Are Forced Migrant Trajectories Path-dependent?

A Markov analysis

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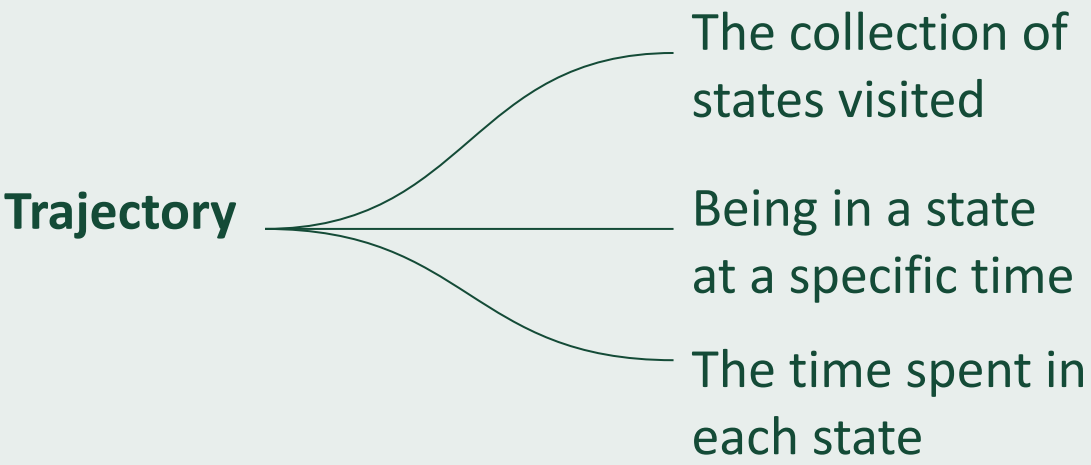
What do we want to learn?

What role does the **trajectory** itself play in the migration decision making process?



Migration decisions

- We understand the migration decision making process through the lens of the ‘thresholds’ framework (van der Velde and van Naerssen 2011)
- Ane extension to the forced context (Mallett and Hagen-Zanker 2018)

Indifference threshold -- Barrier to initial migration

Trajectory threshold -- Deciding on the means and direction of travel.

Location threshold -- Choosing a specific destination

Motivation

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Conceptual

- Migrant's trajectory as an object of interest
- Subsequent migration decisions
- Contribute macro-level perspective

