

**Pekka Virtanen**

**Labour market careers across the life course**

**- a four variable trajectory analysis**

## **Background**

- large bodies of research have measured individuals' labour market attachment (crudely: employment, unemployment, out of labour market) and its associations to various predictors and outcomes
- measuring the attachment at a given time point is relatively simple, whereas it is more complex to measure it longitudinally, across a given part of the life course
- development of statistical methods during recent decades, applicable also to studies on labour market attachment

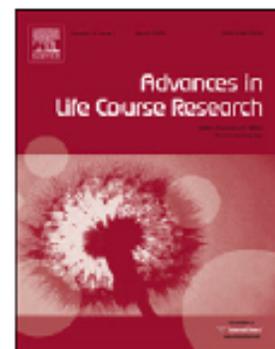


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### Tracks of labour market attachment in early middle age: A trajectory analysis over 12 years

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## Trajectory analysis (Nagin, Munthen)

- conventional assumption: individuals come from a single population and a single growth trajectory can adequately approximate an entire population
- 'latent class' or 'growth mixture' assumption: there is unobserved heterogeneity within a population.
- goal of the analysis: to classify individuals into distinct groups or categories so that individuals within a group are more similar than individuals between groups

# Trajectory analysis of labour market attachment

- univariate analysis (e.g. employed): the problem of diversity of the employment and in particular of the non-employment
- solution: multiple variable trajectory analysis
- statistical base: as in univariate analysis

## **Health and Social Support (HeSSup)**

- follow-up study of a random sample of work-age population from 1998 to 2010
- survey and register data
- age classes in 1998: 20-24, 30-34, 40-44 and 50-54 years
- yearly labour market status inquired by a matrix



## **Four variable trajectory analysis**

- Four binary responses, 12 time points (calendar years)
- Shape of trajectory: second degree binary curve
- Solution (number of trajectories) based on information criteria (BIC)

## **Labour market attachment in early adulthood (age 20-36)**

1. All-time temporary
2. Late temporary and permanent
3. Rapid temporary-to-permanent
4. All time permanent
5. Direct permanent
6. Late temporary-to-permanent
7. Subtotal permanent
8. Rapid permanent
9. Neither temporary nor permanent

## **Labour market attachment in early middle age (age 30-46)**

1. Unemployment
2. All time permanent
3. Subtotal permanent and temporary
4. Declining permanent
5. Increasing permanent
6. Temporary-to-permanent
7. All time temporary

