



University of Teramo, 16th-18th September 2026

ASSOCIATION FOR APPLIED STATISTICS CONFERENCE 2026

Contributed Session 17th September 2026 : Administrative Data and Policy Evaluation

TERRITORIAL INCOME INEQUALITY IN ITALY: A REGISTER-BASED ANALYSIS

ISABELLA SICILIANI, LUCIA COPPOLA , FABIO SPAGNUOLO

ISTAT

Overview

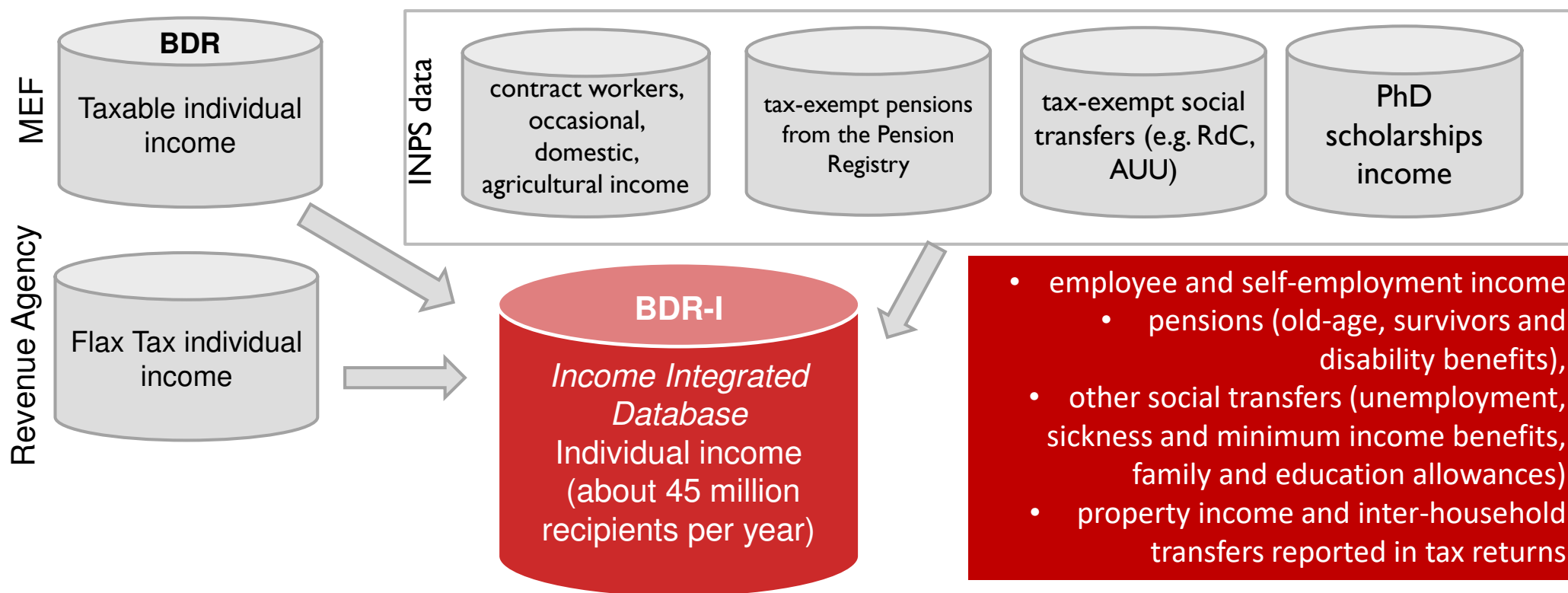
- Background and aim
- Data
- Methods
- Results
- Conclusions

Background and aim

- In Italy, territorial differences both in economic well-being and in income distribution are remarkable (Istat, 2026; Ciani e Torrini, 2019, Acciari e Mocetti, 2013, Brandolini e Torrini, 2010)
- Most of empirical analyses rely on sample surveys, such as EU-SILC and the Survey on Household Income and Wealth (SHIW). However these data allow disaggregation at macro-area (NUTS1) or at regional level (NUTS2) at most, due to their limited sample size.
- Our aim: analysing the **income inequality** across the country, by exploiting the **integration** of new **register data** at an individual level, which allows for the estimation of the household equivalised disposable income distributions for very small populations as small territorial domains.
- We focus on the spatial and temporal patterns of income inequality, investigating the main socio-economic and demographic characteristics of the territory associated with it.

