Innovazione e capitale umano: due priorità per il rilancio della produttività in Italia

Roberto Torrini*
Servizio Struttura Economica, Banca d’Italia

*Le opinioni espresse sono personali

«5 priorità per attivare nuovi dinamismi nella società italiana», Osservatorio produttività e benessere, Roma 28 febbraio 2020
Outline

- The well known disappointing performance of Italian productivity growth

- Demographic scenario and growth: the need of a resurgence in productivity growth

- At the origins of Italian productivity weakness:
  - Three structural issues to be tackled:
    - fragmentation of the productive system
    - low investment in innovation
    - low levels of education
  - A short term urgency: investments

- What can we do to relaunch productivity and to support the ongoing improvements in the business sector?

I will not talk about doing business regulation and public administration efficiency but these are clearly important parts of the story
Productivity and growth

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Productivity and growth: the role of TFP

- GDP
- Labour productivity
- TFP
- Hours worked
The productivity growth gap involves both tradable and non tradable sectors

Labour productivity, 1995=100

Total economy

Manufacturing

Germany Spain France Italy

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Demography and growth
With a shrinking working age population, GDP growth perspectives will critically depend on productivity developments.

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Even assuming substantial improvements in the labour market, employment will likely stop contributing to economic growth in the next decade.

**Participation and unemployment rates**

**Labour input contribution to GDP growth (%)**

Torrini, Zollino (a cura di) 2020, *A reassessment of the production function approach for estimating the potential output and the output gap in Italy*, mimeo Banca d’Italia

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Three structural weaknesses of the Italian economy
An extremely fragmented productive system

This is a structural feature of the Italian economy: but traditional small business did not take advantage from new information technologies. Small firms in manufacturing have suffered from new competitors (China, Eastern Europe)

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Very small firms are much less productive than in other countries; this is not the case for large companies.

Labour productivity

1-9 employees

250 or more employees
R&D investments and the share of workers in the research sector are too low.
Research & Development investments are too low

Expenditure is low both in the business and public sectors
Research & Development investments are too low

Expenditure in R&D as a percentage of turnover

R&D expenditure is low both in small and large companies
Italy shows a clear education gap

In spite of that, returns to education are lower than in other developed countries

- Quality of education as measured by PISA tests is not very high
- Results of PIAAC tests on adult population are incredibly bad
- Training investment in the business sector is low
The crisis prompted a huge drop in investments, delaying the adoption of new technologies.
Due to the aging of capital assets, the quality adjusted capital stock dropped more than total capital stock.

Mistretta and Zollino (2017), *Recent trends in economic activity and TFP in Italy with a focus on embodied technical progress*, Banca d’Italia, Temi di discussione

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The drop in investment hurt productivity

A clear link between firm labour productivity and the time lag from the last important investment episode

\[
\log(\text{Productivity})_{f,t} = \alpha + \sum_{j=1}^{J} \beta_j \text{Inv.Age}_{j,f,t} + \text{Controls}_{f,t} + \epsilon_{f,t}.
\]

Figure 1: Investment Age and Productivity

Notes: The figure reports estimates of the \(\beta_j\) coefficients in equation 1. Dashed lines denote 95 percent confidence bands. Each equation is estimated with Ordinary Least Squares, and it includes fixed-, industry-, year-effects and a series of dummies for firm’s age and size.

Fiori and Scoccianti 2019, Aggregate dynamics and Microeconomic Heterogeneity: The role of Vintage Technology, Banca d’Italia, mimeo
Some recent improvements in the Italian productive system
Export shares have stopped declining: export grows in line with demand; large current account surplus

Bugamelli et al. (2017) *Back on track? A macro-micro narrative of Italian exports*, Questioni di economia e finanza, Banca d’Italia

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Tradable sector profitability has recovered after a long decline; allocation efficiency is improving.
Trend TFP growth is now back in a positive territory

Trend TFP annual growth rate

Torrini, Zollino (a cura di) 2020, *A reassessment of the production function approach for estimating the potential output and the output gap in Italy*, mimeo Banca d’Italia

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The research sector is small but highly productive, and its quality is comparable to that of France and Germany.

ANVUR: Rapporto sullo stato del sistema universitario e della ricerca, 2018

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What can we do?
What can we do? 1. Take seriously the innovation challenge and good recommendations

Country specific recommendations to Italy of the European Commission, 2019:

Education:
Weak investment in skills is slowing down Italy’s transition to a knowledge-based economy, holding back productivity growth and limiting the potential to improve non-price competitiveness and GDP growth. Education gaps also help to explain the lower productivity of Italy’s micro and small firms compared to peer countries. Tertiary education is underfinanced and understaffed, and the scope of vocational-oriented higher education is limited despite high employability rates.

Innovation:
Investment in intangibles has been considerably below the Union average since the early 2000s. Business expenditure on research and development is almost half the average level of the euro area. Public support for business expenditure on research and development remains low, although it is improving thanks to the increased role of tax incentives. Public expenditure on research and development is also below the euro area average.