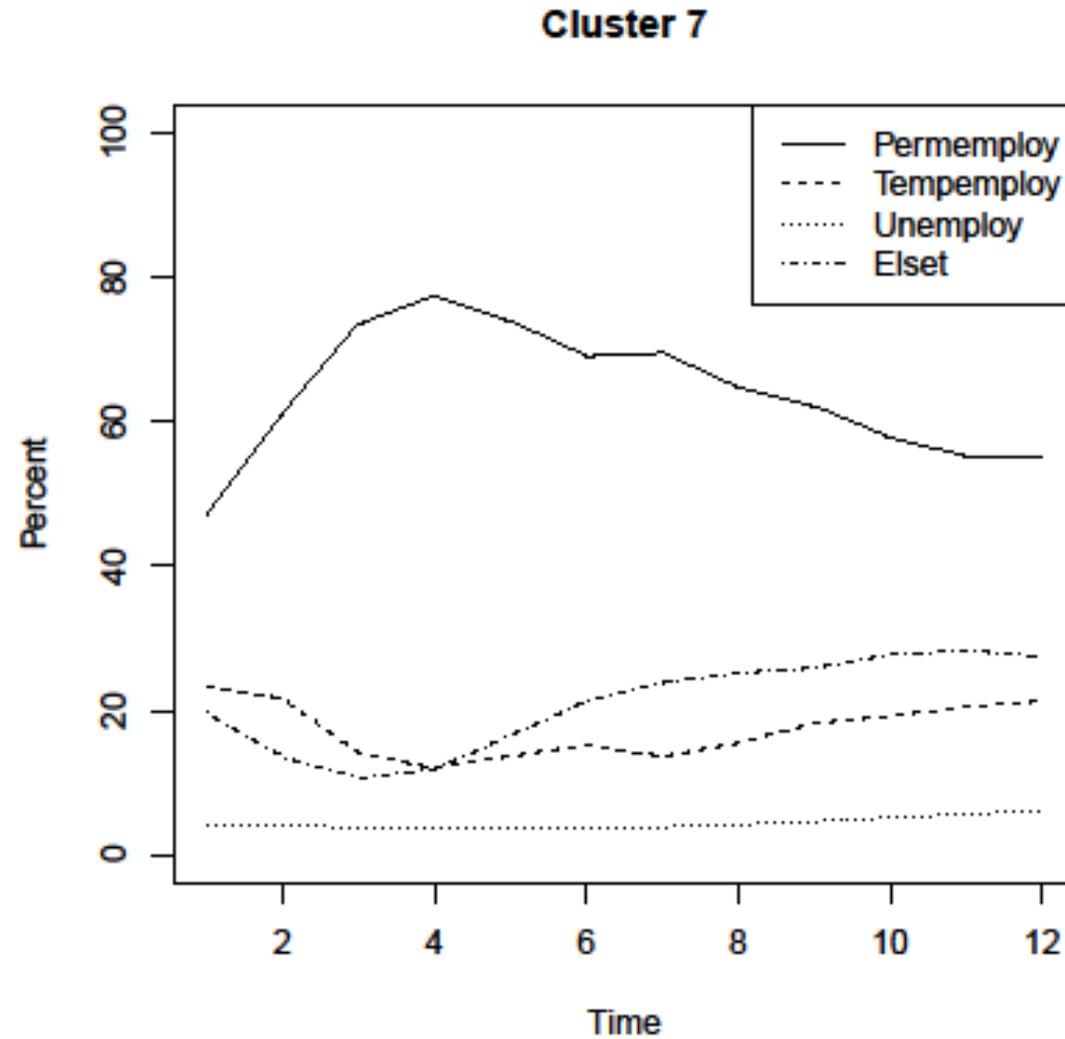
## **Labour market attachment in core middle age (age 40-56)**

1. Declining permanent
2. All time permanent
3. All time temporary and unemployed
4. Increasing permanent
5. Neither temporary nor permanent
6. Late decline permanent

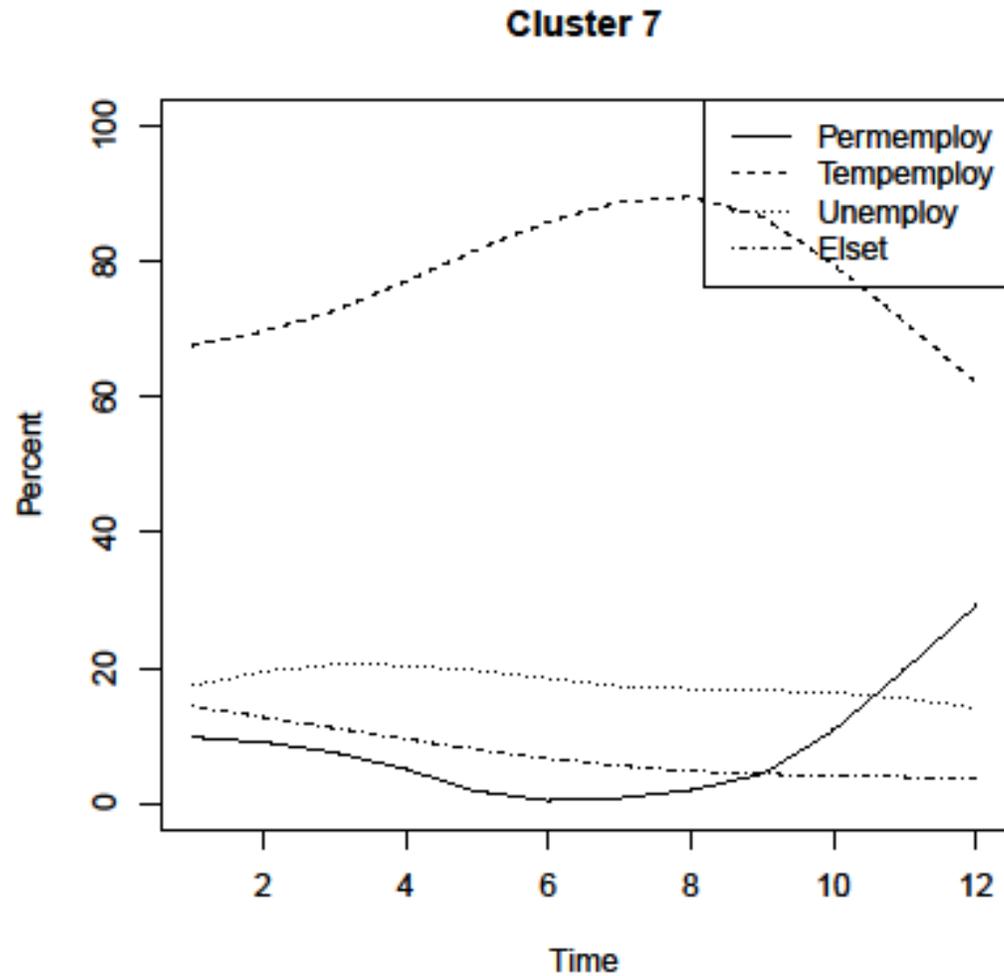
## **Labour market attachment in late middle age (age 50-66)**