Data

INTEGRATION OF TAXABLE INDIVIDUAL INCOME AND OTHER INDIVIDUAL INCOME COMPONENTS



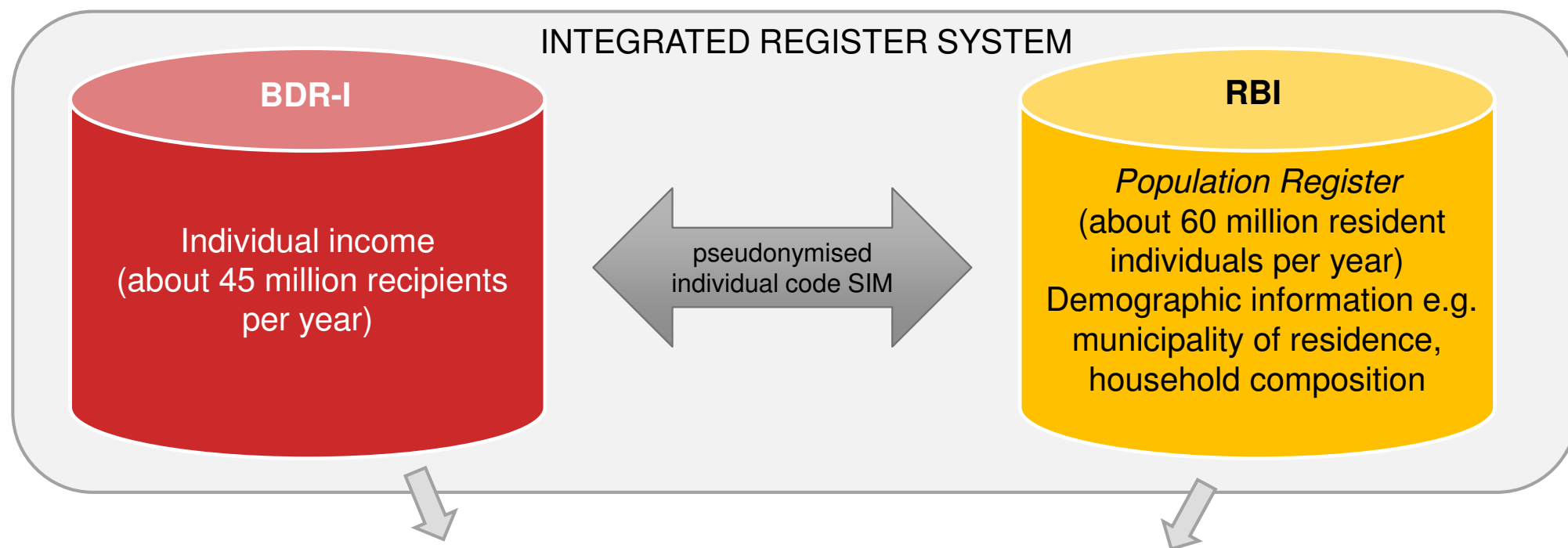
Individual disposable income: sum of all components, net of income taxes and of spousal support

Caveat: not including underground economy, financial capital income with flat withholding tax, income produced abroad, work arrears, imputed rent and inter-households transfers other than spousal support

