

# Local poverty indicators and cost of living

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# Aims of the presentation

- The importance of estimating poverty indicators at sub-national level is nowadays worldwide recognized
- Poverty is a multidimensional concept: we focus here only on monetary poverty indicators
- Local monetary indicators should be measured in real terms, using sub-national Purchasing Power Parities (World Bank, 2015)
- Our aim is to discuss the main methodological issues connected to the estimation of monetary relative poverty indicators at the local level taking into account the cost of living, namely:
  - ① The choice between the use of income or consumption data
  - ② The use of a national or local poverty line
  - ③ Taking into account the price levels

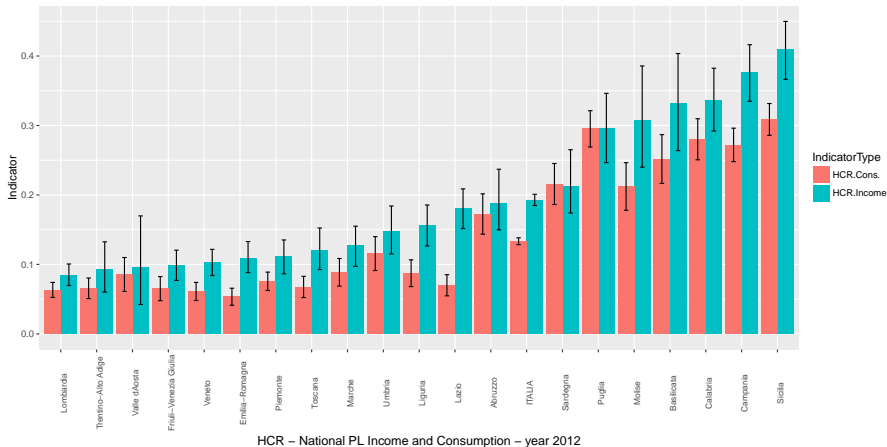
# 1. The choice between the use of income or consumption data

- In Italy the relative and absolute poverty incidence is computed by Istat by using data from the Household Budget Survey
- We computed the relative poverty incidence using data from the Household Budget Survey 2012 for the 20 Italian regions (NUTS2 level)
- At this geographical level the survey estimates are statistically sound
- As done by Istat, the poverty line is set for an household of two components equal to the mean per-capita expenditure computed at national level (1015.2 Euros)
- The poverty line for households with a different number of components is then obtained by multiplying it with a specific coefficient (0.60 for households with one member, 1.33 for households with three members, etc.)

# The choice between the use of income or consumption data

- The poverty incidence is also computed by Istat using income data from the EU-SILC survey
- We computed the poverty incidence using data from the EU-SILC Survey 2013 (income data referring to 2012) for the Italian regions
- The poverty line is set to the 60% of the household equivalised median income computed at national level (9439.7 Euros)
- As equivalence scale we used the OECD modified scale

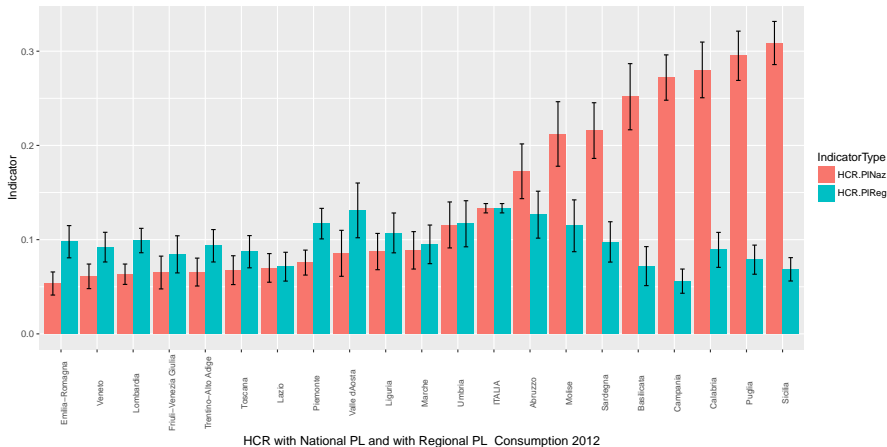
# The poverty incidence computed with income and consumption data



