

## Introduction

Geographic disparities of mortality are most often studied by place of residence, ignoring impacts of migrants' place of birth.

1. We estimate geographic heterogeneity in mortality over age 50 both by place of birth and place of residence.
2. We decompose life expectancy into factors associated with place of birth, place of residence, and migration selection effects.

## Why place of birth matters for adult mortality?

- Geographic mortality disparities are associated with characteristics of places as well as composition of their migrants' populations.
  - a) Places differ by contextual characteristics that affect all residents' mortality risks.
  - b) Places differ by migrants' origin composition.
  - c) Places differ by the magnitude of migrants' health selection (into and out of the place).
- Individuals' adult health and mortality risks are influenced by their life-course exposures and, more particularly, early childhood experiences. Immigrants carry with them latent risks of adult diseases associated with exposures during early life. Thus, empirical evidence for mortality effects rooted in migrants' place of birth is indirect evidence confirming the Developmental Origins of Health and Disease (DOHaD) conjectures.

## Data

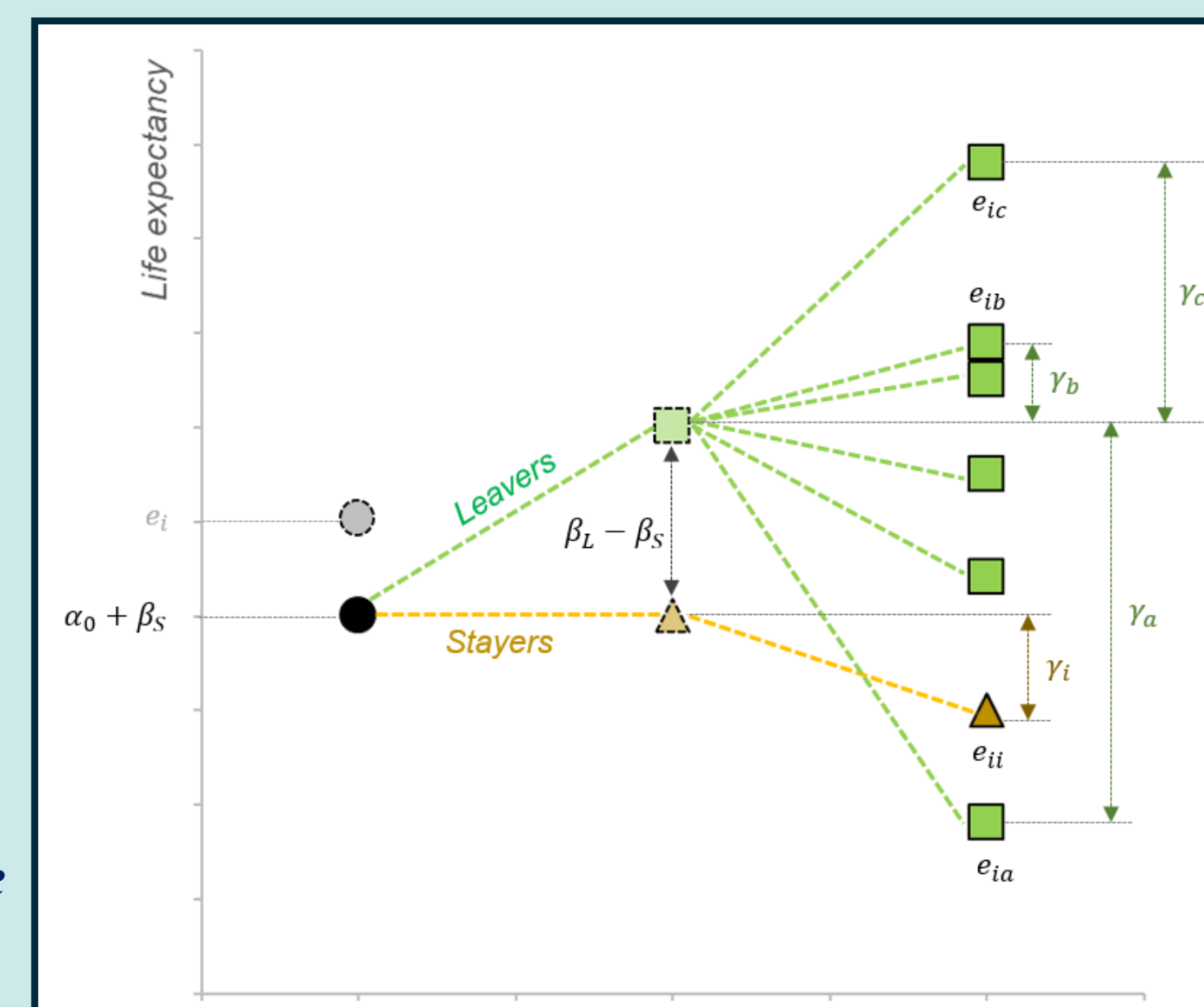
We use individual mortality data and unlinked population data from Spain, for the period 2003-2019. We construct a pseudo-cohort of all residents born in Spain aged 50 to 82 on January 1<sup>st</sup>, 2003 (born between 1920 and 1952). We consider 11 regions within Spain.