Data

INTEGRATION OF INDIVIDUAL INCOME AND HOUSEHOLD DATA

Years 2018-2022

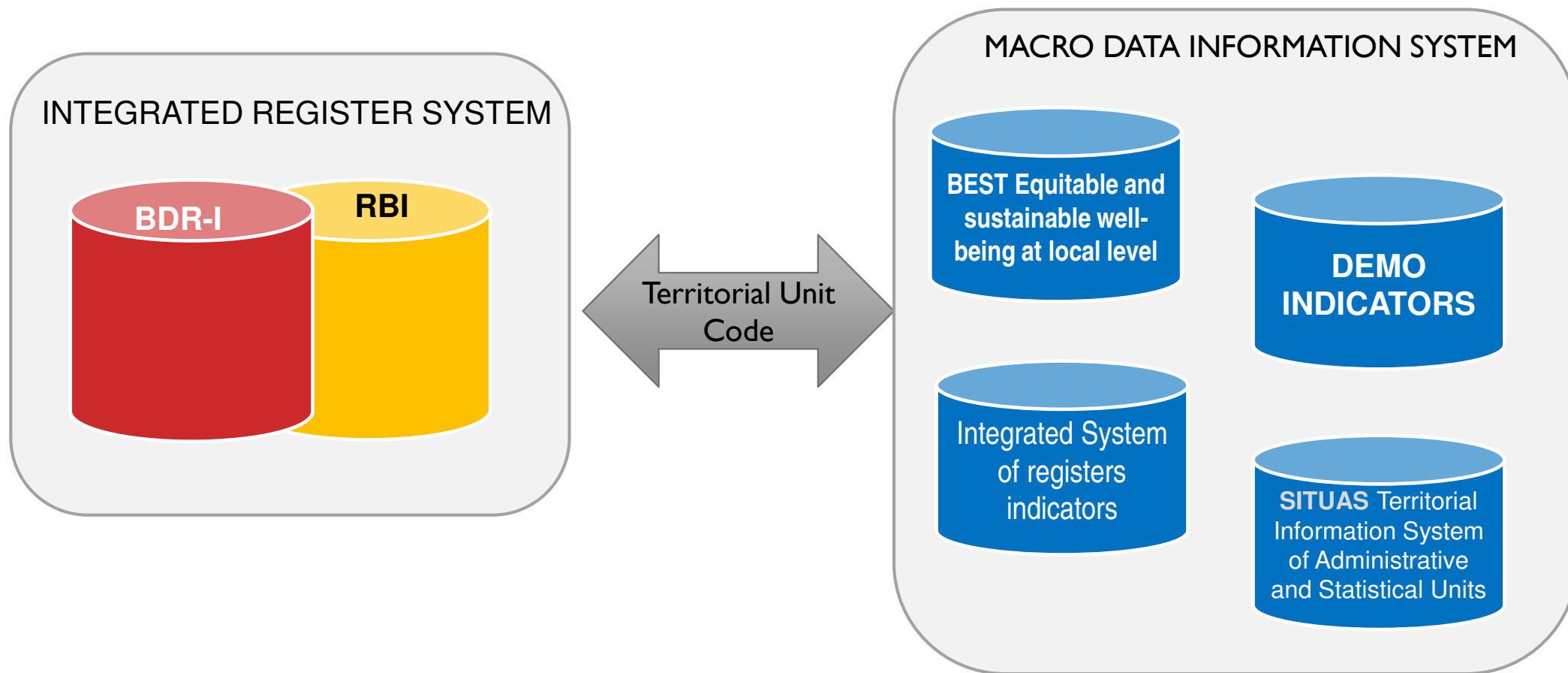


Household equivalised disposable income as measure of the economic condition of the individuals: pooling and sharing of all members individual disposable incomes, taking into account the household composition (equiv. scale OECD mod.)