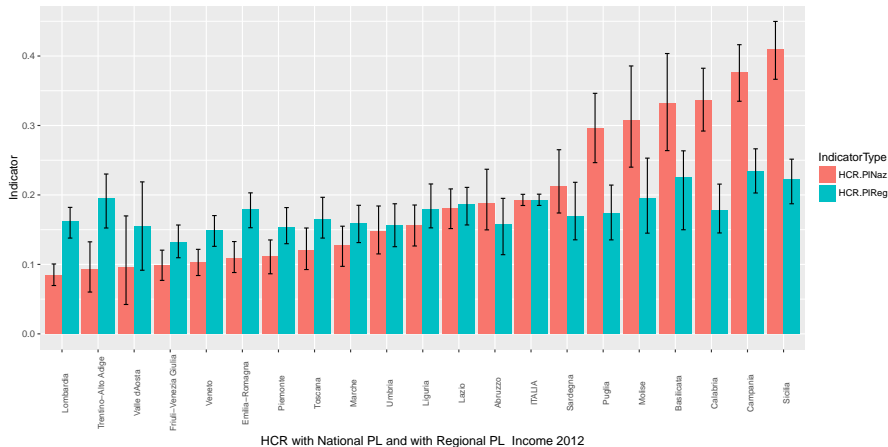
## 2. The use of a national or local poverty line

- We study the impact of using national vs regional poverty lines on the relative poverty incidence, both with income and consumption expenditure data
- We do it using direct estimates of regional poverty lines, computed as the national poverty lines but separately for each region
- Moreover, we also investigate the local distribution of income and consumption expenditure
- This is important as it can be used:
  - to individuate the local poorest quintiles of individuals/households;
  - to compute other local monetary poverty indicators;
  - to show the spatial pattern of the poorest quintiles of individuals/households.

# The poverty incidence computed using consumption data with national and regional poverty lines

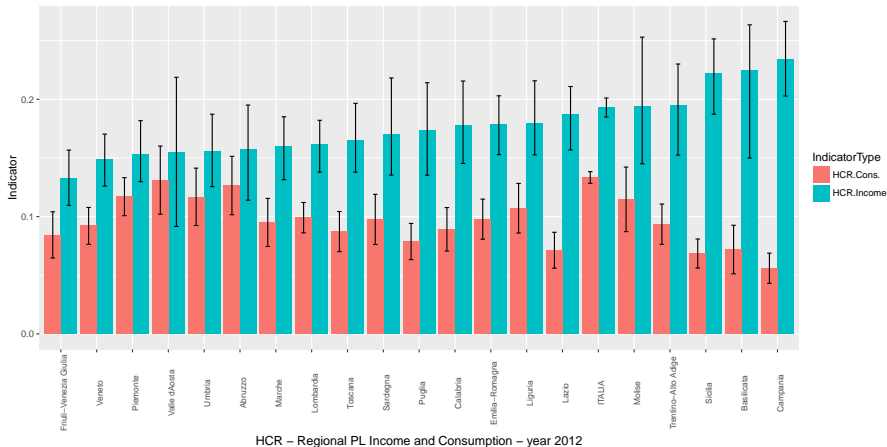


# The poverty incidence computed using income data with national and regional poverty lines





# The poverty incidence computed using consumption and income data with regional poverty lines



# The local distribution of the income and consumption expenditure

- Average monthly household equivalized income (EU-SILC 2013) [click here](#)
- Average monthly household equivalized consumption expenditure (HBS 2012) [click here](#)

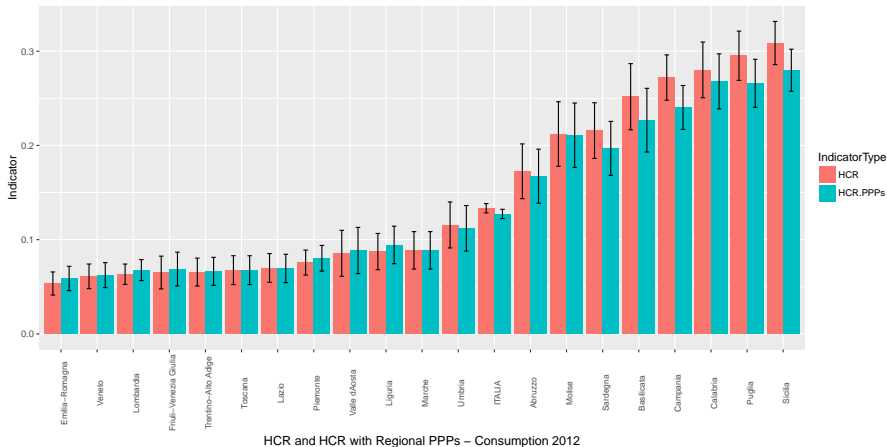
### 3. Taking into account price levels

- As concerns the measurement of relative poverty indicators in real terms, a possible solution is to use Purchasing Power Parities
- To compute local poverty indicators in real terms, PPPs should be computed at sub-national level
- However, sub-national PPSs are usually not available
- PPPs for the Italian regional capital cities were estimated by Istat in 2009
- We compute the relative poverty incidence in Italian regions by adjusting HBS 2012 consumption expenditure data using the region-specific PPPs
- Following the approach by Marchetti and Secondi (2016), we extrapolated the 2012 PPPs by using Consumer Price Indexes (CPIs)

