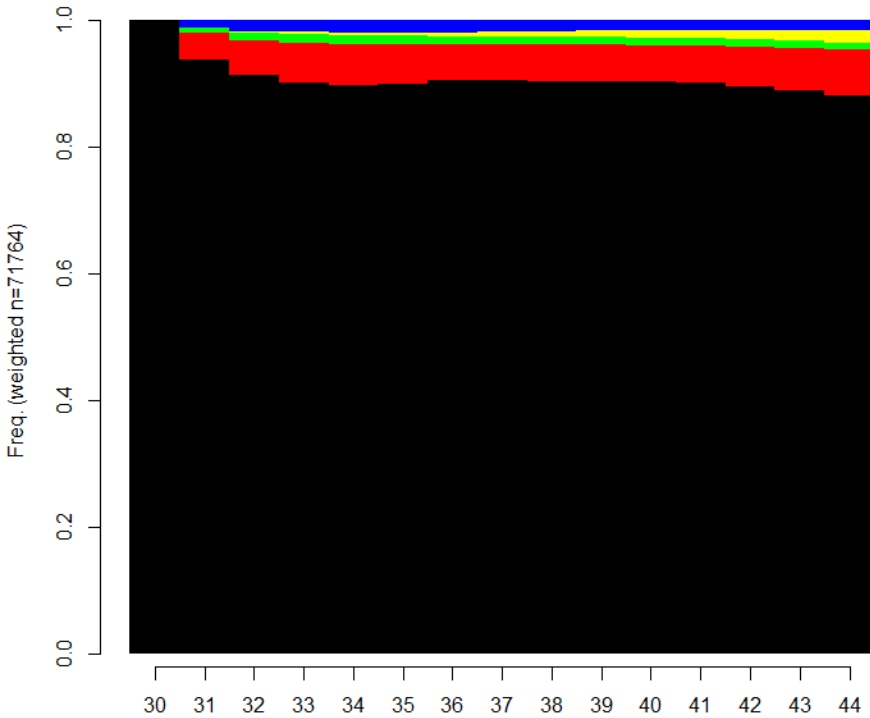
# Employed in year 1

## State distribution plots

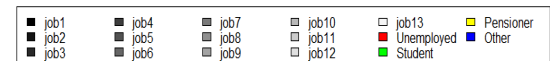
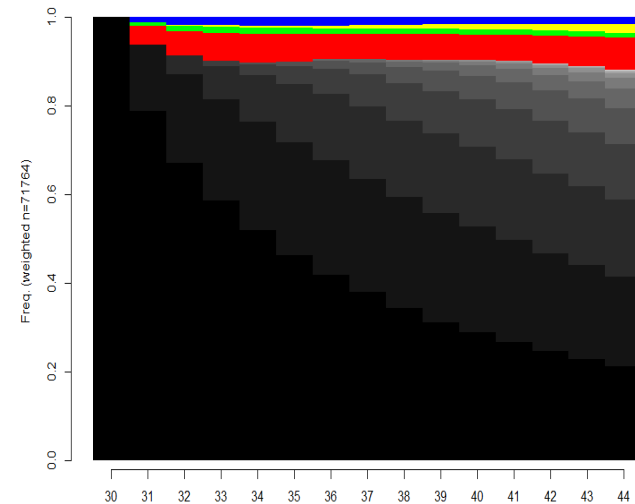
Including changes between industries



