Measuring Educational Poverty at Local Level

Adapting the ISTAT framework to Tuscan Health and Social Care Zones

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Background and objectives

From outcome-based measures to a resources/outcomes framework, and down to the local level

STARTING POINT

Outcome-based approaches

Checchi (1998); Allmendinger (1999); Allmendinger & Leibfried (2003) European Commission (2015); Botezat/NESET (2016); Agasisti et al. (2021)

Educational poverty =
low attainment or competences below minimum standards

SAVE THE CHILDREN

Broaden the concept

2014 — **Opportunities inside and outside school**
School provision + participation in cultural, recreational and sports activities

2016 — **Outcomes + educational opportunities inside and outside school**
Learning outcomes + educational provision + cultural and recreational participation

Two sub-indices, but also one overall IPE

ISTAT COMMISSION (2026)

Separate resources and outcomes

RESOURCES — Family, school and territorial / social / cultural resources → risk of educational poverty

OUTCOMES — Cognitive + personal/social competences and educational careers → realised educational poverty

Separate composite indices • no overall index

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FROM ISTAT TO THE LOCAL LEVEL

1 Keep the two-part framework

Resources and outcomes remain separate, as in the ISTAT framework.

2 Start from ISTAT measures

Retain school-related ISTAT indicators where they can be reproduced locally, and use the same AMPI aggregation method.

3 Move to a local policy scale

Reconstruct the measures for administrative programming areas to support regional planning and targeting.

Educational poverty is multidimensional

The ISTAT framework distinguishes resources from outcomes

RESOURCES — 60 indicators

Family context
Educational and cultural resources in the family.

School context
School provision, accessibility and educational services.

Territorial, social and cultural context
Opportunities and resources in the local environment.

OUTCOMES — 18 indicators

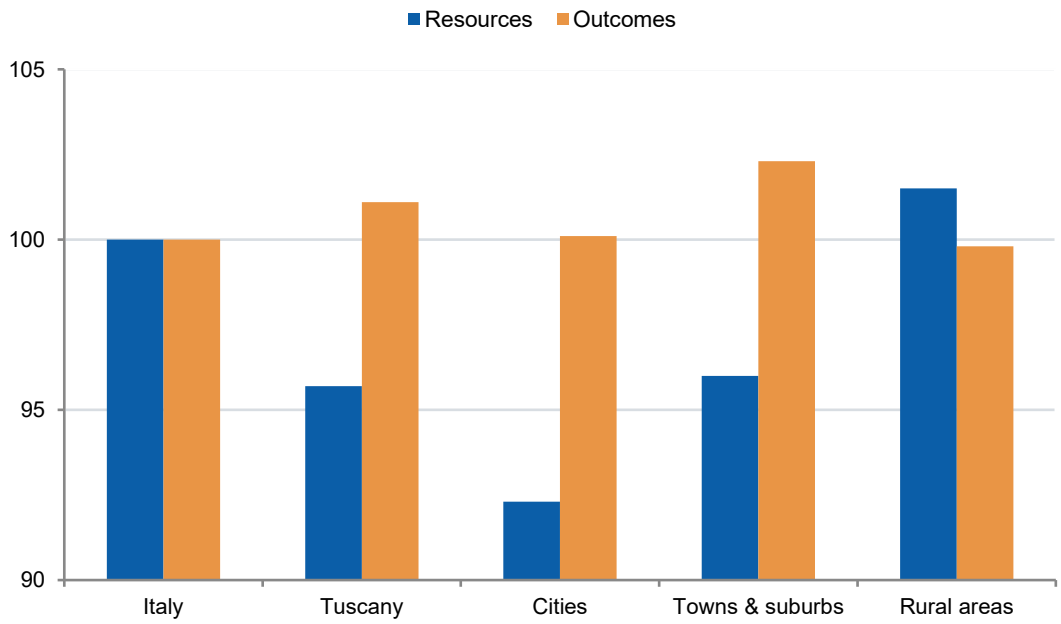
Cognitive competences
Learning outcomes and minimum competence levels.

Personal and social competences
Personal, relational and social skills.

60 + 18 = 78 indicators from multiple official sources

Tuscany looks close to the national average

But regional averages hide different territorial patterns



Tuscany

Resources 95.7
Outcomes 101.1
Italy = 100

Dispersion across 3 urbanisation classes

Standard deviation
Resources 3.8
Outcomes 1.1

Resources: clear urban–rural gradient emerges: consistent with schools and services being concentrated in urban centres and with students commuting across municipalities.
Outcomes: no clear urban–rural gradient emerges.

