Internal Migration and Life Course Transitions in Brazil

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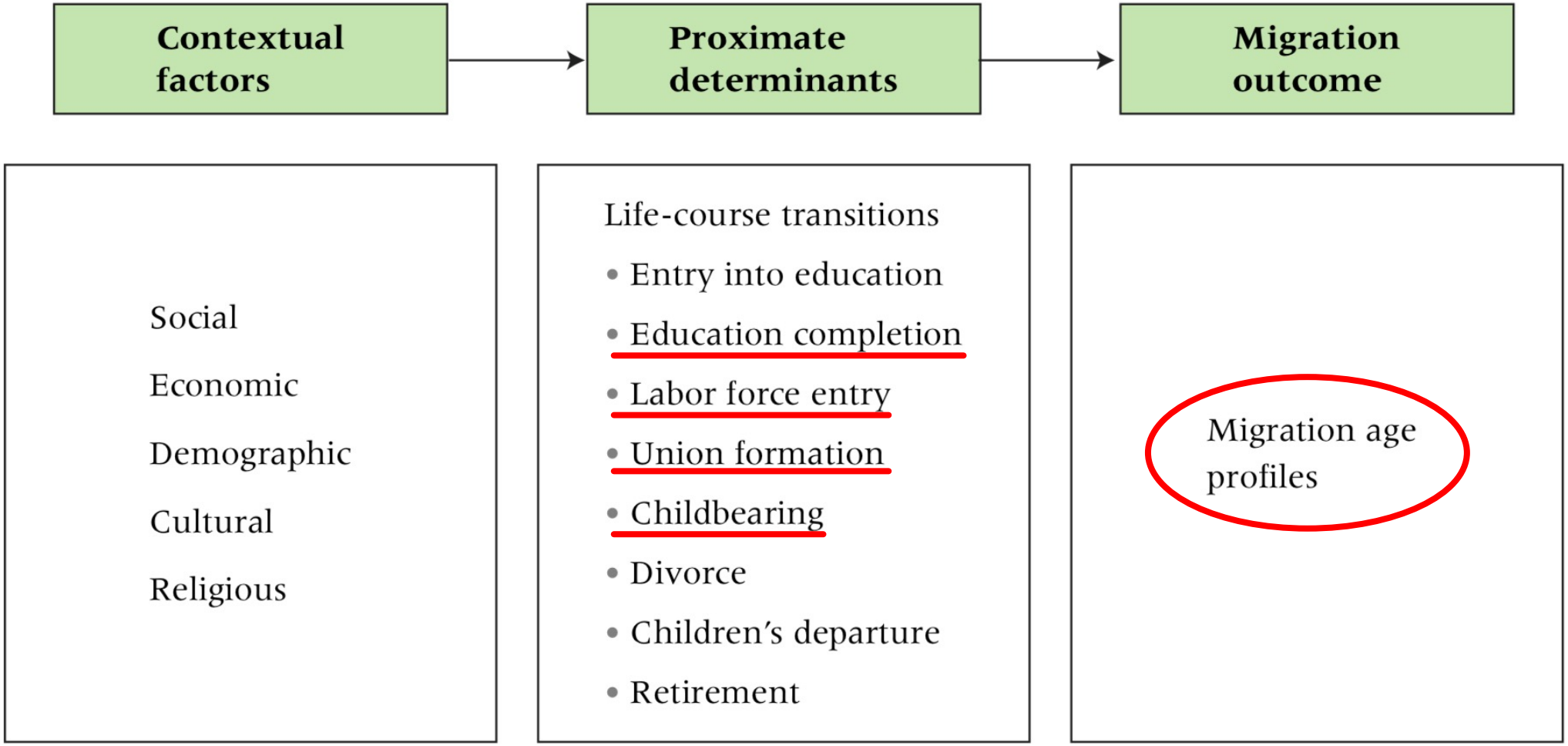
Objective and motivation