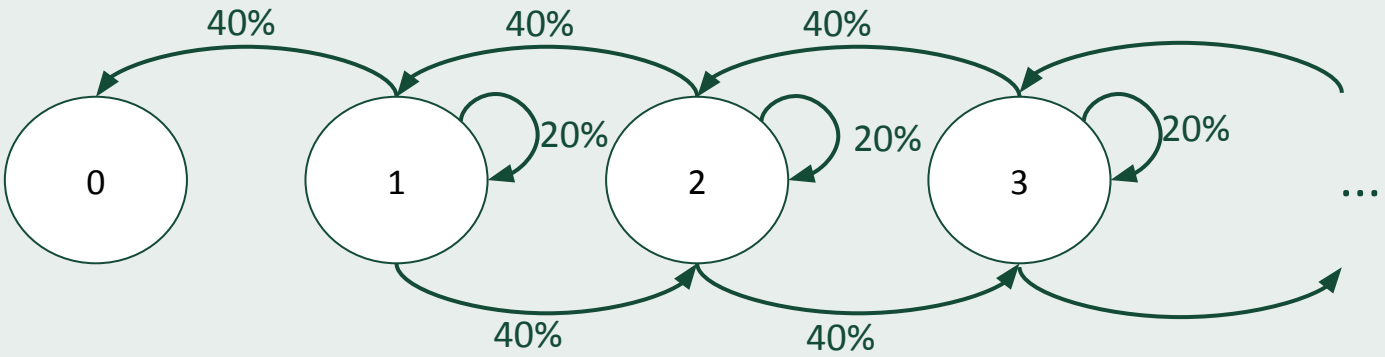
Mathematical

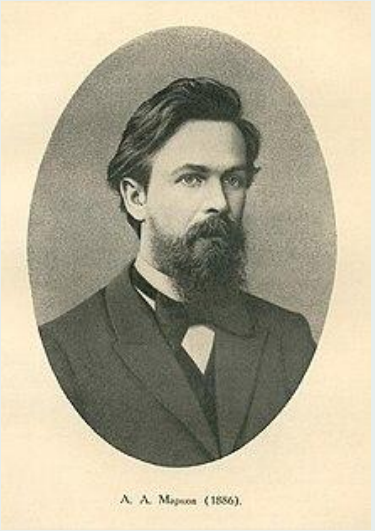
- Path **in**dependence creates simpler models
- Often assumed, rarely tested
- Markov & Migration -- the forced context

Markov's (theory, assumption, chain, ...)

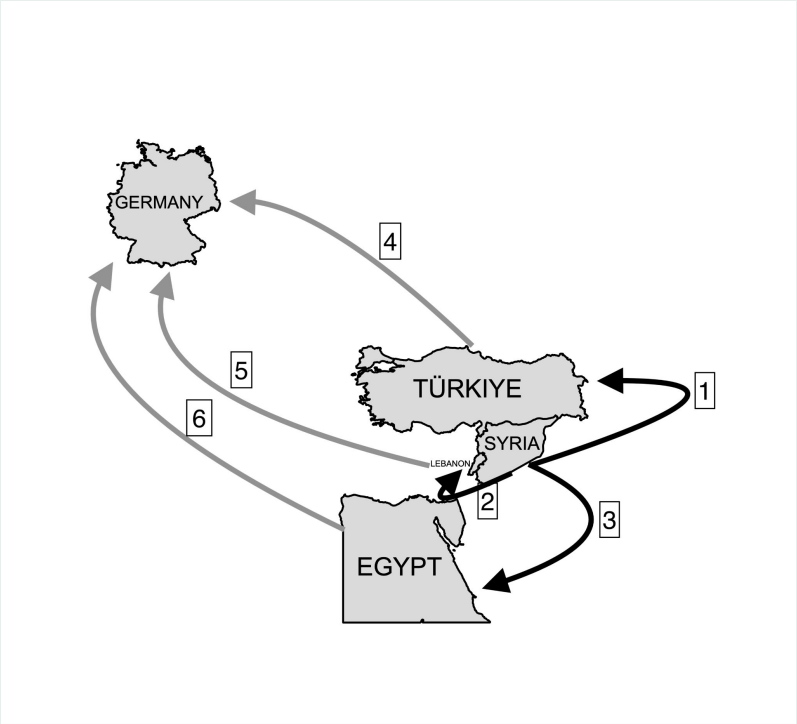
The Markov assumption states that a sequence of probability-based events is **memoryless**

The future state of a system depends only on its current state and not on how it arrived





IAB-BAMF-SOEP Data



- **Who?** Syrian refugees who arrived to Germany
- **When?** Jan 2012 – March 2015
- **How many?** 1124 respondents

- Self reported, monthly log of location
- Include age and gender

Testing the Markov property

1. Separate individuals into two groups. Those that were in a given state (j) and those that were not.

2. Calculate future transition probabilities for the two groups for a given transition. If the sequence is Markov, then the future transition probabil

3. Compare xpect under th

$$U_s^{(j)}(l,m) = \sum_{i=1}^{n} \int_s^{\tau} \left\{ \delta_i^{(j)}(s) - \frac{\sum_k \delta_i^{(j)}(s) Y_{kl}(t)}{\sum_k Y_{kl}(t)} \right\} dN_i^{(lm)}(t)$$

Testing the Markov property II

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From Local --> Global

1. Evaluate test statistic over a range of times to produce a vector of log-rank tests
2. Compute test summary statistics

With covariates

$$U_s^{(j)}(s,\beta_0) = \sum_{i=1}^{n} \int_s^{\tau} \left\{ \delta_i^{(j)}(s) - \frac{\sum_k \delta_i^{(j)}(s) Y_k(t) \exp(\beta_0 z_k)}{\sum_k Y_k(t) \exp(\beta_0 z_k)} \right\} dN_i^{(lm)}(t)$$