## Methods

We estimate standardized mortality rates (SMR), and life expectancy at age 50 ( $e_{50}$ ) for every combination of place of birth and place of residence.

We decompose  $e_{50}$  into:

- 1) effects of place of birth (plus a baseline) [ $\alpha_0 + \beta_s$ ]
- 2) effects of migration selection, only for those who leave [ $\beta_l - \beta_s$ ]
- 3) effects of place of residence  $i$ . [ $\gamma_i$ ]

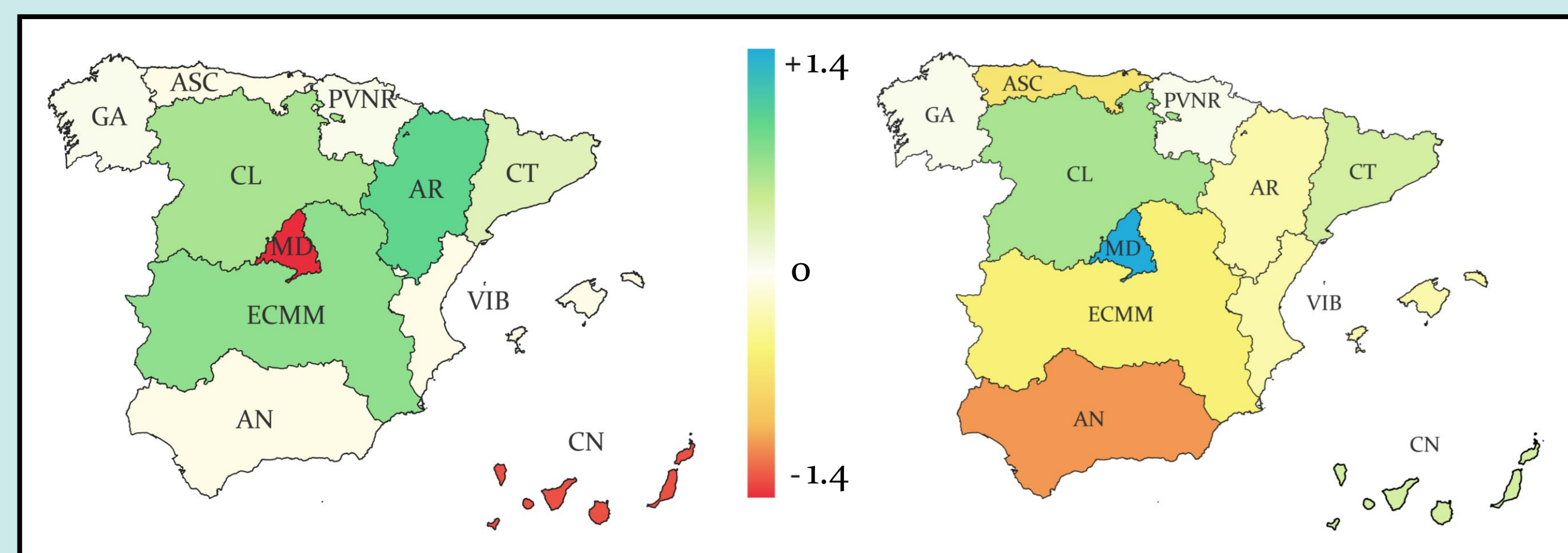


Scheme showing decomposition of life expectancy by place of birth (baseline), migration selection and place of residence.

## Effects of regions vary as birthplace or residence

Effect of regions as place of birth on life expectancy at age 50.

