

# Longitudinal Methods for Life-course Analysis

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## 1 Introduction

# The Life Course Paradigm

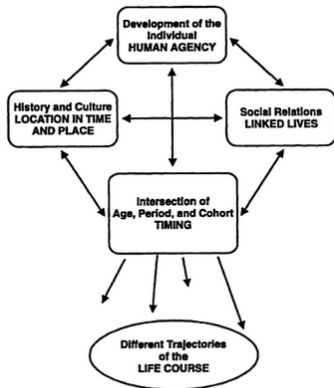


Figure 1.1. Four Key Elements of the Life Course Paradigm

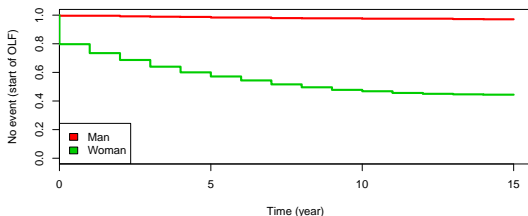
- Source : Elder et al. (2003).

# Methods for Life Course Research

- Transition centered method :
  - Event history analysis.
  - Fixed-effect models.
- Holistic approach.
  - Sequence analysis (categorical data).
  - Latent class and Hidden Markov Models.
  - Mixture Growth Curve Models (quantitative data).

# Event History Analysis

- Focus :
  - Hazard of the occurrence of an event.
  - Elapsed time from the beginning of the process until the occurrence of the event.
  - Examples : Start of a “non-active” spell.

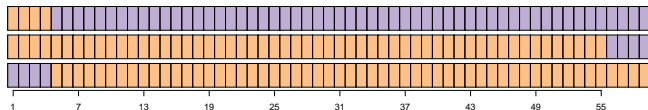


- Common questions :
  - Hazard (how often?)
  - Timing (when in the process?)

# Sequence Analysis

- Focus :
  - **Holistic** view on trajectories coded as sequence of states.
  - Change as a process that should be described.
    - Not restricted to life-course studies.
  - Example : School-to-Work transition, professional reintegration, occupational trajectories...
  - No data generation assumption.

# Key Aspects of Processes



- Key aspects according to the life-course perspective (Settersten et Mayer 1997; Billari et al. 2006; Hogan 1978).
  - Timing.
  - Sequencing.
  - Duration.

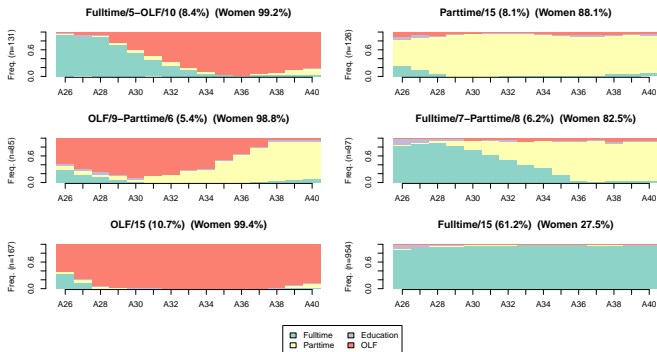
# Common questions in Sequence analysis

- Visualize and describe the trajectories.
- Identify typical trajectories :
  - Are there typical (recurrent) trajectories?
  - What are these trajectories?
- Explaining trajectories :
  - Which factors influence the type of trajectory followed by an individual?
- Outcome of previous trajectories.
  - How is a given outcome, such as health status or income, related to a previous trajectory?



# Typology of sequences

- regroup similar sequences into distinct types.



# Explaining trajectories

- Typology as a dependant variable :
  - Aim : understand which factors affects the chances to follow a given path.

	Full-OLF	Part	OLF-Part	Full-Part	OLF
Constant	-6.61*** (1.01)	-4.82*** (0.36)	-7.01*** (1.03)	-4.81*** (0.38)	-6.31*** (1.01)
Women	5.84*** (1.01)	2.96*** (0.29)	5.39*** (1.01)	2.50*** (0.28)	6.09*** (1.01)
Born after 1945	0.11 (0.23)	1.29*** (0.29)	0.67* (0.29)	1.42*** (0.34)	-0.39* (0.20)

\*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$

- Typology as a covariate.
  - Aim : Understand how previous trajectories affect current situation.
  - Old age poverty and gendered life course (Gabriel et al. 2015).

# Strengths and Weaknesses

- Conception of change (Piccarreta et Studer 2019).
  - SA : Change as a process.
  - EHA : instantaneous and well-defined event/transition.
- Multidimensionality.
- Baseline vs. time-varying covariates.
- Handling of censored observations.
- Unsupervised/supervised approach.
- Data reduction.
- Key life-course aspects :
  - SA : sequencing, timing, duration.
  - EHA : Mostly timing of events and duration, but depend on model specification.

# Data requirements

- Event history :
  - follow individuals when “at-risk” to experience the event.
  - Observe focal event and concurrent events (in these periods).
  - Handling of censoring if non-informative.
- Sequence Analysis :
  - Fully observed processes for the considered period.
  - Constant time unit.
  - Weak handling of censoring.
  - At least 4-5 times points.

# Références

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