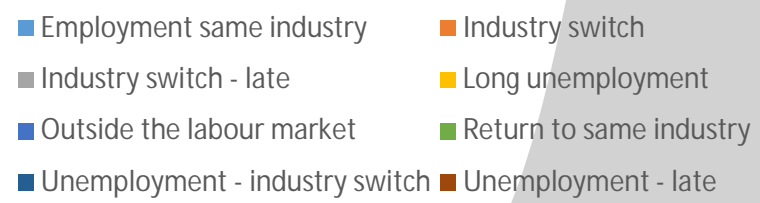
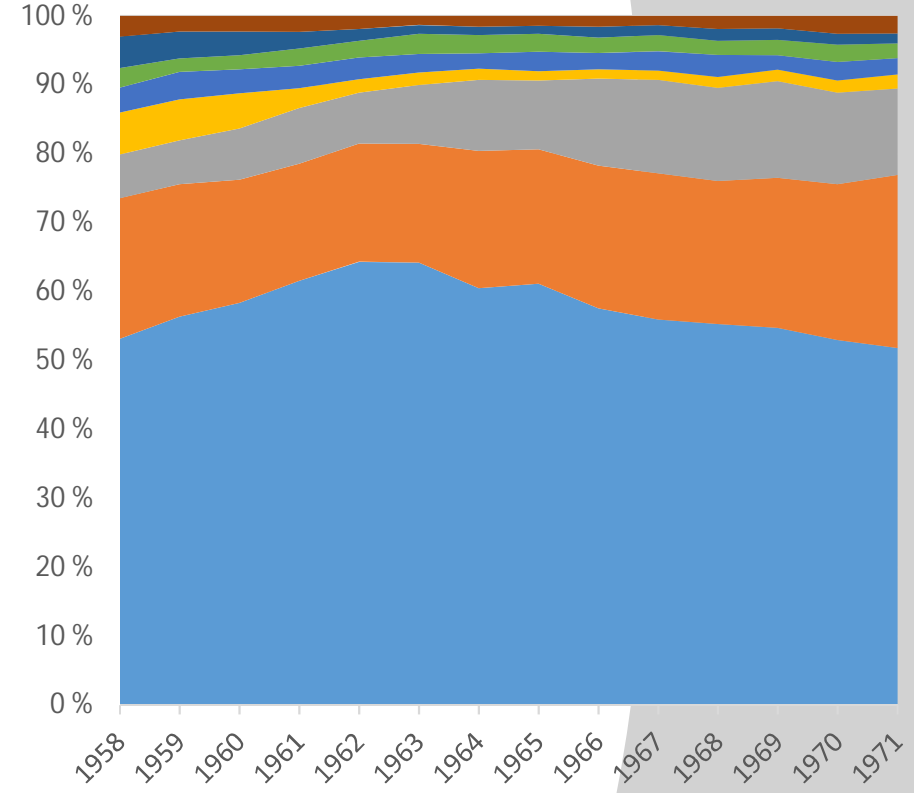
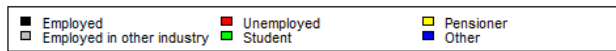
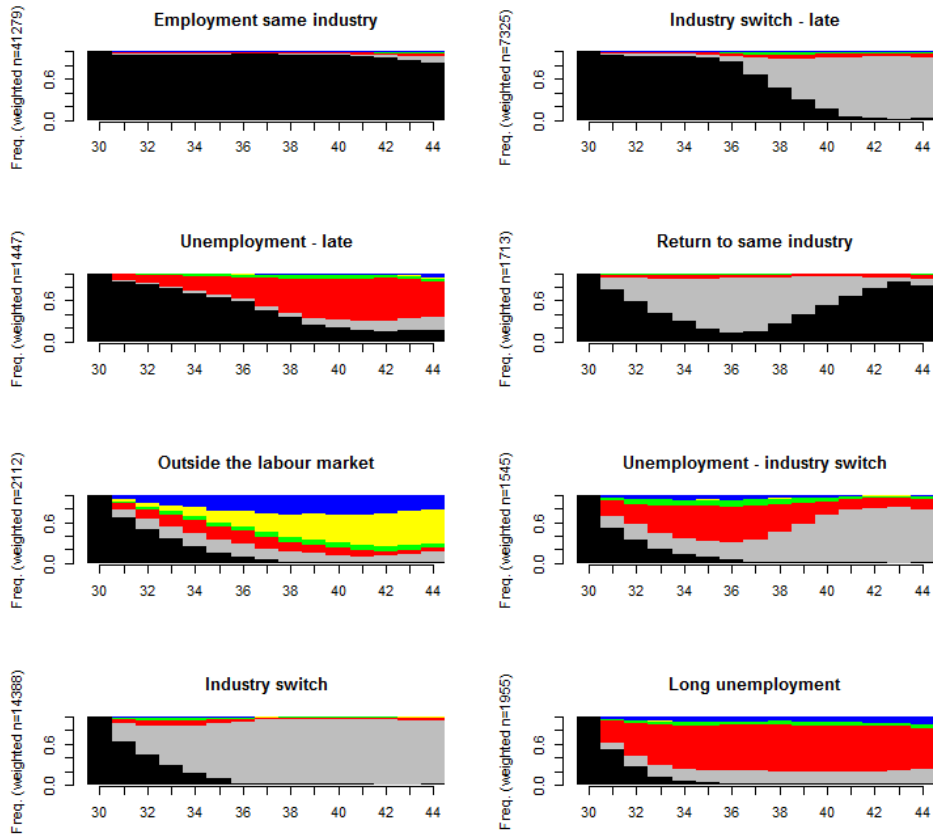
Changes in labour market status