Why go below the regional level?

A policy-relevant geography should match how regional policies are planned

3 URBANISATION CLASSES

28 ADMINISTRATIVE PROGRAMMING AREAS

1 Why go local?

Regional averages and the three urbanisation classes can hide large differences between territories.
For regional policy, we need to see where educational disadvantage is actually concentrated.

2 Which geography?

We considered two existing planning geographies: Health & Social Care Zones (28) and Education Zones (35). The aim was to use an area already meaningful for policy, not to create a new statistical geography.

3 Why this choice?

We chose Health & Social Care Zones because the study is part of a wider regional poverty framework. A common geography lets us read educational poverty together with other dimensions of poverty and supports planning and targeting.

From the ISTAT framework to a local indicator

A selective adaptation, not a parallel framework

1	**Territorial scale**	Municipal and school data → 28 administrative programming areas; INVALSI is used directly at area level when needed.
2	**School-focused scope**	Keep school resources and school outcomes; family and cultural poverty are measured in the wider poverty framework.
3	**Replicability**	Retain indicators available locally from official or administrative sources; reconstruct selected measures when needed.
4	**Robustness**	When indicators are unstable or definitions do not work well locally, adapt definitions where necessary; use two-year averages for unstable indicators.
5	**Augmentation**	Add local offer measures and revise early leaving towards the 18–24 definition.

Which parts of the ISTAT framework can we cover locally?

The local system focuses on school-related resources and measurable outcomes

RESOURCES

Family context

NOT INCLUDED

Other poverty dimensions are measured elsewhere.

School context

INCLUDED

Core of the local resource index.

Territorial, social and cultural context

NOT INCLUDED

Excluded from this school-focused indicator.

OUTCOMES

Cognitive competences

INCLUDED

INVALSI-based indicators.

Personal and social competences

PARTLY INCLUDED

School career regularity only.

Result
a deliberately narrower indicator of educational poverty,
designed to fit inside a broader multidimensional poverty framework.

Final indicator system

24 indicators: 18 resources and 6 outcomes

RESOURCES · 18

R1 · OFFER | 11

- Municipal spending on early-childhood services (0–2)
- Places in early-childhood services (0–2)
- 11–13-year-olds living where there is no lower-secondary school
- 14–19-year-olds living where there is no upper-secondary school
- Breadth of upper-secondary offer: 9 programme families
- Variety of regional VET (IeFP) offer: vocational profiles available locally
- State schools without a canteen
- State schools without a gym
- Schools not reachable by public transport
- Schools without school-bus service
- Secondary schools without IT / technical classrooms

R2 · ADEQUACY | 4

- State schools not accessible to people with motor disabilities
- Very small classes / sections ("empty" classes)
- Overcrowded kindergarten sections
- Pupils per teacher (excluding support)

R3 · USE | 3

- Children using early-childhood services (0–2)
- Primary pupils in multi-grade classes
- Pupils not enrolled in full-time / extended-time schooling

OUTCOMES · 6

E1 · COMPETENCES | 3

- Grade 5: learning outcomes not yet consolidated
- Grade 8: risk of implicit dropout
- End of upper secondary: implicit dropout

E2 · REGULARITY | 3

- Early leaving from education and training, age 18–24
  ISTAT Permanent Population Census + Tuscan Regional Student Register (ARS)
- Multiple grade repetitions in upper secondary
- Not admitted to the next school year in upper secondary

Examples of adaptations and additions

We keep the ISTAT logic, but revise or add indicators when local measurement requires it

ADAPTED

Early leaving 18–24

Reconstructed locally from the ISTAT Permanent Population Census and the Tuscan Regional Student Register (ARS), replacing the original single-cohort proxy.

ADAPTED

"Empty" primary classes in mountain areas

The threshold is lowered from <15 to <10 pupils per class in mountain and partly mountainous municipalities.

ADAPTED

Motor accessibility

Reconstructed from the MIM School Building Registry. Published ISTAT survey data do not provide the local detail needed here.

ADDED

Regional vocational education and training (IeFP) offer

Share of 14-year-olds living in municipalities with no regional VET pathway, using the Tuscany Region list of active IeFP courses.