- We investigate associations between life course transitions and age pattern of internal migration in Brazil between 1986 and 2010
  - Physical and socioeconomic contextual changes affect migration levels
  - Behavioral dimensions in the life course affect migration patterns (Camarano et al. 2003; Campos, Barbieri, Guedes 2010; Cunha 2006; Jannuzzi 1998; Oliveira, Jannuzzi 2005; Rigotti 2008; Santos 2018; Tomás, Oliveira, Rios-Neto 2008)
  - We go beyond by analyzing several life course transitions and flows for different geographical scales
- Internal migration flows have great magnitude and data availability for subnational estimates
  - In 2005–2010, more than 4,000,000 people migrated among the 27 Brazilian states
- International migration did not have a substantial impact on population size and structure
  - In 2005–2010, there were 361,841 immigrants and 336,925 emigrants: net migration of 24,916 individuals (Carvalho et al. 2016)

Life course transitions and migration



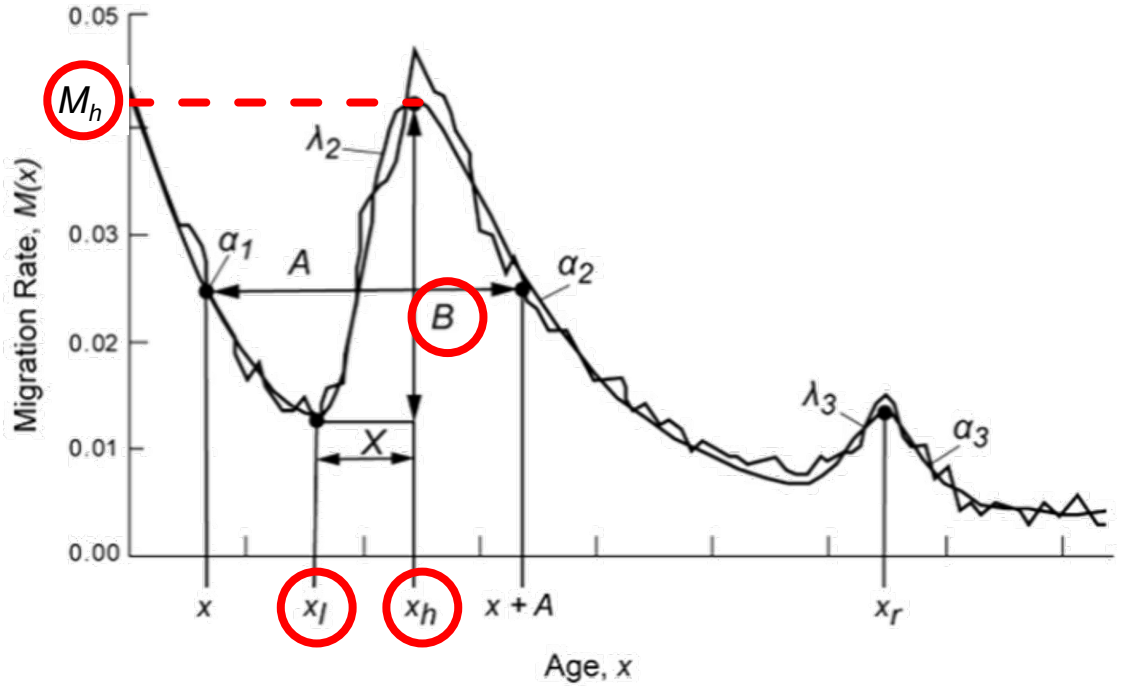
Source: Bernard, Bell, Charles-Edwards 2014.

Migration age profile

- Rogers and Castro (1981) proposed a mathematical equation with several parameters to model migration rates by age

- Migration age profiles can be summarized with two measures (Bernard, Bell, Charles-Edwards 2014)
  - Measure of migration intensity (M_h)
    - The highest value of the migration rate by age (vertical axis)
  - Measure of high peak age (x_h)
    - Age at which the migration rate reaches the highest value (horizontal axis)

- Jump (B) provides differences between rates of adolescents (x_l) and young adults (x_h)