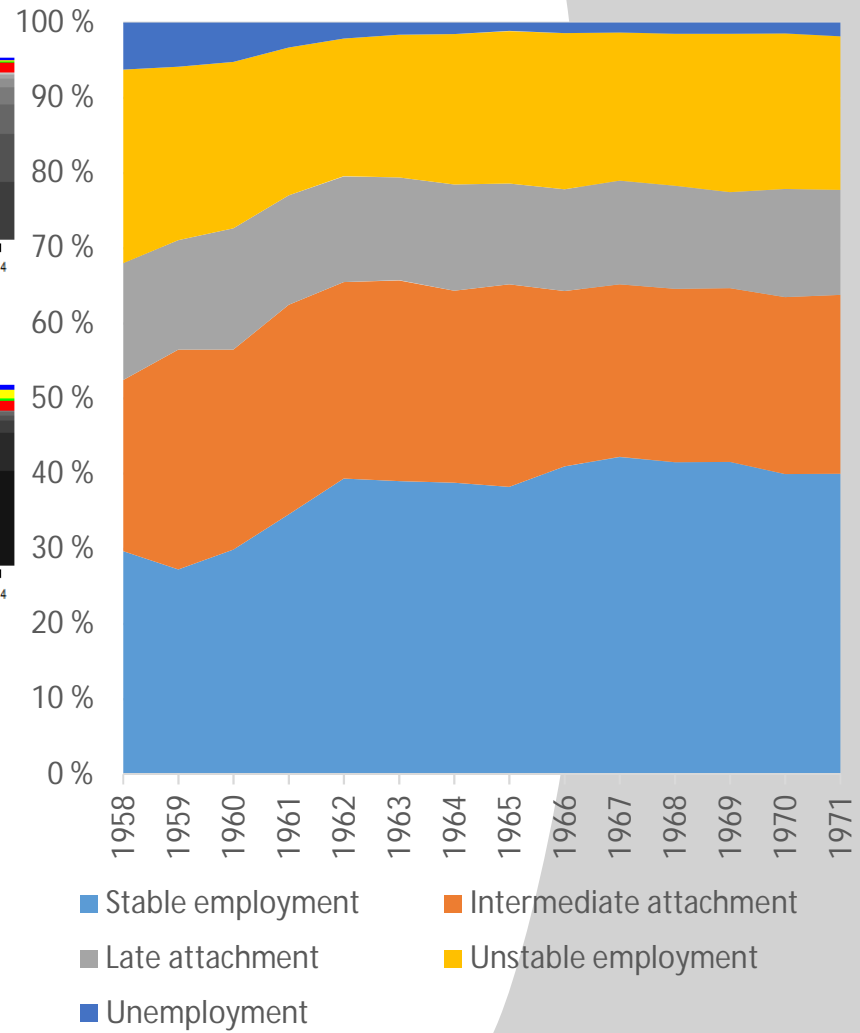