1. Declining temporary and permanent
2. Ending permanent
3. Soon retired permanent
4. Neither temporary nor permanent
5. Late retired permanent
6. All time permanent
7. Early retired permanent

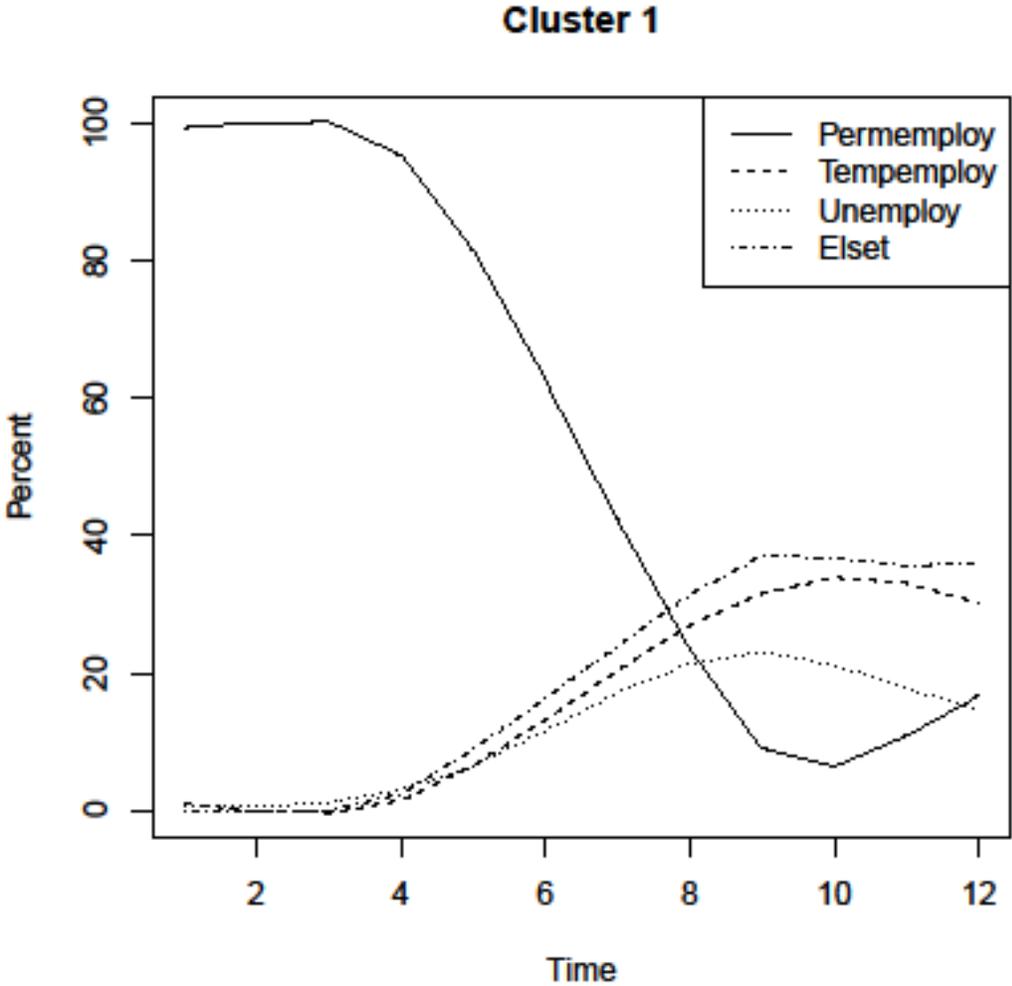
# Subtotal permanent employment in early adulthood (20-36 y), 16%