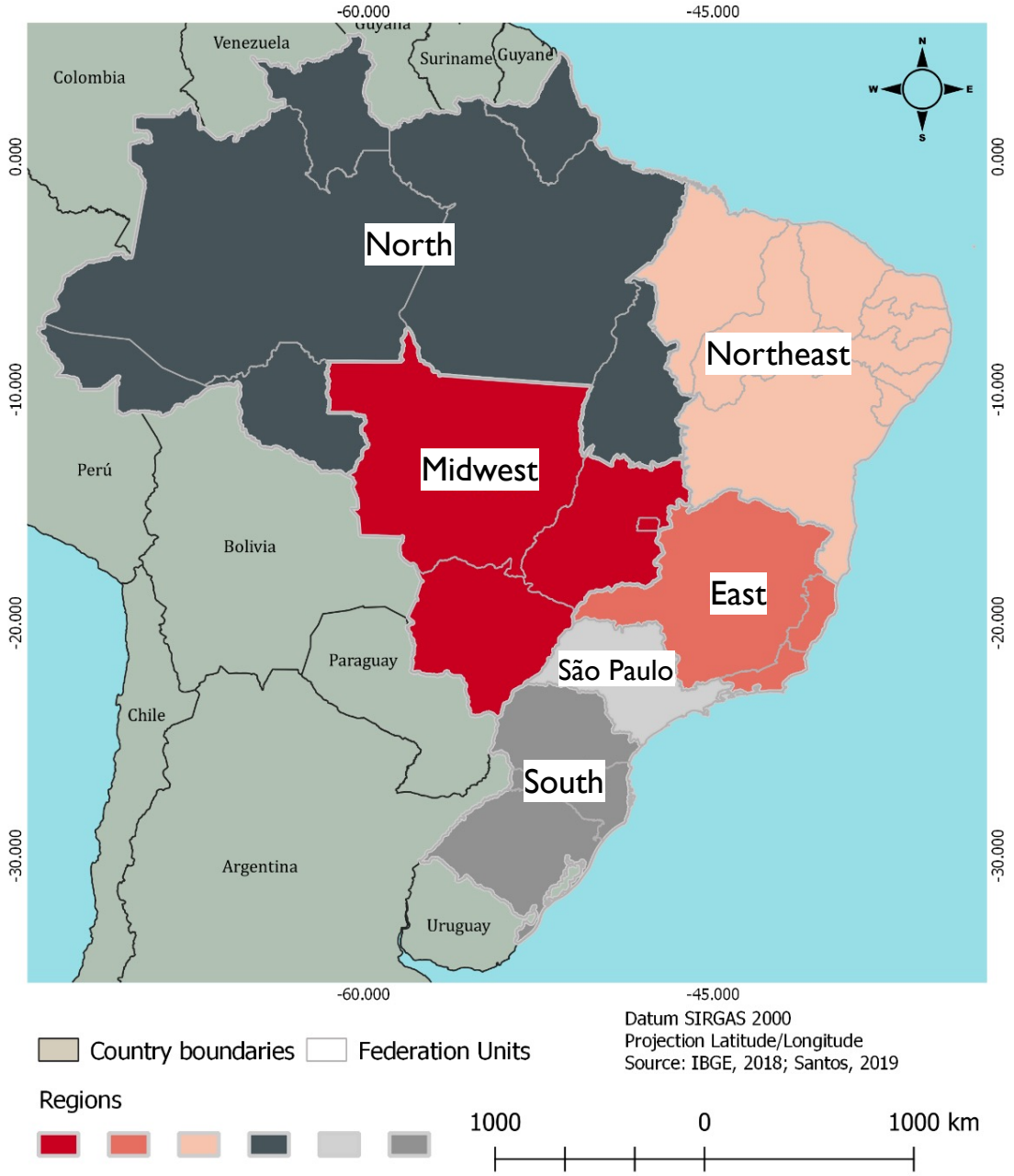


Hypotheses

1. **Profile stability**
   - There is a stability in the migration age profile over time
2. **Attraction of workers**
   - Economically dynamic regions attract more workers, compared to out-migration from the same regions
3. **Geographical scales**
   - Out-migration profiles for varying territorial scales have different levels, but not different patterns
4. **Gender**
   - Mean age at labor force is higher for males compared to females, reflecting differentials of age at first marriage
5. **Migration status**
   - There are differences in the timing and spread of life course transitions between migrants and non-migrants
6. **Mean age at transition**
   - There is association between average ages of life course transitions and modal age of migration

Data and methods

- Utilize period microdata from the 1991, 2000, and 2010 Brazilian Demographic Censuses
  - Flows for different geographical scales: major regions, states, meso-regions, micro-regions, municipalities
  - Migration status based on residence 5 years before each census
- Evaluate age patterns of migration with Rogers-Castro model
- Estimate mean age at transition (Wachter 2006) based on
  - Proportion of people who made the change from one age group to the next
  - Expected proportion of the hypothetical cohort that will experience the transition
- Investigate timing, prevalence, and spread of migration for several life course transitions
  - Completion of basic education (primary and secondary)
  - Entry into the labor market
  - First marriage/union
  - First child (estimated only for women)