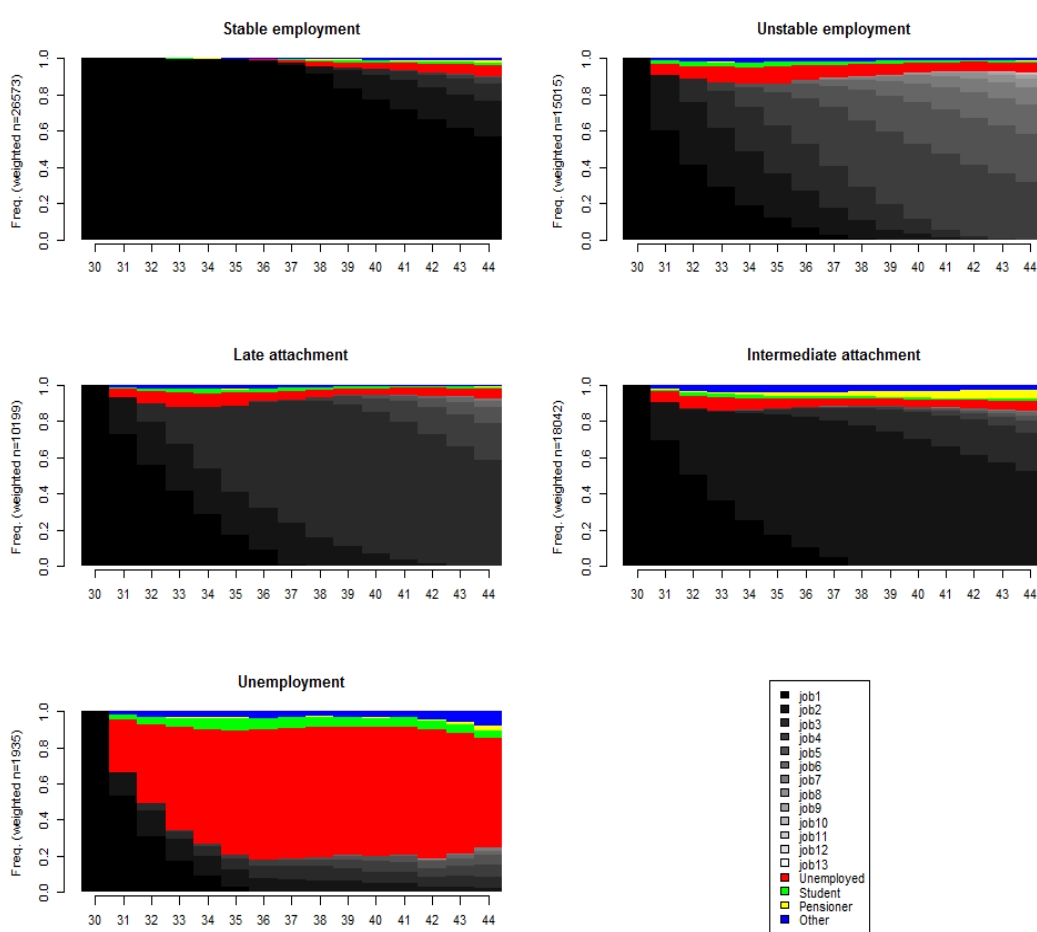
Including changes between employers