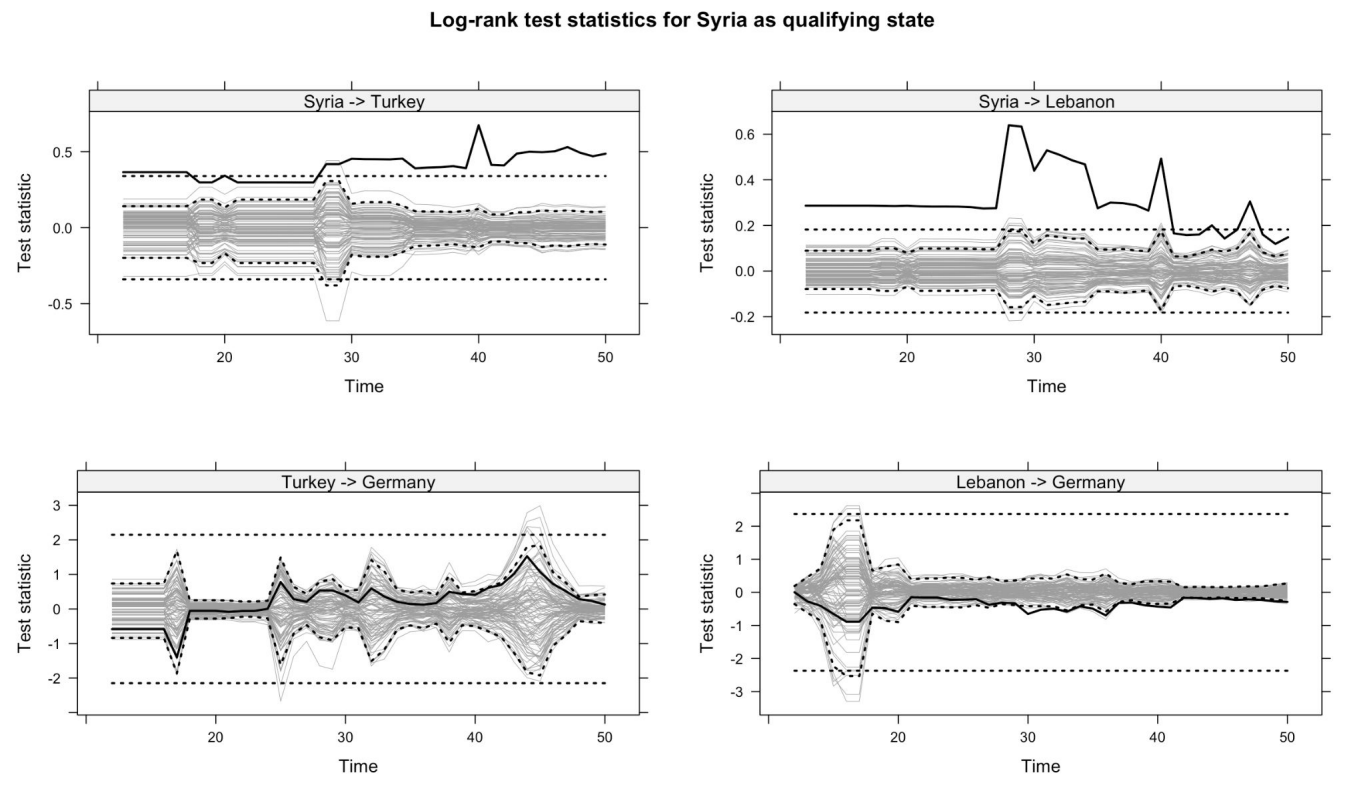
Markov Test: Global Results

The **lower** the p-value the stronger the suggestion that the Markov assumption **does not hold**

Local, forced migration is path dependent

More distant migration is not path dependent

Markov Test: Local Results



In context

- Conditional on age and gender of migrant
- **Selection effect** of data, individuals who have the desire *and* means to go to Europe
- Granularity of data

Vielen Dank!

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