ADDED

Breadth of upper-secondary offer

Counts how many of nine major programme families are available locally.

Heterogeneity hidden within the three urbanisation classes

Each dot is a municipality; horizontal bars are class values computed on the aggregate, as in ISTAT

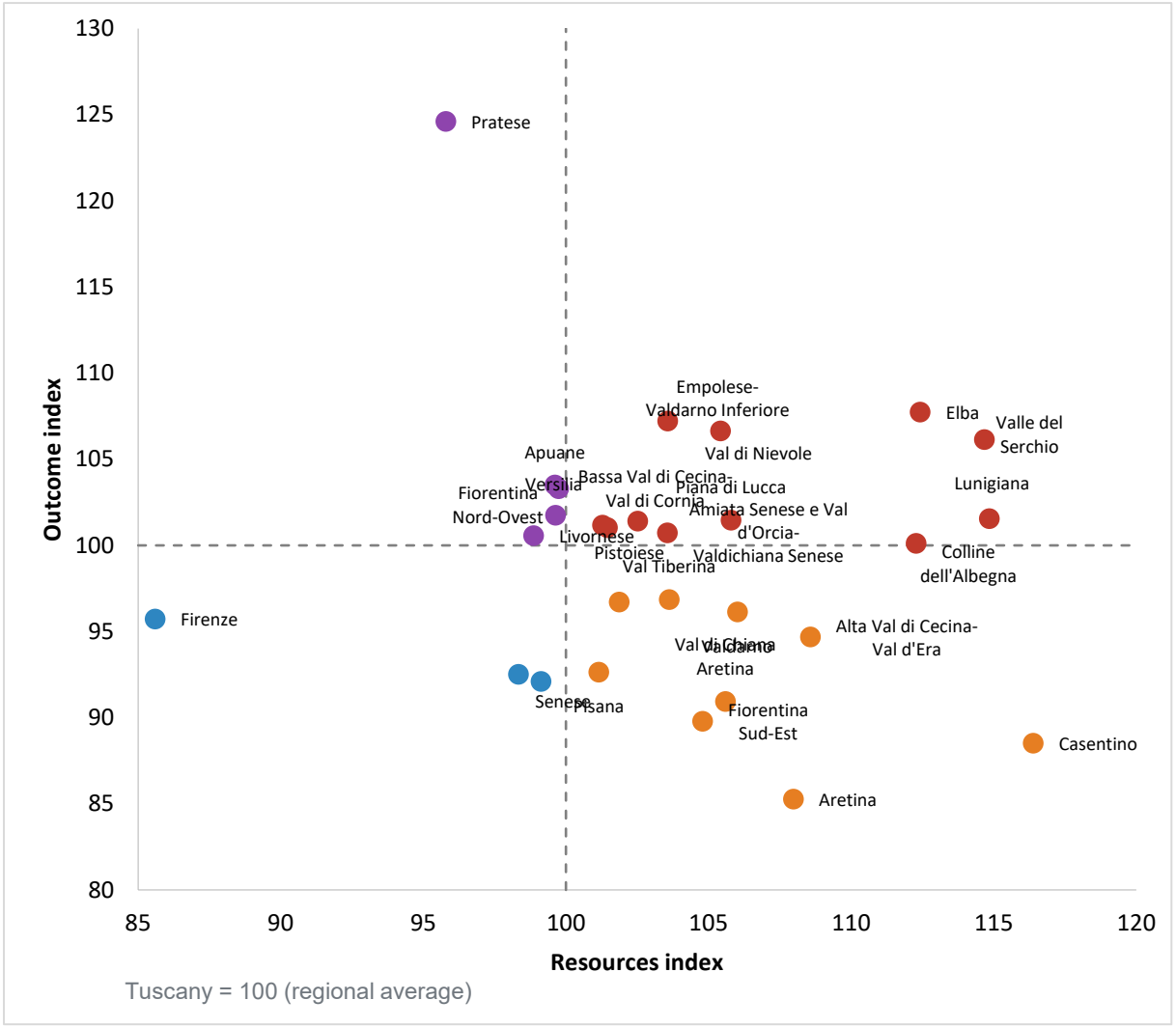


24 of 28 programming areas combine two or three urbanisation classes

Tuscany = 100; higher = more deprivation. Outcome index uses only the 3 indicators available at municipal level (INVALSI is available at area level).