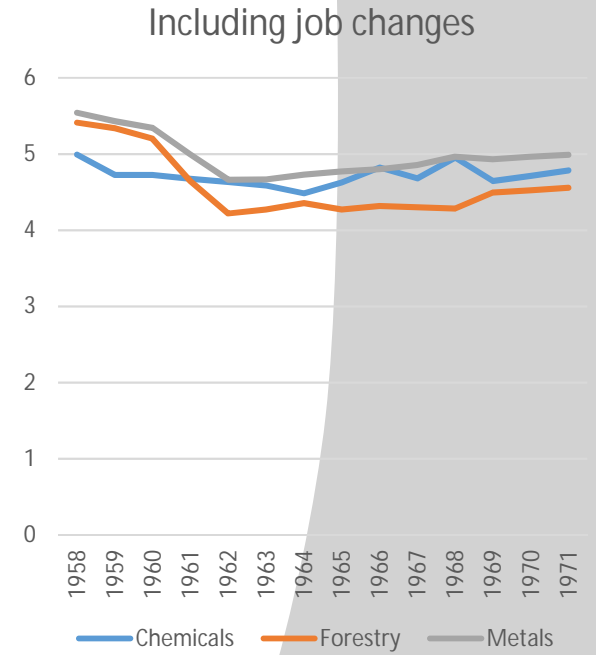
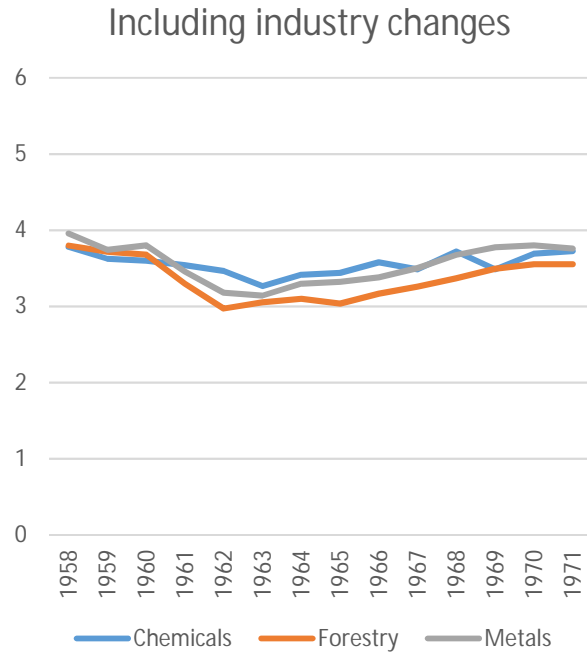
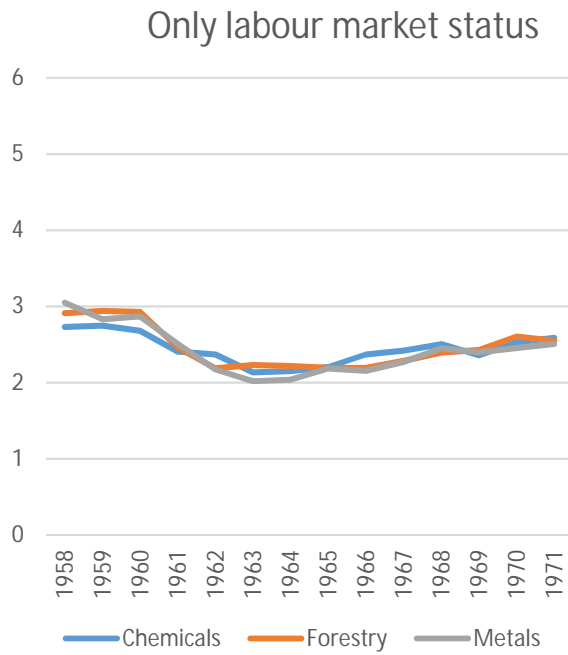
# Career types including changes between industries