# Taking into account price levels

- The PPPs for Italian regional capital cities are of course an approximation to measure the standard of living in Italian regions
- They assume that the level of the prices is constant inside each region
- Nonetheless, these PPPs are useful to see that prices recorded in Northern cities are usually higher than those recorded in regional capital cities located in the Centre and above all in the Southern part of Italy
- For 2012 we obtained PPPs varying between the value of 1.072 recorded for Bolzano (indicating prices 7.2% higher than the national average) and the value 0.94, recorded for Napoli (indicating prices 6% below the national average)

# The poverty incidence computed using consumption data adjusted with regional PPPs



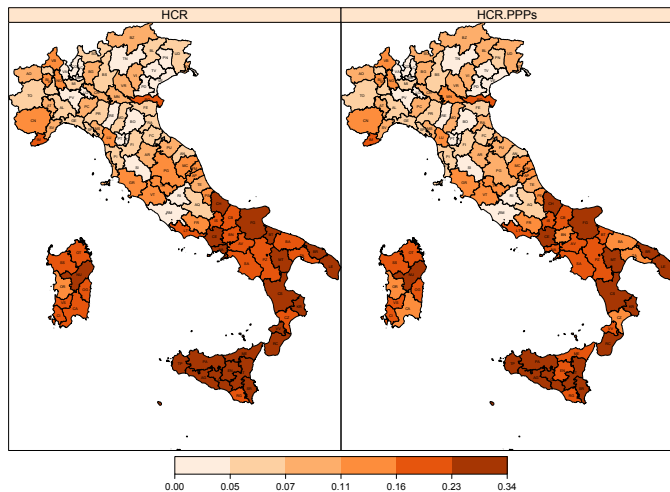
# Small area estimation of poverty indicators using regional PPPs

- The poverty incidence values computed at regional level using region-specific PPPs are not statistically different from the corresponding “nominal” ones
- We want to investigate if some differences exists when computing the poverty incidence at a more detailed geographical level
- We use a Fay-Herriot model to estimate the poverty incidence for the 110 Italian provinces (LAU 1 level)
- We selected as auxiliary variables at provincial level the average taxable per-capita income (from the “Agenzia delle Entrate” archive) and the share of households who own their house (form the Population Census 2011)
- We compute the SAE estimates by adjusting the consumption expenditure data with the region-specific PPPs

# Small area estimation of poverty indicators using regional PPPs

- Since in 2012 no HBS sample data were available for the province of Enna (Sicily), for this province we computed a synthetic estimator
- In some recent works Jiang et al. (2001), Cordero et al. (2016) the authors do not model the raw proportions but an arcsin square-root transformation of the proportions, to stabilize the variance and to guarantee that the predictions fall in the space  $[0, 1]$
- In our work we chose to model the raw proportions given that the area-level random errors can be considered normally distributed and the estimates are all in the range  $0 - 1$  (and similar to the point estimates)

# Results: SAE estimates vs SAE estimates with PPPs





# Concluding remarks

- In this presentation we outlined the main issues dealing with the measurement of local poverty indicators taking into account the spatial distribution of the prices
- We showed how the poverty incidence in Italian regions change as we modify the data we use (income/consumption), the definition of the poverty line (national/regional) and the inclusion of the prices by using PPPs
- We also applied a Fay-Herriot model to investigate the impact of the available region-specific PPPs on the poverty incidence measured with consumption expenditure data and the national poverty line for the 110 Italian provinces
- The results show the well-known Italian north-south divide, with a moderate effect of the regional PPPs

# Concluding remarks

- There are many directions to expand the present work
- The first issue is to compute new PPPs (e.g. using scanner data from supermarkets), possibly for all Italian provinces
- These PPPs could be used in the SAE model to estimate the poverty incidence and other poverty indicators at provincial level in “real” terms also with regional poverty lines
- Another research path is to estimate the income/consumption expenditure distribution at local level