Resources and outcomes are almost unrelated

The same level of educational outcomes can coexist with very different local resource profiles



Tuscany = 100 (regional average)

r = −0.12

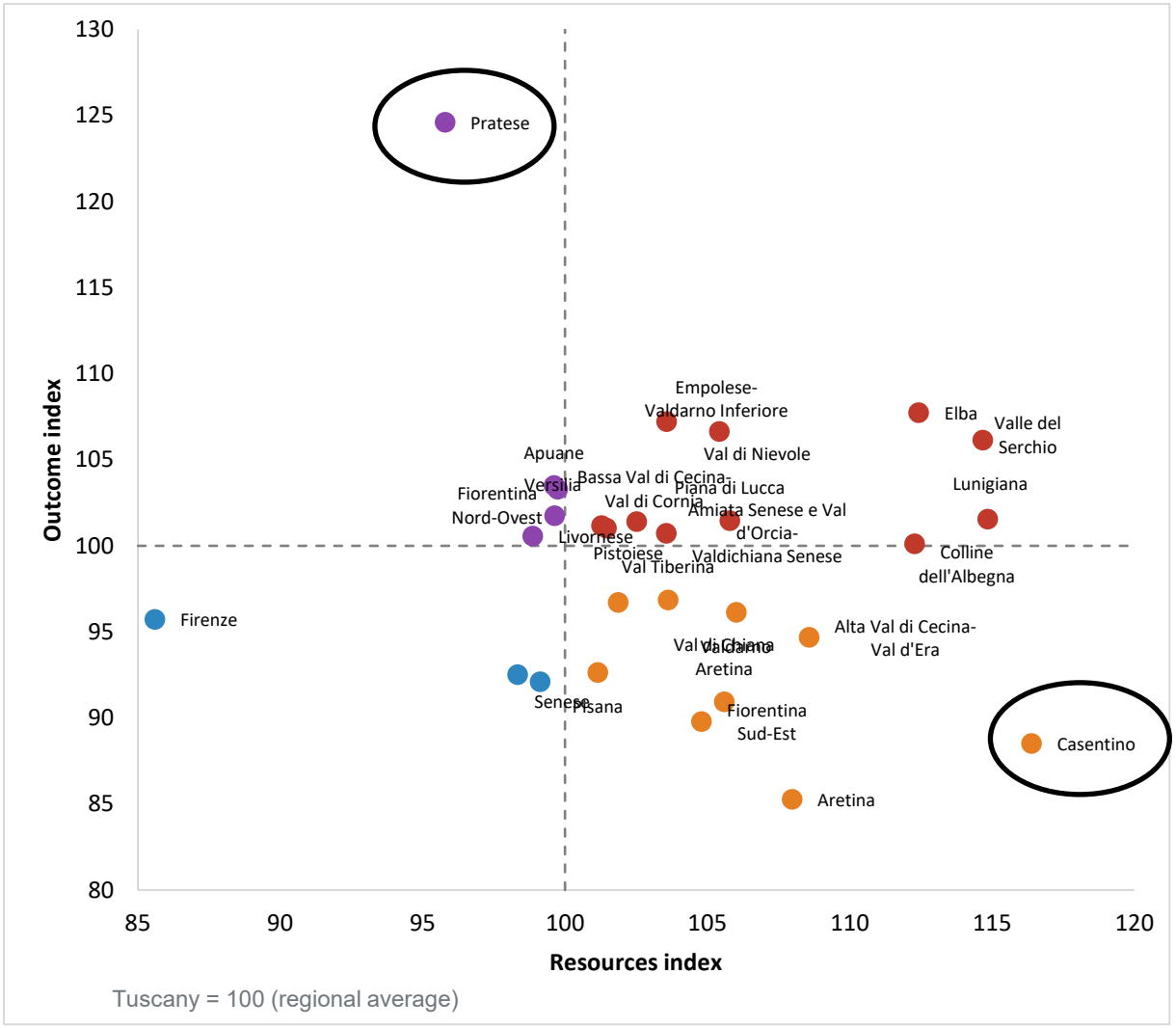
Resources ↔ outcomes

Quadrants

- Both resource and outcome deprivation
- Resource deprivation only
- Outcome deprivation only
- Below the Tuscan average on both

