

The Economic Impact of Mathematical Research in Italy

Key findings from the Deloitte Report

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The Study

Commissioners

1

Consiglio Nazionale delle Ricerche (CNR) and Unione Matematica Italiana (UMI) commissioned Deloitte Economics, with the support of AILA, AIRO, AMASES, and SIMAI.

Scope

2

Quantify the economic, employment and fiscal impact of Mathematical Research on the Italian economy.

Approach

3

Leontief Input-Output model applied to a profession-by-sector matrix of math-research intensity.

Source: Deloitte Economics, "L'impatto economico della Ricerca Matematica in Italia", May 2026

Methodology: Input-Output Model



Three impact channels:



Source: methodology adapted from "Measuring the Economic Benefits of Mathematical Science Research in the UK", 2012

Impact on GDP: €680 Billion

Contribution to Gross Value Added (2025, EUR billion)

680

EUR billion
Total Impact

≈ 34% of national GVA

Direct

€309B

Indirect

€221B

Induced

€150B

Multiplier: for every €1 of direct impact, €1.20 of additional indirect + induced value.

Source: Deloitte analysis on Eurostat and ISTAT data

Impact on Employment: 8.4 Million Jobs

Full-time equivalent employment supported (2025, FTE thousands)

8.4

million FTE
Total Impact

≈ 35% of national empl.

Direct

2,711k

Indirect

3,216k

Induced

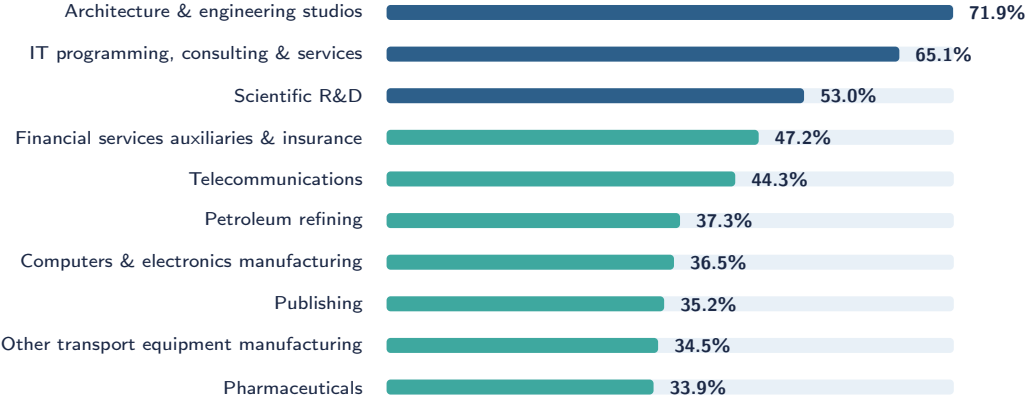
2,465k

Multiplier: for every direct job, 2.1 additional jobs are supported through indirect and induced effects.

Source: Deloitte analysis on Eurostat and ISTAT data

Where Mathematical Research Matters Most

Top 10 sectors by intensity of Mathematical Research usage (2025)



Source: Deloitte analysis on Eurostat and ISTAT data

Math Skills Drive Economic Performance

PISA Math Score
vs GDP per capita

$$r = 77\%$$

$$R^2 = 59\%$$

Countries with higher PISA math scores
tend to have higher GDP per capita
(PPP, 2022)

PISA Math Score
vs Labour Productivity

$$r = 73\%$$

$$R^2 = 53\%$$

Higher math scores are also associated
with greater output per hour worked

Investing in mathematical education is not merely cultural; it has measurable economic returns.

Source: Deloitte analysis on OECD and IMF data (2022)

Italian Mathematicians: High Output, Strong Quality

Publications per author

1st among pool

0.20

Avg annual publications per active author (2020–25)

Citations per author

2nd among pool

1.40

Avg annual citations per active author (2020–25)

Field-Weighted Citation Impact

2nd among pool

0.53

Ratio of received to expected citations (2020–25)

Top-10% journal publications

3rd among pool

23.1%

Share of papers in top-decile CiteScore journals (2020–25)

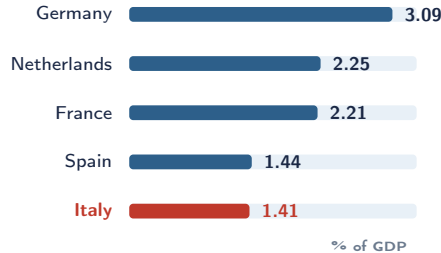
Pool: Germany, France, Spain, Netherlands, Italy

Source: Deloitte analysis on Scopus / SciVal data

Critical Issues: Italy's Investment Gap

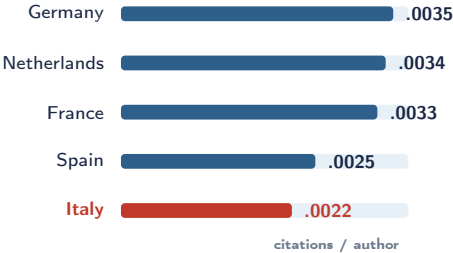
R&D spending as % of GDP

Average 2020–24



Patent citations per author

Average 2020–25, per active author



Italy produces top-quality research with minimal resources, but chronic underinvestment limits the translation of scientific output into patents and innovation.

Source: Deloitte analysis on Eurostat and Scopus/SciVal data

Key Takeaways

- 1 Math research is a strategic national asset**
€680B in GVA (34% of national total), 8.4M jobs (35%), €296B in tax revenue.
- 2 Math skills correlate with prosperity**
PISA math scores explain ~59% of cross-country variation in GDP per capita.
- 3 Italian researchers have a great impact**
1st in Europe for publication productivity, 2nd for citation impact, despite the lowest R&D spending among major EU economies.
- 4 The science-to-innovation gap must close**
Italy ranks last among peers for patent citations per author. Bridging this requires stronger academia-industry links and higher R&D investment.
- 5 A growing public narrative**
Media coverage of mathematics grew at +28% CAGR (2015-24), driven by AI. The moment to advocate for the discipline is now.