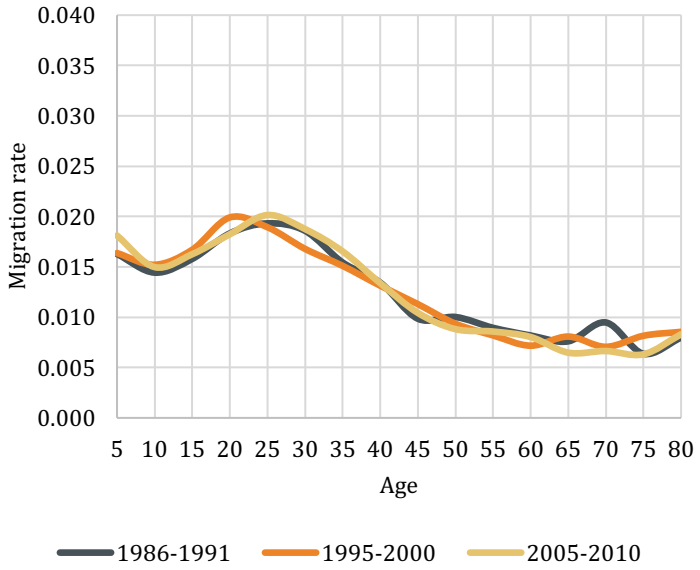
Regional division of Brazil for this study

Results for H1: Profile stability

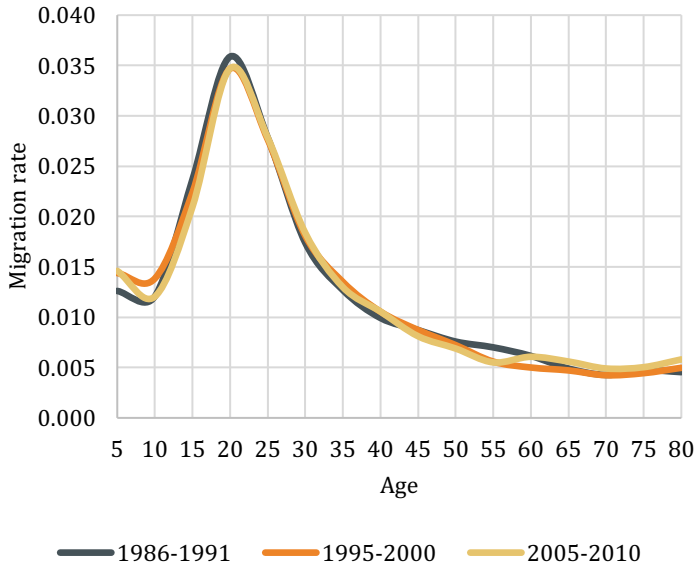
- We observed stability in the migration age profile over time
- Lower differentials by sex for inter-regional migration, compared to intra-regional migration
- Age profile of migration is not similar for all regions throughout the country