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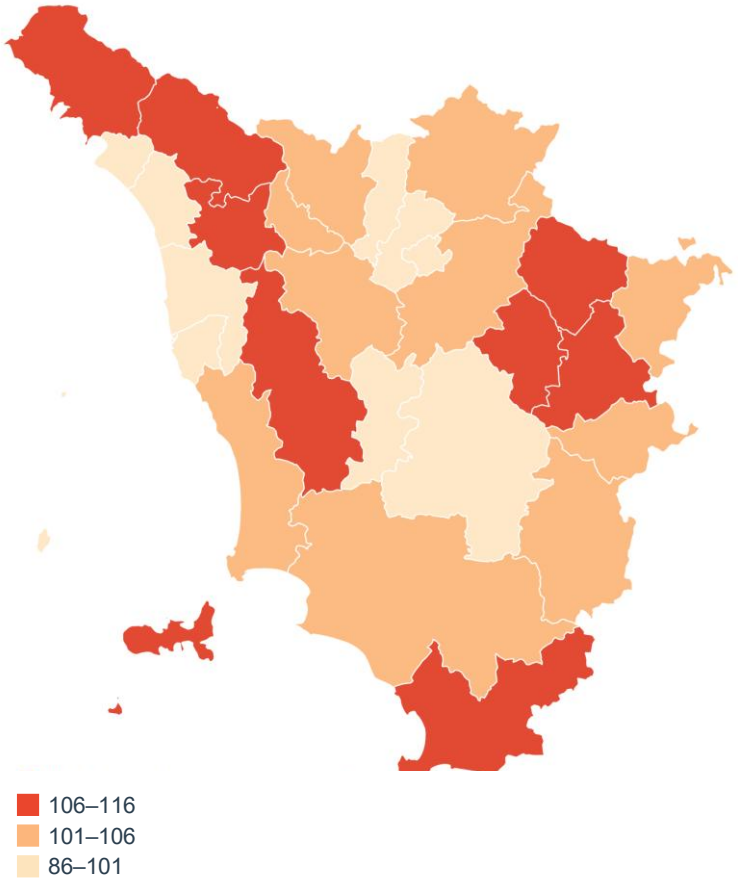
Pratese: high outcome deprivation, resources below average