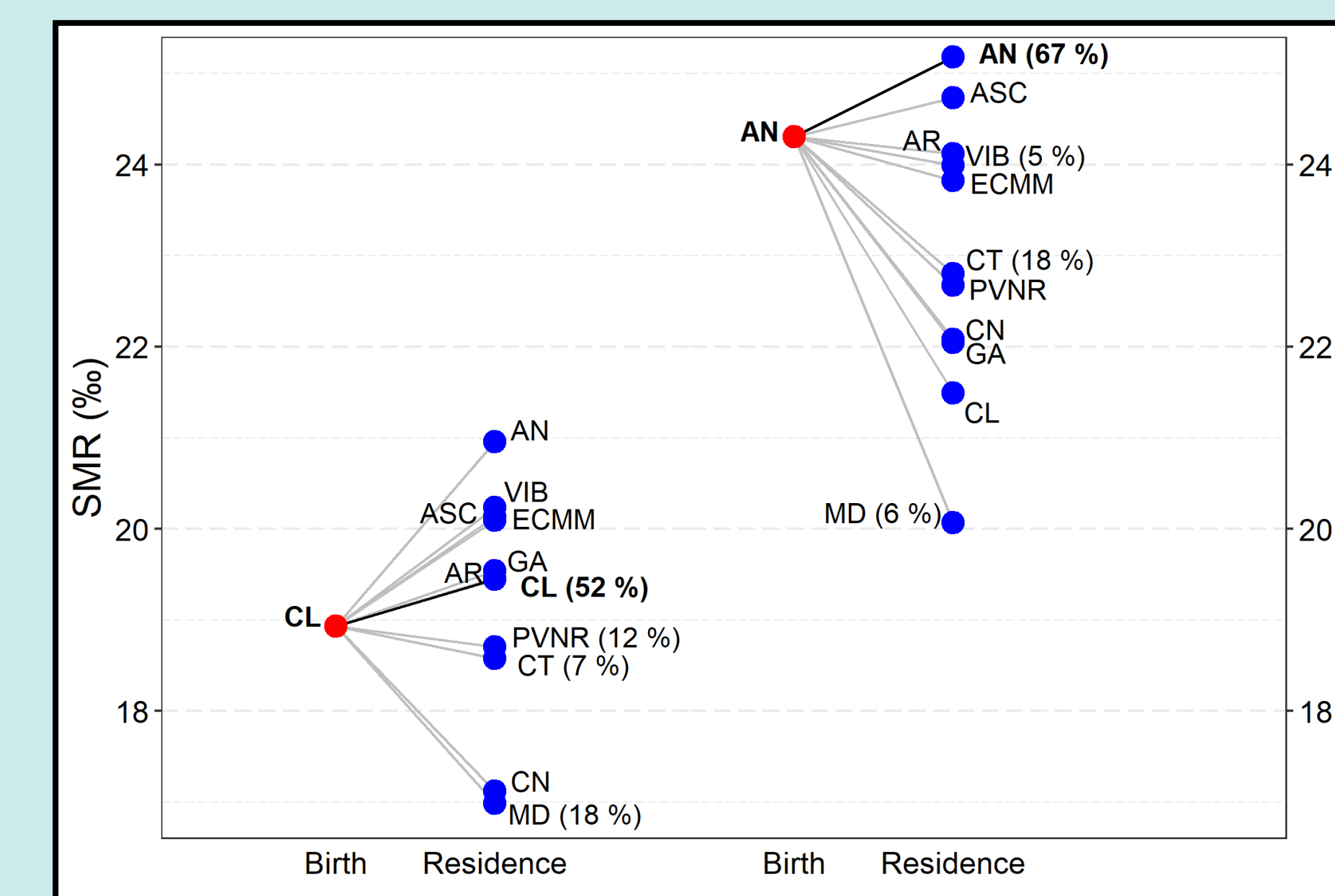
Effect of regions as place of residence on life expectancy at age 50.