# Career types including changes in jobs

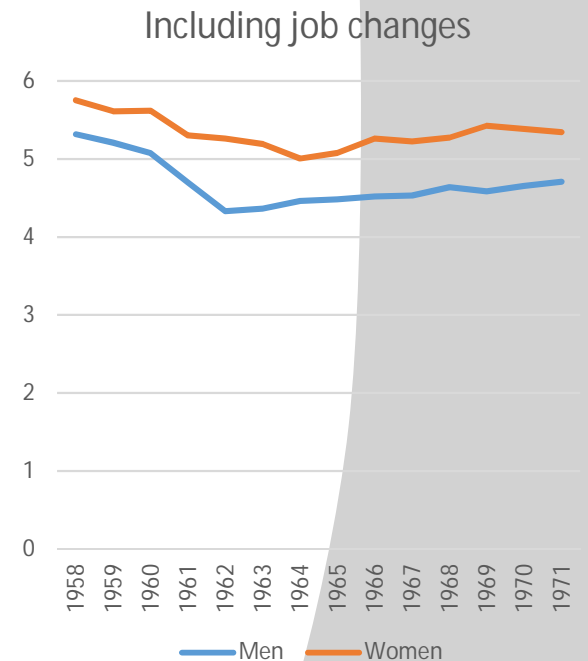
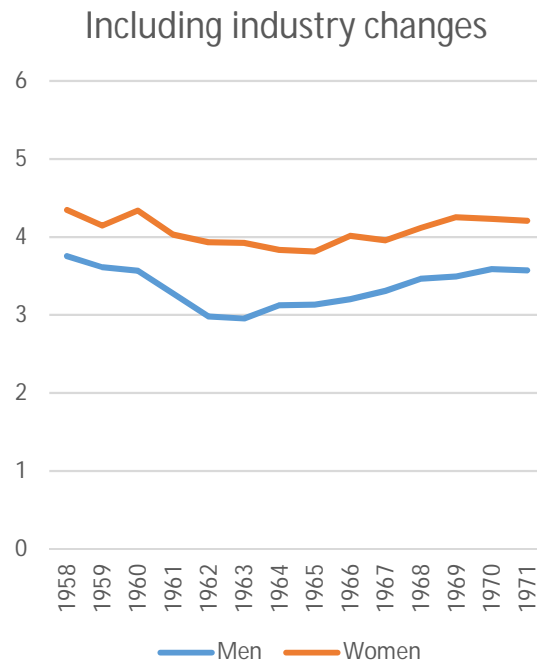
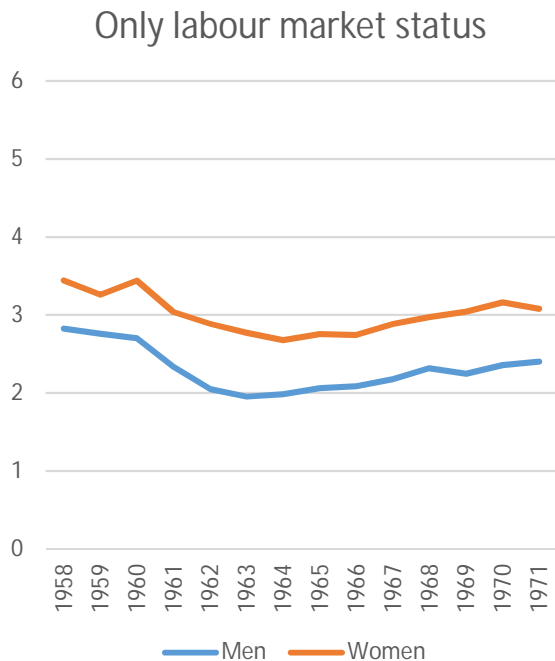