Example of inter-regional out-migration rates for women

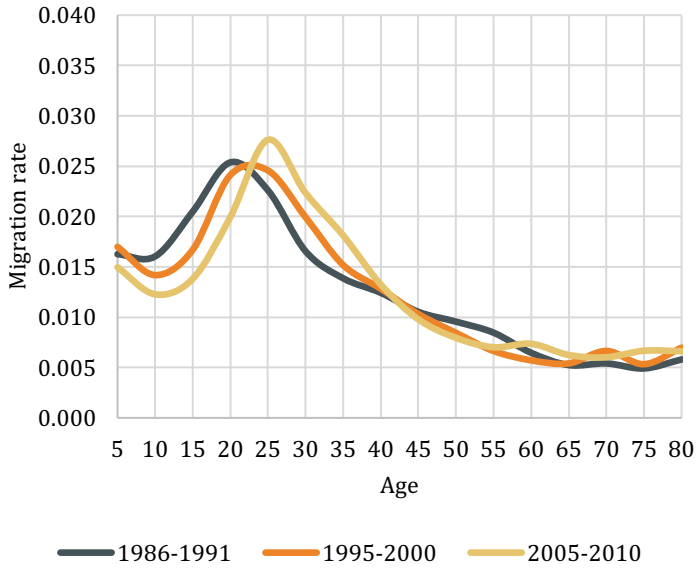
Midwest



Northeast



South

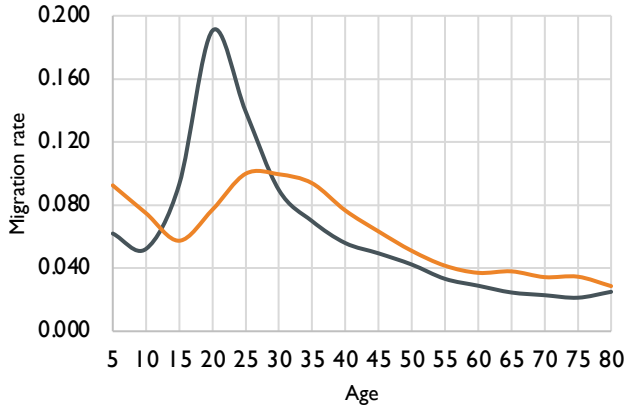


Results for H2: Attraction of workers

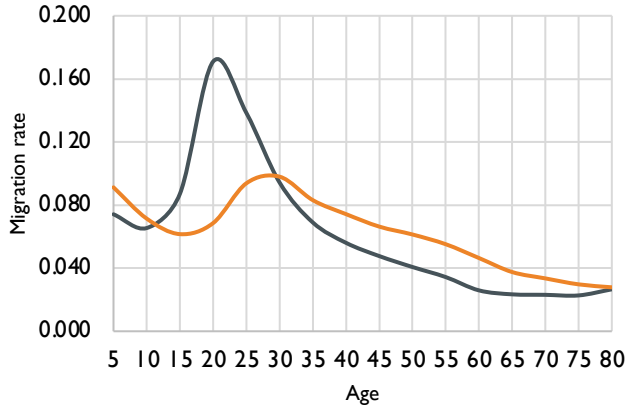
- The state of São Paulo has historically the highest levels of economic development and dynamism among the six analyzed regions
- São Paulo has been the main destination for migration flows in the country
  - In-migration age profile is predominantly of young adults with labor force dominance (20 and 25 years)
  - Low child dependency
- There was a reduction in the level of inter-regional migration in the last decades
  - São Paulo and the Northeast region were the only areas increasing participation in inter-regional flows, compared to intra-regional flows
- São Paulo increased out-migration flows compared to in-migration flows
  - Especially flows to the Northeast
  - Probably due to the growth of return migration