## Conclusions

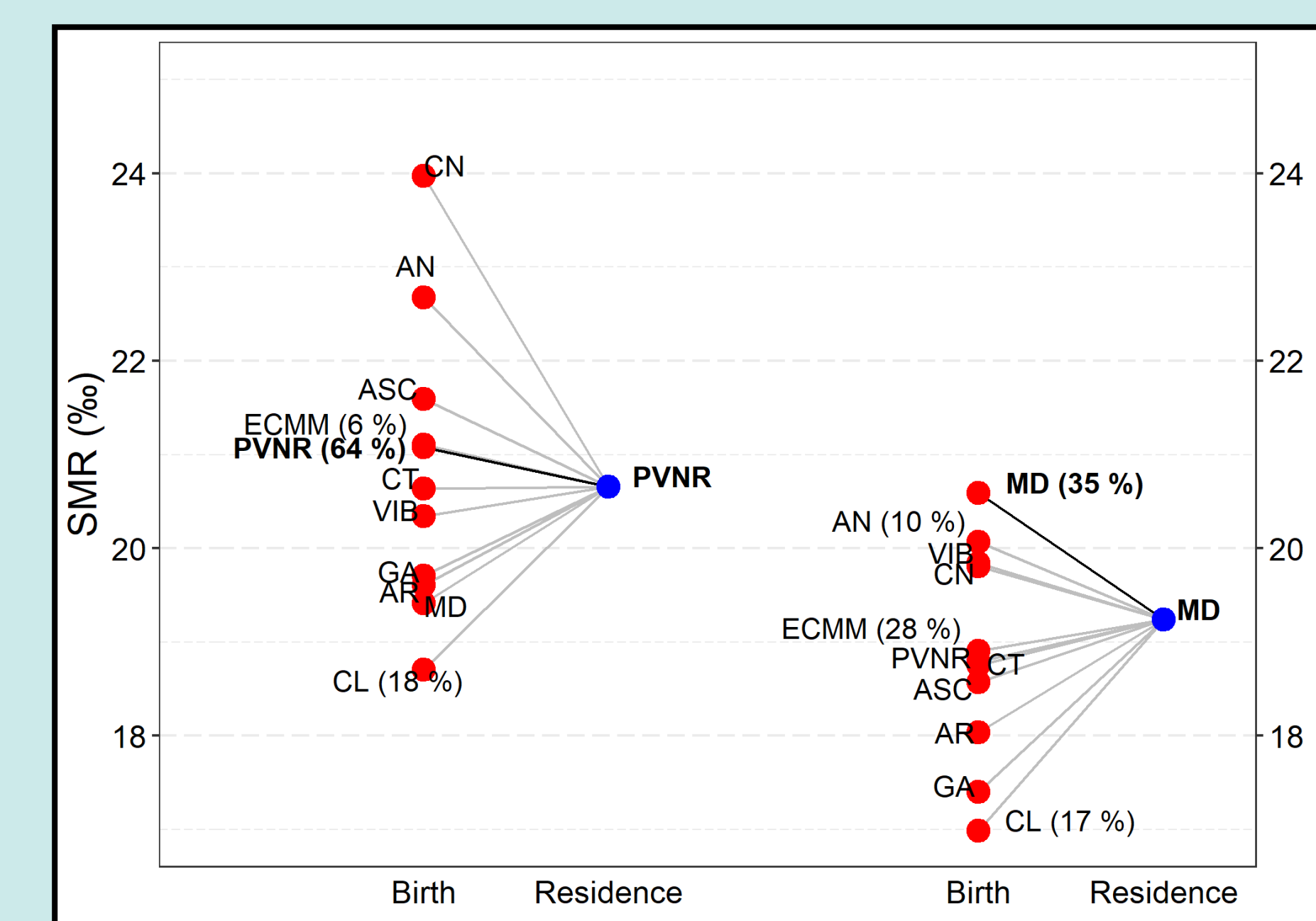
- A rigorous accounting of factors explaining regional mortality disparities needs to distinguish between effects of place of birth and residence.
- Differentials of  $e_{50}$  by region of birth are of similar magnitude as those by region of residence.
- Migrants experience similar mortality levels at destination compared to places of origin. Those from low mortality regions show low mortality variance across destinations (less affected by conditions at destination).
- Regions with low mortality by birth/residence are not the same.

## Place of birth shapes adult mortality



Sex and age-standardized mortality rates for those born in Castilla y Leon (left) and Andalusia (right), two net-emigration regions. Red dots indicate all those born in the region. Then, mortality rates are split by region of residence (blue dots). The part of the population living in a region is indicated when bigger than 5%.

## Migration shapes mortality at destination



Sex and age-standardized mortality rates for those residing in Basque Country - Navarra - La Rioja (left) and Madrid (right), two net immigration regions. Blue dots indicate all those residing in the region. Then, mortality rates are split by region of birth (red dots). The part of the population born in a region is indicated when bigger than 5%.