# Destabilisation: Turbulence by industry

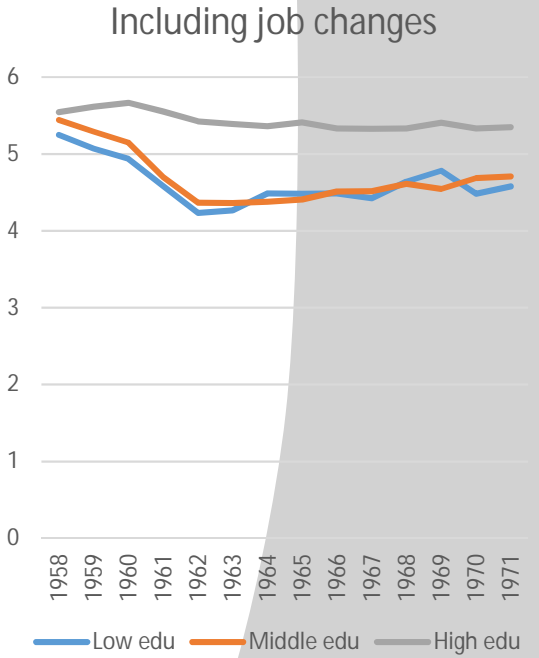
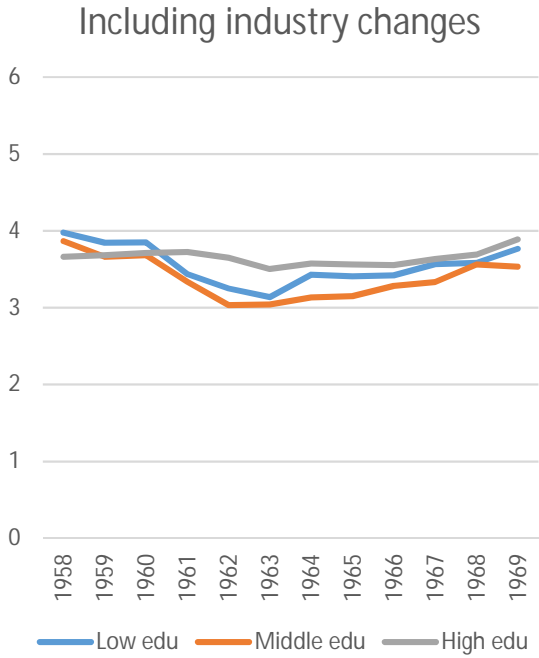
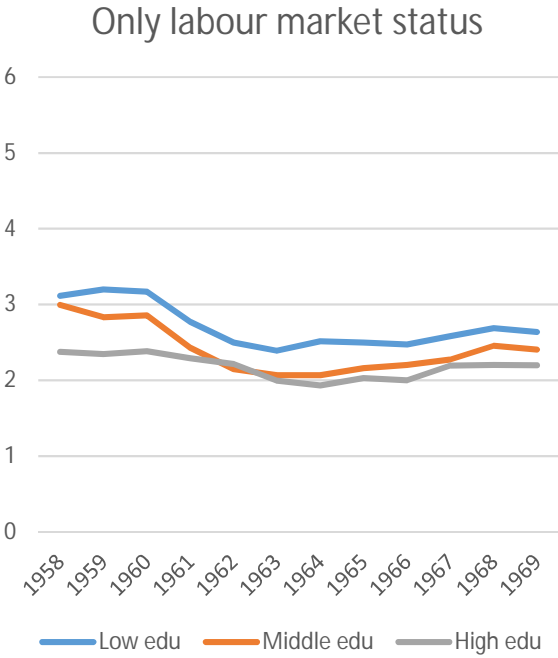