Data

Years 2018-2022

AGGREGATION AT NUTS1 (MACRO-AREA), NUTS2 (REGION), NUTS3 (PROVINCE), MUNICIPALITY LEVEL



Methods

- Inequality indicators of **equivalised disposable income**: trends and geographical heterogeneity

Gini (range 0-1)

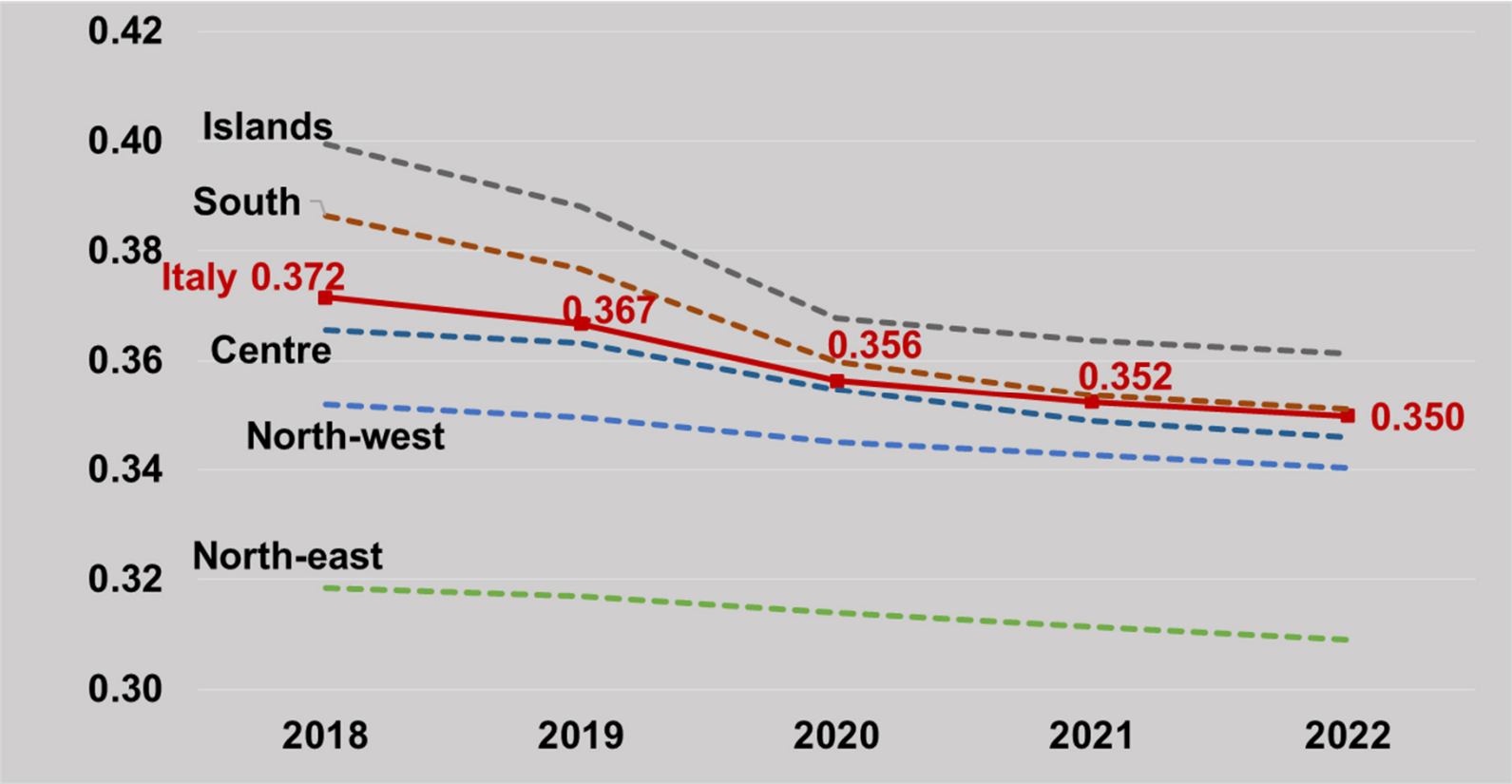
Theil (decomposable): $Theil = Theil_{between\ G} + Theil_{within\ G}$