Inter-regional migration rates for São Paulo

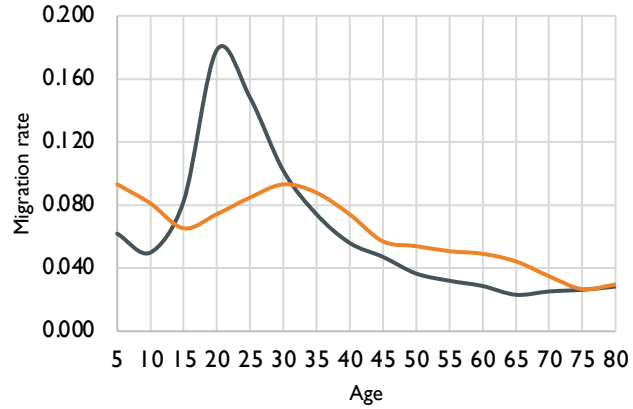
Men, 1986–1991



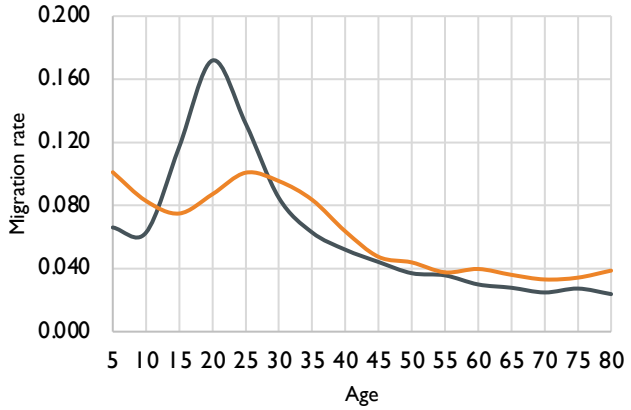
Men, 1995–2000



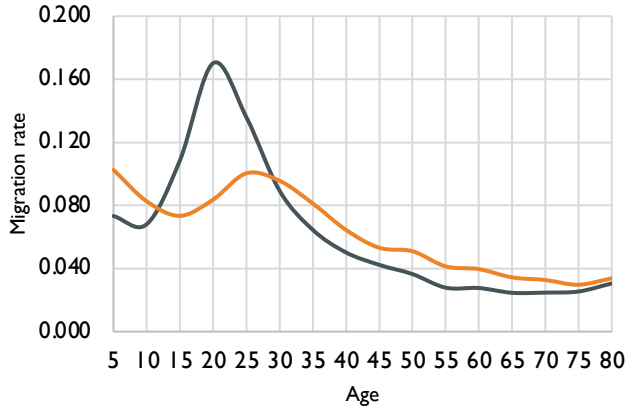
Men, 2005–2010



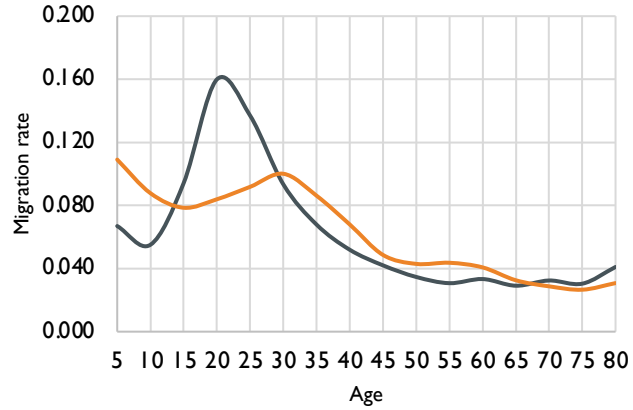
Women, 1986–1991



Women, 1995–2000



Women, 2005–2010



In-migration Out-migration

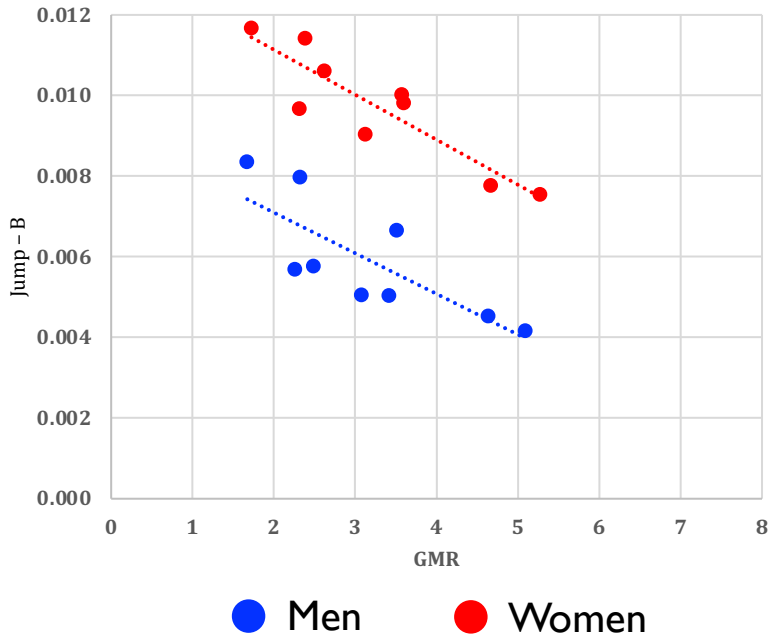
Results for H3: Geographical scales

- Migration flows for several territorial scales by sex for 1986–1991, 1995–2000, 2005–2010
  - Results indicate similar migration patterns across different territorial scales
  - Migration level is higher among smaller territorial scales (shorter distances)

- There is negative association between level of migration and differences between rates of adolescents and young adults
  - Gross migraproduction rate (*GMR*) measures level of migration
  - Jump (*B*) provides differences between migration rates of adolescents and young adults