⇒ Improve educational outcomes, also through adequate and targeted investment
⇒ Focus investment-related economic policy on research and innovation, and the quality of infrastructure
What can we do? 1. Take seriously the innovation challenge

Investment gap in R&D and Tertiary education: some rough estimates

To fill the gap in R&D with respect to the EU average:

- 3 billion public sector
- 9 billion business sector

To fill the gap in tertiary education with respect to the EU average:

- 7 billion total
- 5 billion public sector (from da 7 to 12)

Funding and human resources in tertiary education have been slashed by 20% since 2010 in spite of the governance improvements: research evaluation, standard costs, evaluation based funding, quality assurance of teaching activities.

Anvur, Rapporto sullo stato del sistema universitario e della ricerca, 2013, 2016, 2018
What can we do? 1. Take seriously the innovation challenge

- We need to strengthen the research infrastructure. This would allow:
  - *Stronger cooperation with the business sector*
  - *Stronger integration with international research and innovation centers*
  - *Higher capacity to tap European resources channeled toward innovation*

  We pay more than we get back, largely for the small size of the research sector; see ANVUR, *Rapporto sullo stato del Sistema universitario e della ricerca*, 2018

- **A role for industrial policies.** *They should have the clear goal to increase innovation capability (not overstretched)*

- **A strong research infrastructure could increase the country attractiveness for foreign direct investment  => new technologies and better managerial practices.** *The pharmaceutical sector example*
What can we do? 2. Relaunch investment to improve infrastructures and support innovative technologies

Public investments collapsed, but investing more is not enough: quality is as important as quantity

What can we do? 2. Relaunch investment to improve infrastructures and support innovative technologies

Incentives should remain focused on innovation:

**Instruments recently introduced:**
- Start up Act: for innovative start up firms
- Tax credit on R&D
- Patent box
- Industry 4.0/Firm 4.0
  - Super-depreciation to support capital goods investment
  - Hyper-amortization to support 4.0 technology adoption
  - Focus on competence and training
  - Technological infrastructures: broadband
  - Financing of innovation and technology adoption

**An assessment:**
- Coherent design in line with best international practices
- It appropriately covers the entire innovation chain: from start up to multinational firms
- But too much uncertainty on rules and generosity of incentives
What can we do? 2. Relaunch investment to improve infrastructures and support innovative technologies

- **Super and hyper-depreciation schemes are considered to be important by firms, especially medium-large and in the Center-North.**

- **Our estimations based on econometric model:** all the investment subsidies available btw 2016 and 2018 increased firms investments (other than construction) by 3.5 percentage points.

- **Our calculations based on Bank of Italy’s Survey of Industrial and Service firms:** tax incentives for R&D have been effective in stimulating R&D investment and TFP growth.
What to do? 3. Small is not beautiful for innovation. Remove incentives (regulation and taxation) to remain small


- High tax rates associated with high tolerance for tax evasion explains cross country differences in self-employment rates
- This is reinforced by regulation aimed at protecting small business (retail trade, professions)

*Bobbio, E. (2016), Tax evasion, firm dynamics and growth, Bank of Italy, Occasional papers, no. 357:*

- Small innovative firms invest less in innovation to avoid (shadow) cost of tax regularization (within firm effect #1)...
- ...the cost advantage for some firms from tax evasion generates unfair competition: expected value of innovation is reduced, so that even regular firms optimally choose to innovate less (within firm effect #2)
- Thus selection of firms in the market is hampered
- Equilibrium: economy with many small, low productive and low innovative firms, with high scope for tax evasion
- Model calibrated on Italian data for 1995-2006: shutting down tax evasion increase long-run growth rate from 0.9 to 1.1%; also higher share of innovative firms and higher propensity to innovate
What to do? 3. Small is not beautiful for innovation. Remove incentives (regulation and taxation) to remain small

- Fighting tax evasion and the underground economy have to be part of a strategy for innovation and efficient resource allocation.

- An inclusive labour market regulation should provide incentives to hire on regular and permanent basis, and should be accompanied by low tolerance for illegal practices:
  - firms that survive thanks to undeclared work cannot be innovative firms.

- Special tax regimes for small firms and self-employed workers are clearly at odds with the aim of increasing productivity and innovation.
Conclusions

- Italy shows clear long run structural problems and suffered disproportionately from the sovereign debt crisis, which prompted a huge drop in capital accumulation, reinforcing previous negative trends.

- However:
  - there are clear improvements in the tradable sector. The overall performance of Manufacturing and export is reassuring.
  - Italy has got a good and productive research system, but it is too small.

- We need to enhance these assets and to bet on innovation by conveying resources and policy efforts to strengthen innovation:
  - fill the gap on R&D and Human capital accumulation
  - relaunch investments in a selective way
  - remove incentives to remain small

This is only part of the story: Doing business regulation and Public administration efficiency have to be part of a long lasting effort to support productivity.
Thank you for your attention!

Some general references:

• Brandolini, Bugamelli (a cura di) 2009, *Rapporto sulle tendenze nel sistema produttivo italiano*, Questioni di economia e Finanza, Banca d’Italia

• Bugamelli, Lotti (a cura di) 2018, *La crescita della produttività in Italia: la storia di un cambiamento al rallentatore*, Questioni di economia e finanza, Banca d’Italia

• Sestito, Torrini 2019, *Molto rumore per nulla*, Amazon ebook

roberto.torrini@bancaditalia.it