- **Multilevel linear regression models** (municipality level 1 and province level 2) over 2018-2022 pooled data for analysing the association between municipal Gini index and socio-economic characteristics of the area:

$$g_{mp} = \alpha_0 + X_{mp}\alpha_1 + Z_p\alpha_2 + \varepsilon_{mp} \qquad \varepsilon_{mp} = \alpha_p + u_{mp}$$

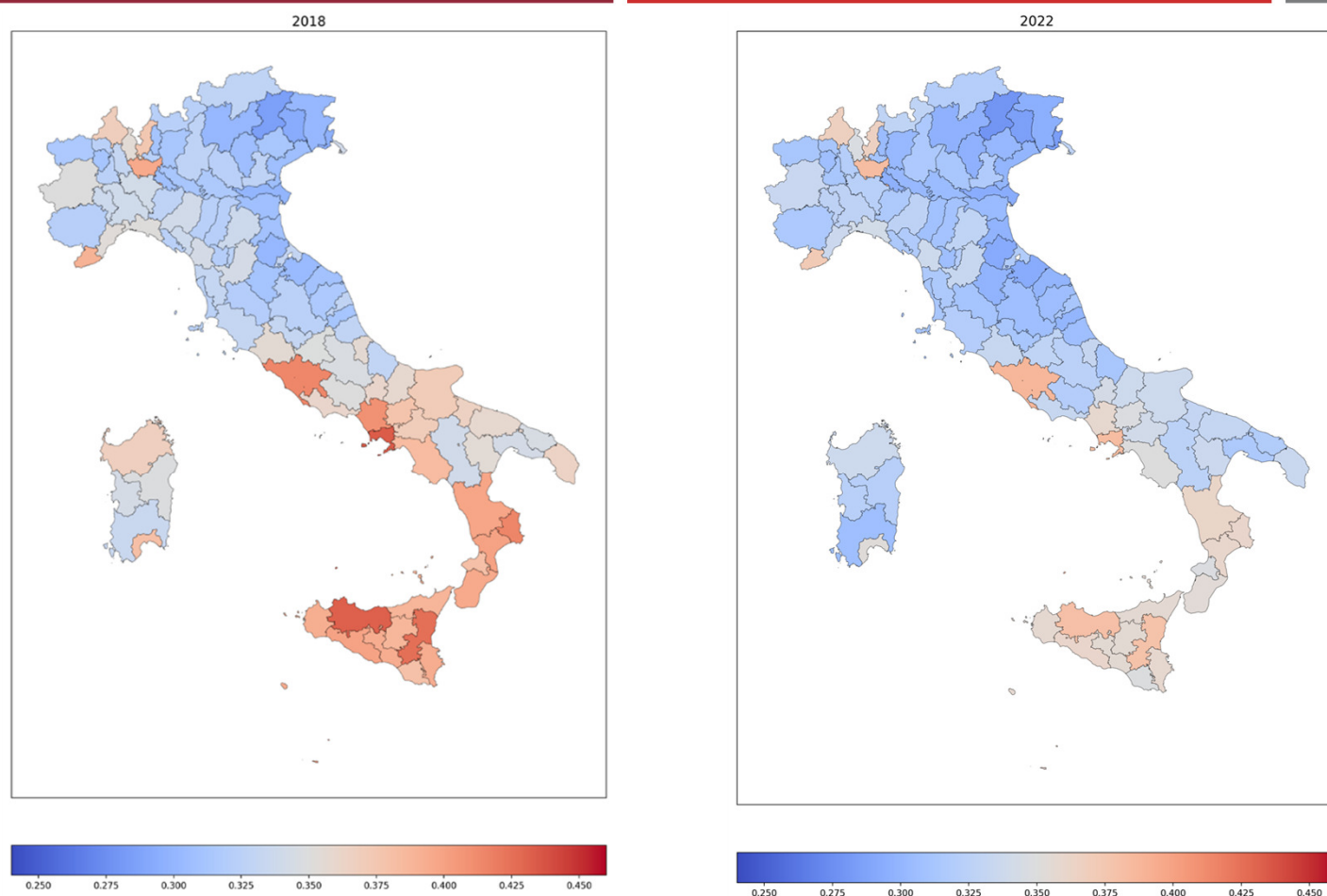
where g_{mp} = Gini index of the municipality m belonging to the province p , X_{mp} = characteristics at municipal level, Z_p = characteristics at provincial level, ε_{mp} = residual for municipality m in province p , α_p = specific component at provincial level with normal distribution, u_{mp} = error at municipal level for unobservable characteristics.