# Destabilisation: Turbulence by gender



# Destabilisation: Turbulence by level of education

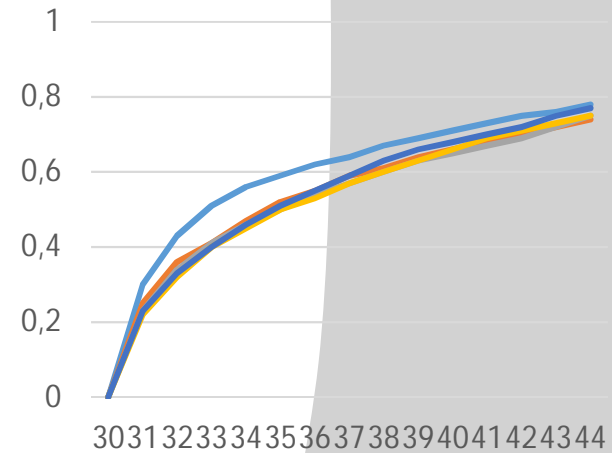
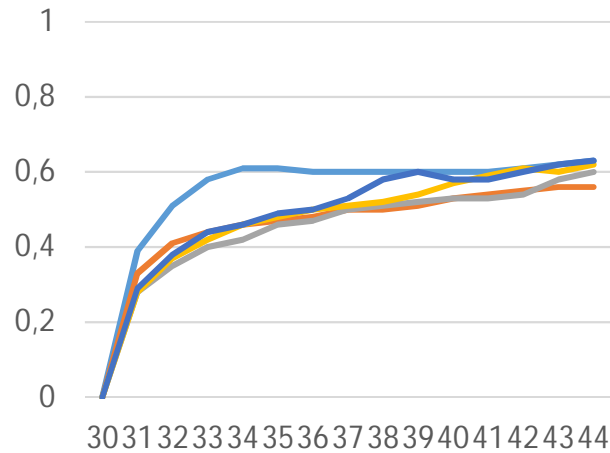
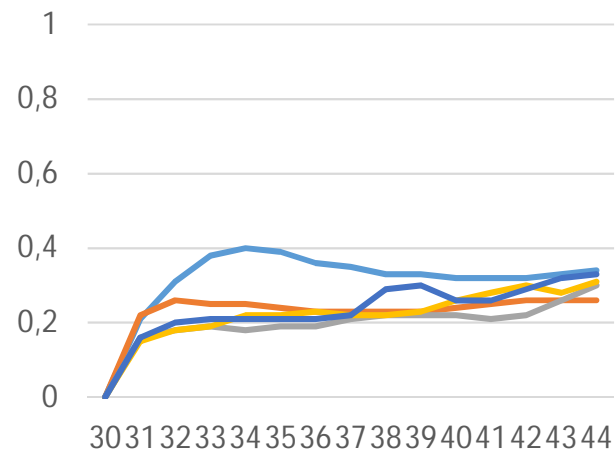


# De-standardisation: Status entropy by cohort at each age

Only labour market status

Including industry changes

Including job changes



— 1958-1960 — 1961-1963  
— 1964-1966 — 1967-1969  
— 1970-1971

— 1958-1960 — 1961-1963  
— 1964-1966 — 1967-1969  
— 1970-1971

— 1958-1960 — 1961-1963  
— 1964-1966 — 1967-1969  
— 1970-1971

# No evidence for fragmentation across cohorts

- in terms of destabilisation or de-standardisation of careers in the chemicals, metals and forestry industries
- Some evidence for fluctuations following the business cycle
- Low-skilled have more unstable careers due to transitions to non-employment
- High-skilled have more unstable careers due to transitions between jobs – the transitions more voluntary (from one job to another, not to unemployment).

# Should we be more worried about other things than "replacement of jobs"?

A LOT of good jobs incl. security of employment, high autonomy, high discretion - Yet also stress caused by continuously changing technology & restructuring of organisations - Intensity & Loss of sleep & recovery

A LOT of jobs and workers suffering from deep(ening) segmentation:

- social & health care workers at risk of worsening working conditions
- Low-paid service sector workers do not earn a decent living
- Ø Decent pay, improved working conditions and job quality
- Ø Societies must maintain and improve labour bargaining processes.

Unemployed:

Inequality, distribution of income <> Loss of mental health, disability of young people & working-aged

- Ø Decent social security & welfare services.

# Thank you! & Literature

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