Casentino: high resource deprivation, outcomes below average

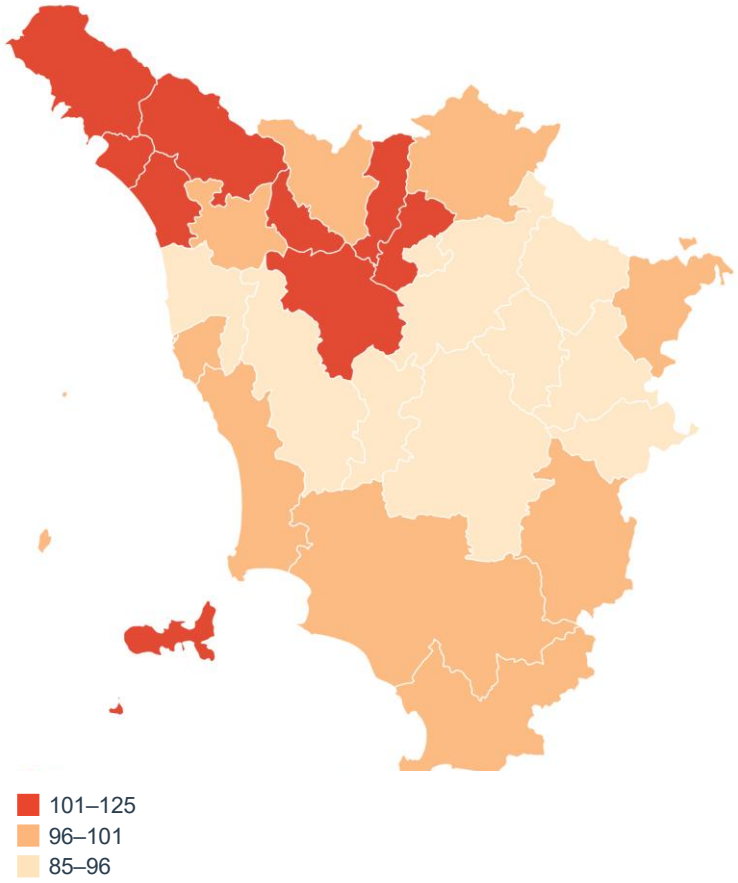
Two different territorial geographies

Darker colours = higher educational poverty

RESOURCE INDEX

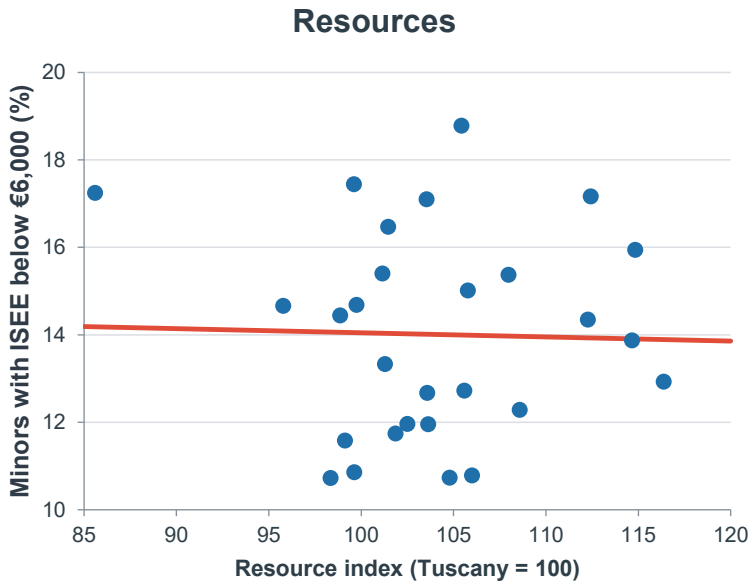


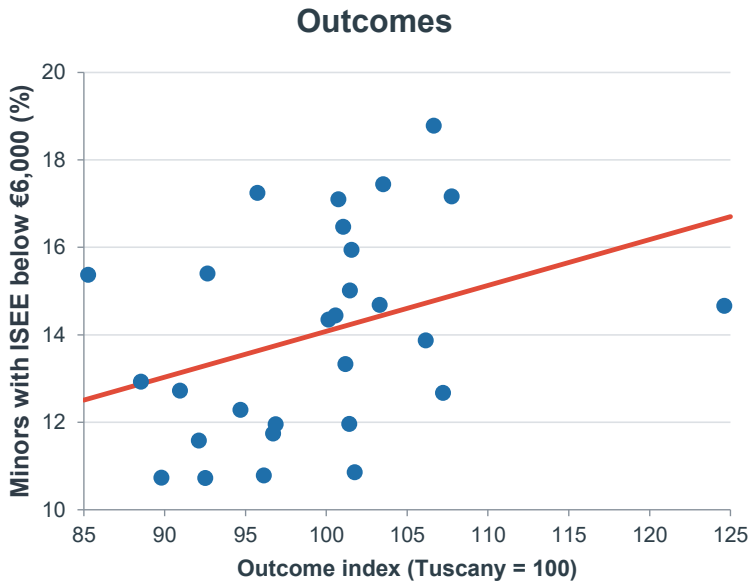
OUTCOME INDEX



Educational outcomes are more closely associated with economic poverty

The relationship is moderate, not deterministic





Resources

r = −0.03 → no association

Outcomes

r = 0.34 → moderate association

Economic poverty measure: share of minors with Equivalent Economic Situation Indicator (ISEE) below €6,000

Main findings

1

Local scale matters

Broad urbanisation classes hide substantial differences between territories. A policy-relevant local scale makes those differences visible.

2

Resources and outcomes identify different problems

Their correlation is weak ($r = -0.12$): poor local provision and poor educational results should not be treated as the same form of disadvantage.

3

Economic poverty overlaps more with outcomes than with resources

The association is moderate for outcomes ($r = 0.34$) and almost zero for resources ($r = -0.03$). The framework helps distinguish different local needs rather than producing a single ranking.

Policy implications: different problems require different responses

The indicators help distinguish different local needs and guide policy responses.

1 · COMPENSATORY SUPPORT

Where poor educational outcomes overlap with economic poverty:

- Prioritise tutoring, guidance, learning support and dropout prevention.
- Use outcomes together with economic poverty to identify where additional educational support is most urgent.

2 · PROTECT LOCAL PROVISION

Where resource deprivation is high but outcomes are not:

- Protect school access, transport, full-time provision and the breadth of the local offer.
- This is especially relevant in inner and depopulating areas, where declining cohorts, distance and small scale can threaten service sustainability.