Gini index of the individual distribution of household equivalized disposable income – Macro Area NUTS1



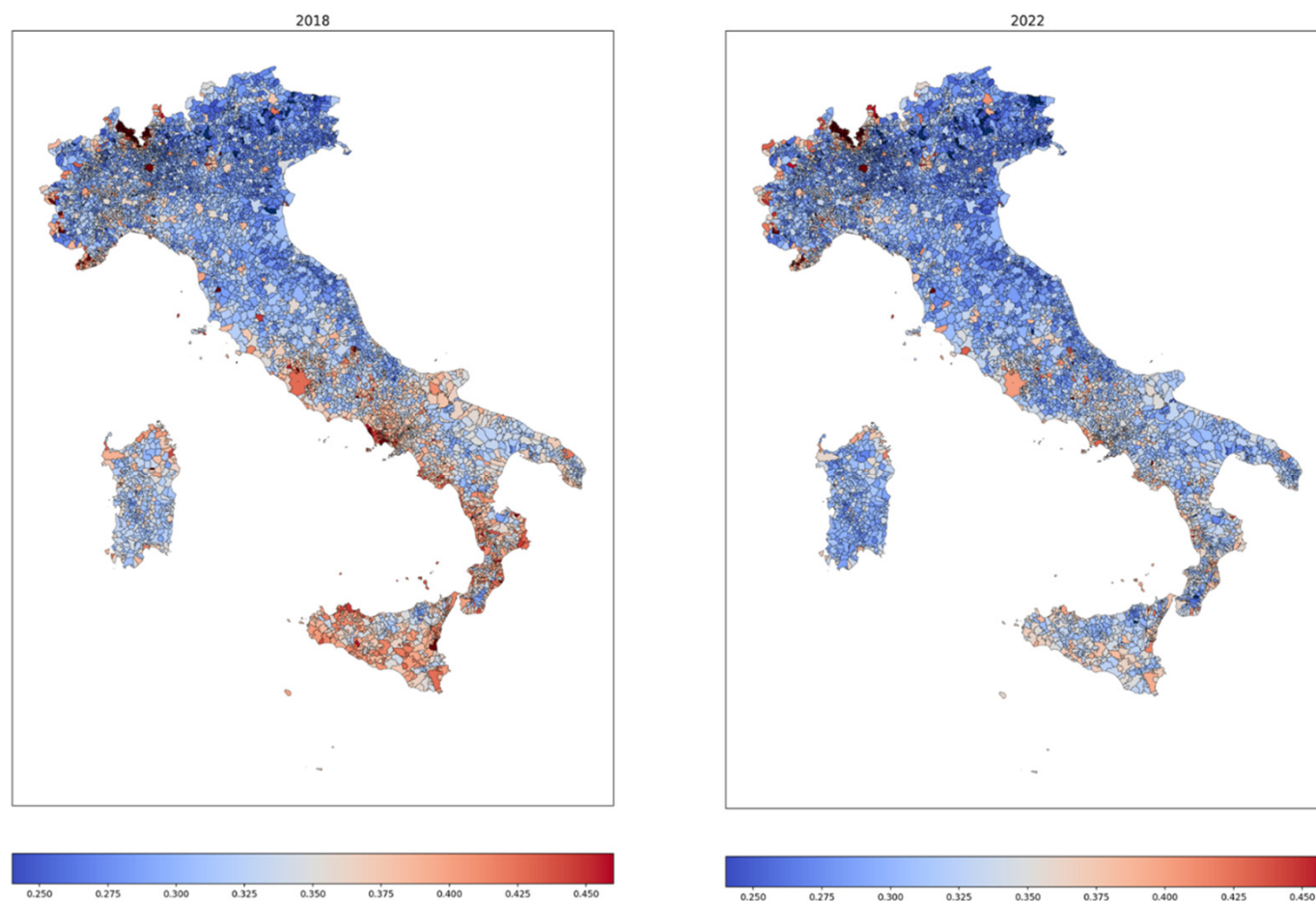
Inequality reduction in all macro-areas over time, but stronger in the South and Islands, particularly in 2019 and 2020

