# On the Distribution of Estates and the Distribution of Wealth: Evidence from the Dead

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# Estimating the distribution of wealth via the estate multiplier method

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- ► Exists/ed in a number of countries, in some cases for many years
- ► Covers well the top of the distribution (*c.f.* surveys)

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- ► Covers well the top of the distribution (*c.f.* surveys)
- ▶ Basic idea decedents are sampled from the living population
- Mortality rate  $p_i$  is the sampling rate living population estimated by reweighting according to inverse sampling weights ( $m_i = 1/p_i$ , the multipliers)
- ► Challenges:
  - Exemptions, evasion, estate planning
  - Coverage
  - Obtaining mortality rates

### Good reasons to believe multipliers matter



Authors' calculation based on Chetty et al. (2016)

#### Puzzle – top estate and wealth shares may be very close

The application of mortality multipliers does not alter the picture concerning the distribution of the wealth of the living, as commonly believed.



# This paper

- Why does the application of mortality multipliers not alter significantly the picture when estate and wealth distributions are compared?
- What are the general conditions for the concentration of estates at death to provide the same informative content as the concentration of the wealth of the living?
- Produces novel long-run historical series of the distribution of wealth for several developed and developing countries where data have not been exploited yet, and where the estate multiplier method cannot be applied (Japan, Belgium, South Africa, etc.).

## Main takeaway

- Detailed estate data and detailed mortality data by various socio-demographic variables are needed for the application of the estate multiplier method
- Historically, such data are only partially available, especially in earlier years, making the method seemingly irrelevant
- ► To provide rough estimates of top wealth shares tabulations are enough

## Basic notation and definitions

The population size: N

The decedent population size:  $N_E$ 

The average multiplier: 
$$\bar{m} = \frac{N}{N_E} = \frac{\sum_{i=1}^{N_E} m_i}{N_E}$$
  
The estates:  $w_{E,i}$   $i = 1, ..., N_E$   
Total estates:  $W_E = \sum_{i=1}^{N_E} w_{E,i}$   
Total wealth:  $W^{tot} = \sum_{i=1}^{N_E} m_i w_{E,i}$ 

The ratio between average estate to average wealth:  $\mu = \frac{\frac{W_E}{N_E}}{\frac{W^{tot}}{N}} = \frac{\bar{m} \sum_{i=1}^{N_E} w_{E,i}}{\sum_{i=1}^{N_E} m_i w_{E,i}}$ 

#### The relationship between wealth and estate coefficients of variation

In analogy to Atkinson & Harrison (1978) for the capitalization method:

$$Y_W^2 = Y_E^2 \left( 1 + \frac{\sum_{i=1}^{N_E} \left( \frac{\mu^2 m_i}{\bar{m}} - 1 \right) w_{E,i}^2}{N_E \sigma_E^2} \right)$$

The coefficients of variation will be similar if  $\mu^2 \frac{m_i}{\bar{m}} \approx 1$  for the top of the estate distribution.

 $\mu > 1 \Rightarrow m_i < \bar{m}$  at the top, and conversely if  $\mu < 1$ . So  $\mu^2 \frac{m_i}{\bar{m}}$  would usually stay close to 1.

# Demographics and wealth effects on mortality may cancel out

- ► Wealth increases with age on average (multipliers ↓ wrt average)
- ► Yet, there is some health premium to being rich (multipliers ↑ wrt average)



# Next step - producing novel long-run historical wealth inequality series

- ▶ In the majority of cases not enough information to fully apply the multiplier method
- Possible to use statistical information from the administration of inheritance taxes to make well-grounded inferences about the concentration of wealth:
  - ► Italy (since 1900)
  - ► Spain (since 1901)
  - ► Japan (since 1905)
  - ► South Africa (since 1905)
  - ► Denmark (since 1909)
  - ▶ Belgium (since 1937)

### New estimates of historical top wealth shares - Belgium and Japan



## New estimates of historical top wealth shares



# Conclusions

- We study the conditions under which the concentration of estates at death provides the same informative content as the concentration of the wealth among the living.
- This depends crucially on whether mortality rates at the top of the estate distribution are close to the average multiplier in the population.
- ► The top includes mainly older people (multipliers ↓ wrt average), but rich (multipliers ↑ wrt average).
- The average mortality multiplier is thus enough to provide rough estimates for top wealth shares and other inequality measures.
- We produce long-run historical series of the distribution of wealth for countries where data have not been exploited yet.

#### What about the current debate on US top wealth shares?