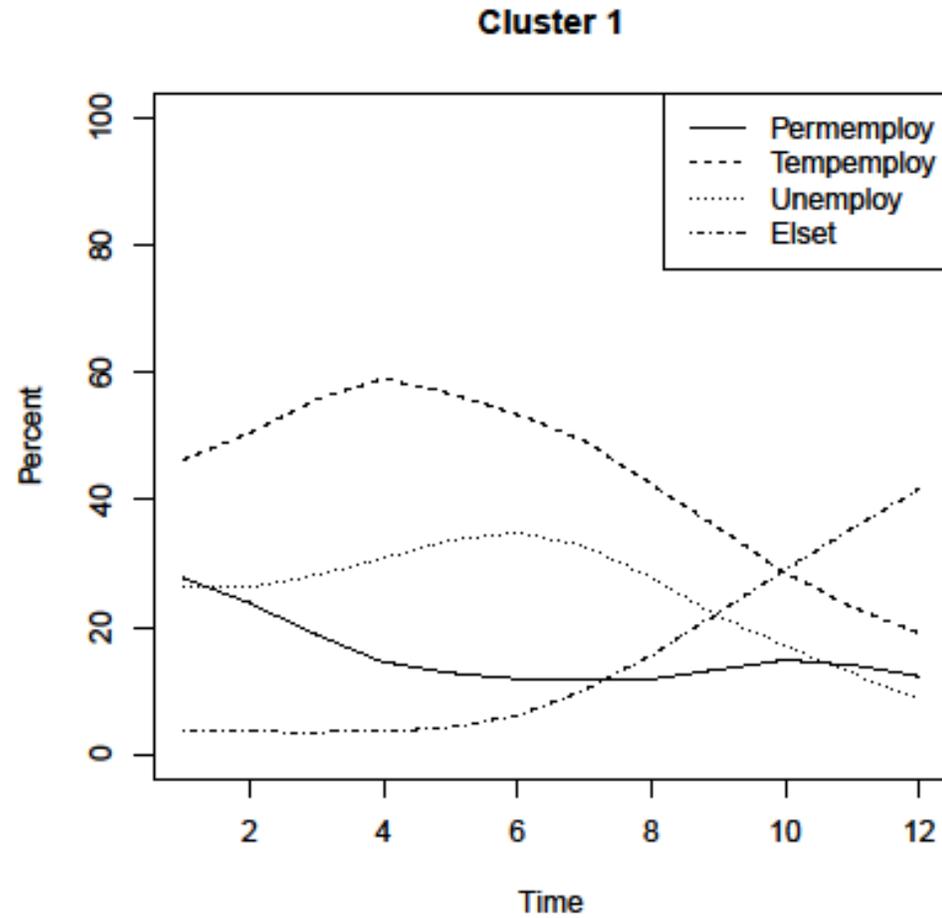
# All time temporary employment in early middle age (30-46 y), 12%



# Declining permanent employment in core middle age (40-56 y), 5%



# Declining temporary and permanent employment in late middle age (50-66 y), 8%



## **Discussion**

- a nice way to perform 'longitudinal factor analysis' of a latent (score) variable
- in case of labour market attachment, 6-9 trajectory groups, depending on age group
- strength: detailed information
- challenge: analysis of associations with predictors/outcomes