Gini index of the individual distribution of household equivalized disposable income - Provinces



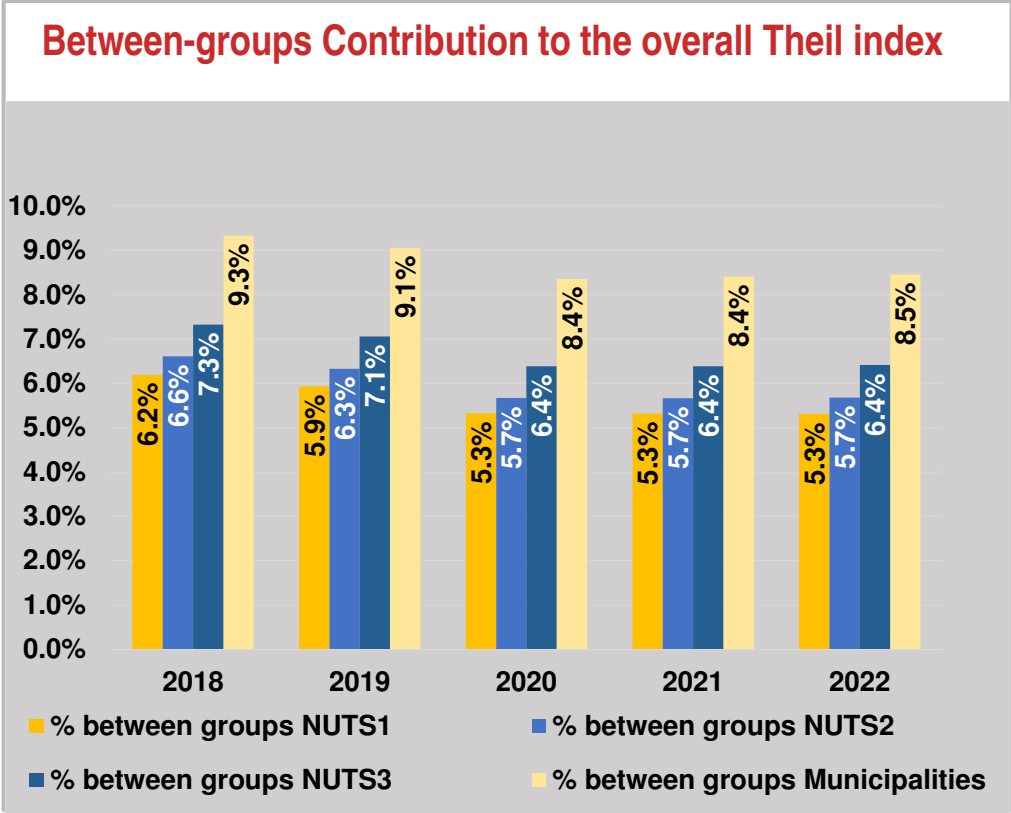
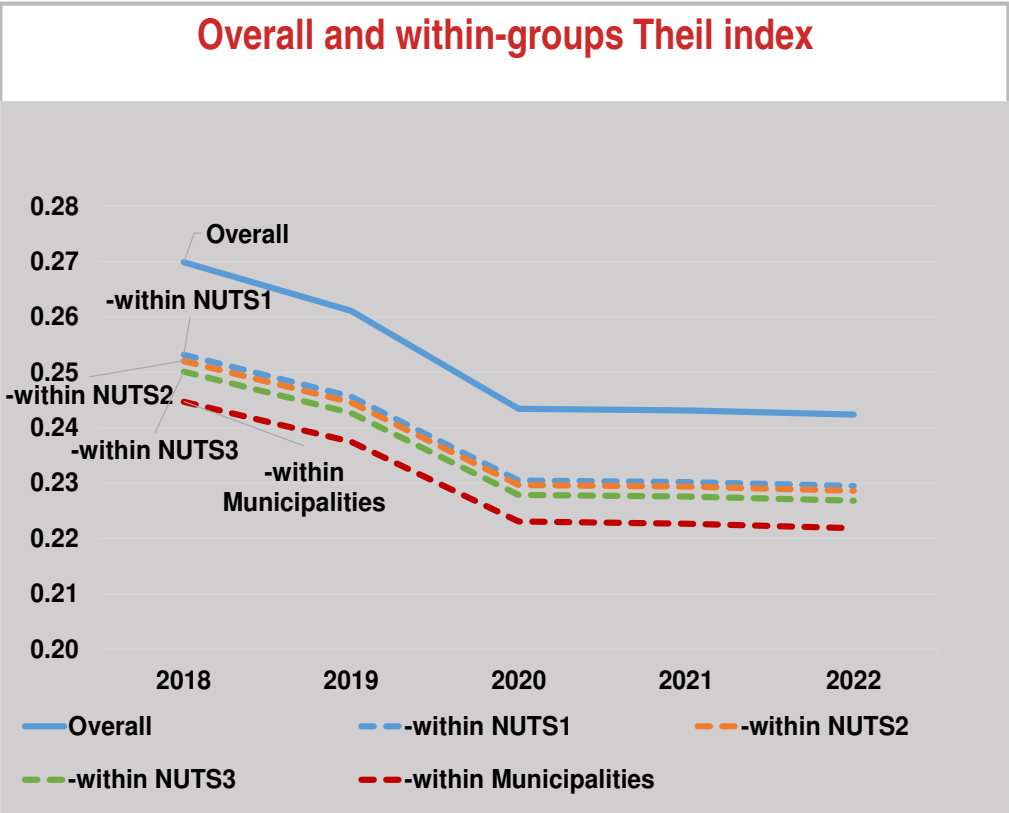
More unequal
Provinces in the South
and Islands:
Naples (0.434 in
2018), Palermo
(0.432) and Catania
(0.425). Other
provinces with main
cities as Rome (0.414)
and Milan (0.395) or
near to French and
Swiss border