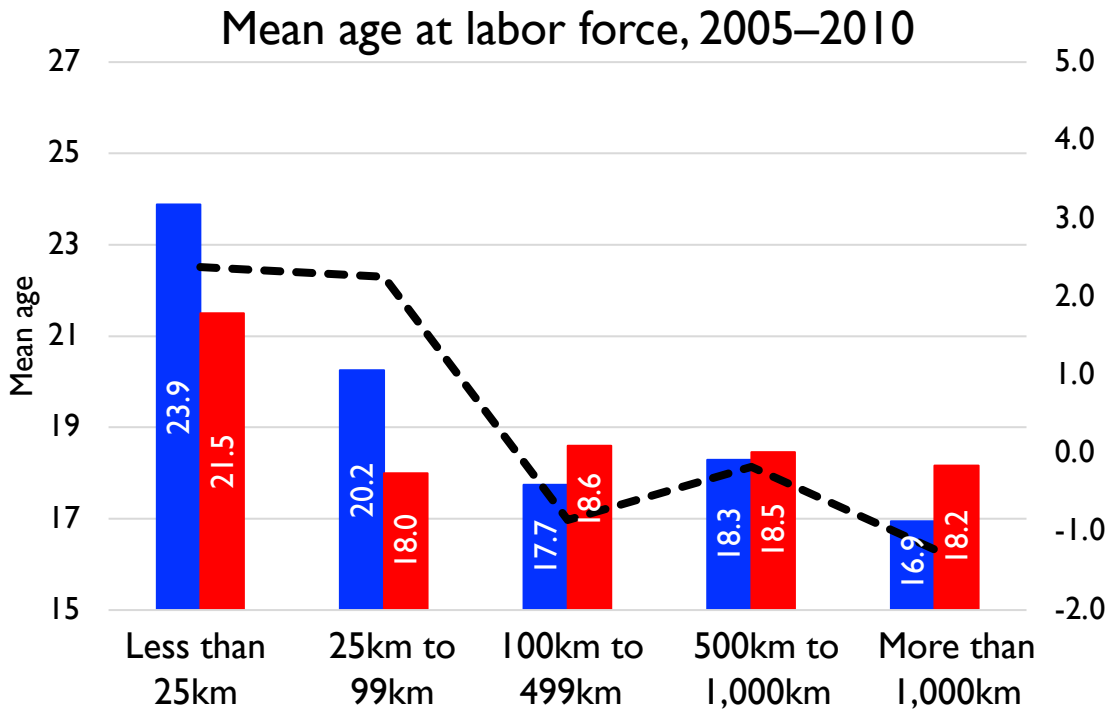
- Women have higher *B*, so they might be more affected by the timing of life course transitions