Gini index of the individual distribution of household equivalized disposable income - Municipalities



Municipalities in the South and Islands, some big cities in the Centre-North and other small municipalities near the borders are more unequal. Clear reduction of income inequality in 2022

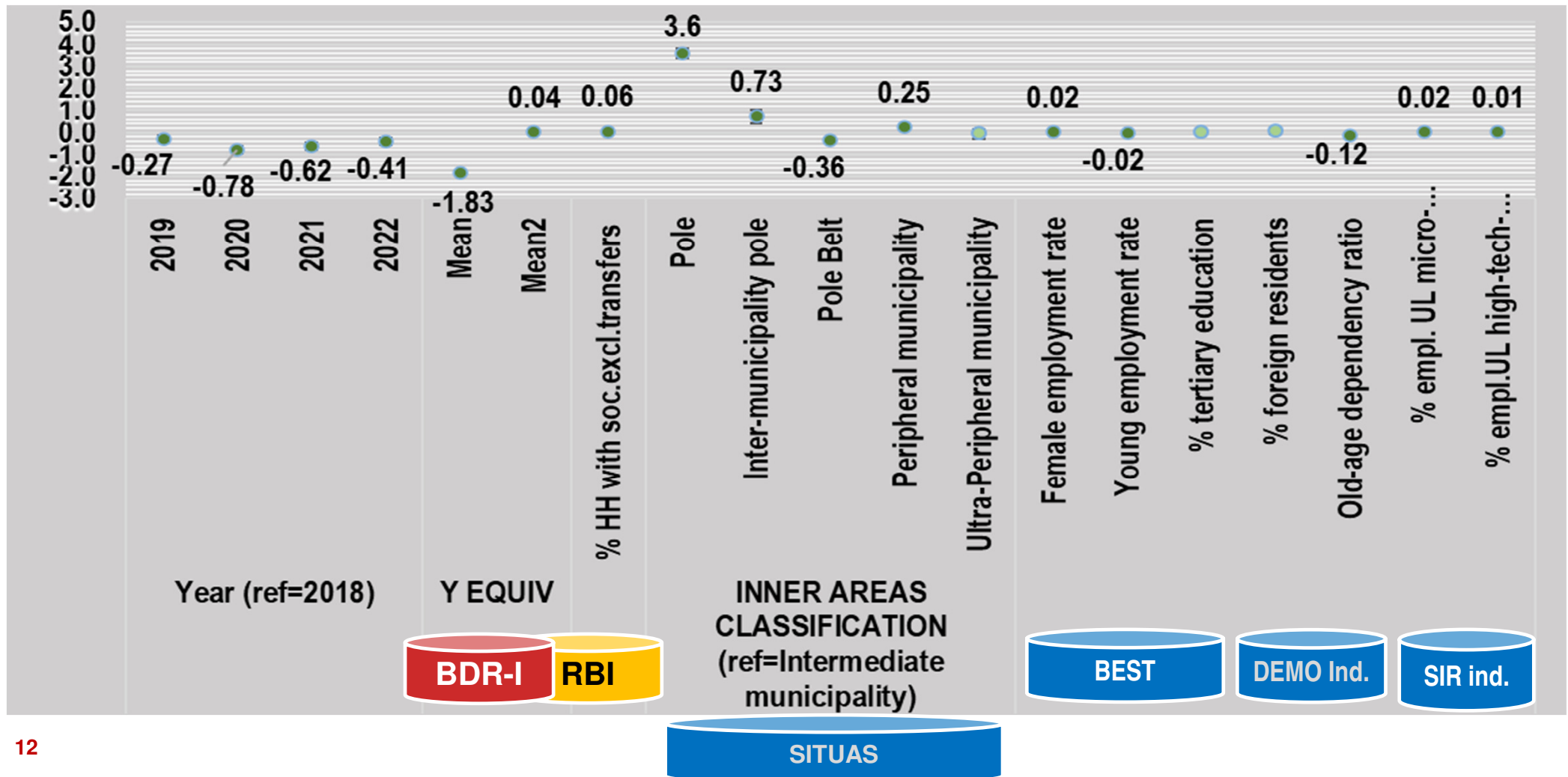
Decomposition of the Theil index. Years 2018-2022



Multi-level model parameter estimates

Dependent var: municipal Gini index

Pooled data 2018-2022



Main evidences

- Relationship between municipal mean income and inequality is non-linear (quadratic): very low and very high income municipalities are more unequal → the poles show greater income dispersion, while the belts are the most equal.
- Ageing population & Youth employment $\leftrightarrow$ lower income dispersion
- Female employment $\leftrightarrow$ greater inequality
- Microenterprises and high-tech/knowledge enterprises $\leftrightarrow$ greater inequality
- Transfers against social exclusion $\leftrightarrow$ greater inequality, not enough to compensate for *ex-ante* differences

Conclusions

- Great potentiality of the new register data designed at the individual level → very high territorial detail, not achievable through sample surveys, crucial for socioeconomic public policies.
- Income measure that takes into account the pooling and redistribution of resources at the household level (household equivalised income).
- Warning: lack of underground economy, more significant at the lower end of the income distribution.
- Inequality indices highlight significant territorial differences, primarily within territorial units.
- Inequality decreased between 2018 and 2022.
- Inequality is more pronounced in municipalities with low or high incomes.
- Relevance of the production structure (microenterprises or high-tech firms) and the labor market -> key areas for public policies actions aimed at reducing income inequality.

Thank you for your attention

ISABELLA SICILIANI | isabella.siciliani@istat.it

References

- Acciari P., Mocetti S. (2013), Una mappa della disuguaglianza del reddito in Italia. Banca d'Italia. *Questioni di Economia e Finanza*, (Occasional papers) n.208/2013.
- Brandolini, A., Torrini R. (2010), Disuguaglianza dei redditi e divari territoriali: l'eccezionalità del caso Italiano, Rivista delle Politiche Sociali, vol. 3, pp. 37-58
- Ciani E., Torrini R. (2019), The geography of Italian income inequality: recent trends and the role of employment. Banca d'Italia. *Questioni di Economia e Finanza (Occasional Papers)* n.492/2019
- Istat (2026), Condizioni di vita e reddito delle famiglie - Anni 2024 e 2025. *Statistiche report*, 2 aprile 2026