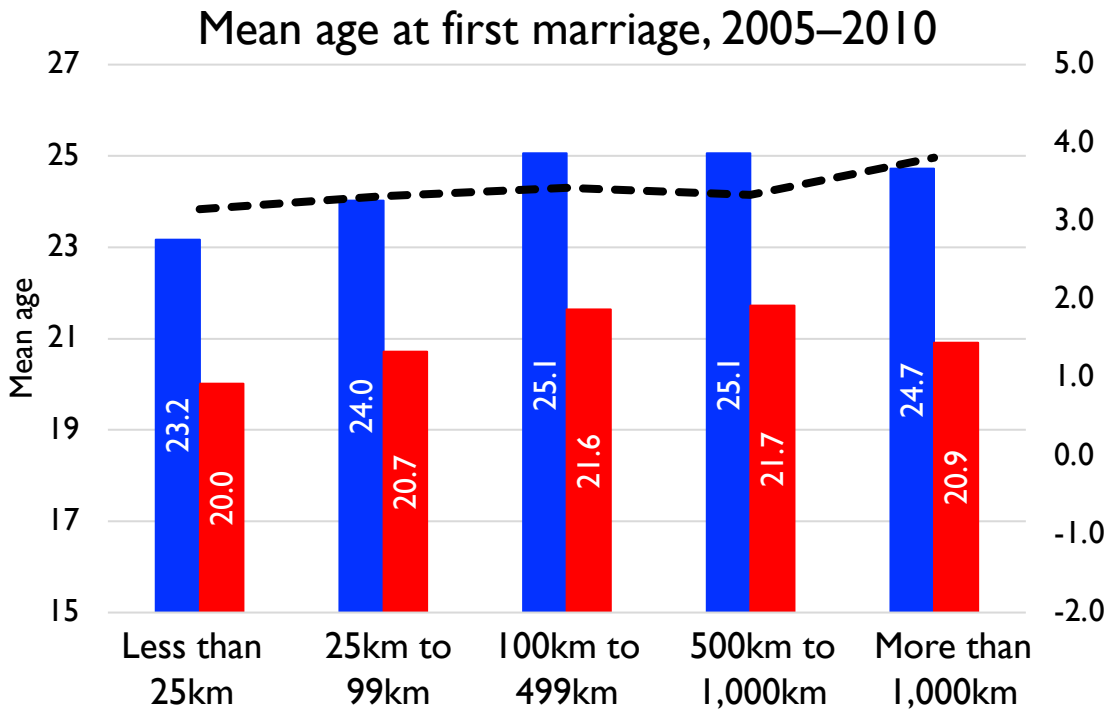
Example: Northeast



Results for H4: Gender

- Mean age at labor force is higher for men in short-distance migration, similar to age at first marriage
- Long-distance flows usually have smaller age differentials by sex, similar to labor market patterns





Men Women Difference

Results for H5: Migration status

- In 1991, differences between migrants and non-migrants were greater across life course transitions (completion of basic education, entry into the labor market, first marriage/union, first child)

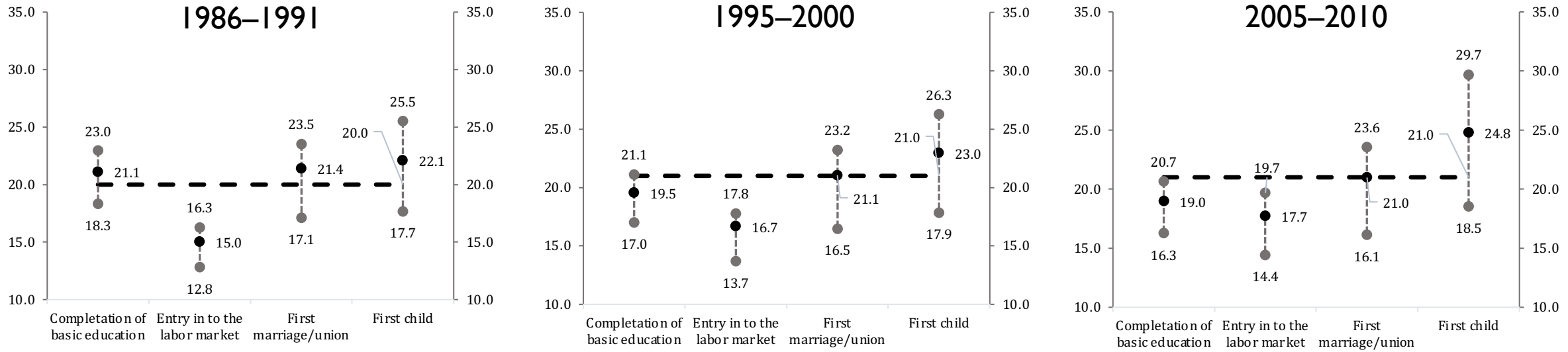
- By 2010, there is a convergence of indicators of life course transitions, but migrants tend to transition to first union before non-migrants

- Female life course transitions happen faster, compared to the male population
  - Women have greater migration rates for short-distance flows
  - A possible explanation is that women have a more rigid social role compared to men, strongly associated with intra-household gender inequalities, limiting their long-distance migration rates

Results for H6: Mean age at transition

- In previous decades, migration rates were higher and more dispersed by age groups
- More recently, migration flows have concentrated around modal ages, closer to transition to first union
- From all life course transitions, first union is the most stable over time

Intermunicipal migrants, women



Final considerations

- Results indicate associations between migration and life course transitions
  - Timing of migration seems to be determined by the same social conditions of life course transitions
- There is a strong association between migration and timing of the first marriage/union
  - People migrate close to marriage (or marry close to migration)
  - Women have stronger associations between migration and life course transitions, especially age at first marriage/union
- Distance between areas of origin and destination is an important factor to understand migration
- This study provides an application of migration techniques for a developing country with census data, without the need to collect expensive longitudinal surveys to analyze sub-national migration flows
- Dr. Santos developed an application to easily model migration rates with Rogers and Castro mathematical equation (https://demometrics.shinyapps.io/RogersCastroModel_LCmetrics/)