Italy

Italy has continued the structural reforms and fiscal consolidation undertaken since 2011 to put the economy on a sustainable growth path based on sound macroeconomic fundamentals. Labour productivity has stagnated in Italy since 2005. The economic recovery will depend notably on the effectiveness of public initiatives to stimulate productivity and private demand and to facilitate the availability of bank credit.

The government's decree law Sblocca Italia (September 2014) introduced a series of provisions aimed at supporting the national productive sector and boosting competitiveness. The major actions funded through the decree law include: 1) strategic infrastructures, railway and highway networks; 2) new social security benefits/provisions; 3) the internationalisation of enterprises; 4) interventions against hydrogeological instability and for enhancing water infrastructures; 5) a more efficient exploitation of national oil and gas resources; 6) the renovation of buildings; and 7) energy recovery from waste.

Top STI policy priorities also include an increase in public investment, the relaunch of the industrial system, reducing unemployment, and reform of education and research.

Hot Issues: Improving coordination and participatory governance

Governance of research and innovation (R&I) policy in Italy is the responsibility of the Ministry for Education, University and Research (MIUR), together with the Ministry for Economic Development (MISE) and the Agency for Digital Italy, under the Presidency of the Council of Ministers. However, within the framework of the concurrency principle, the regions can intervene in STI governance and develop their own initiatives. National Technological Clusters have been established as platforms of soft governance aimed at achieving public-public coordination (state, regions and local administrations) and public-private objectives. They are in charge of redefining research strategies and technology roadmaps shared on a national level. The MIUR issued a provision to assign USD 359 million PPP (EUR 266 million) to 30 projects for the development and enhancement of eight National Technological Clusters. The objective is to build large aggregates of competences on a national scale that are consistent with the priorities of EU's framework programme Horizon 2020. To achieve this objective, a permanent coordination table has been established in 2015 comprising all clusters and the MIUR and MISE. To align the national R&I priorities with Horizon 2020, the document Horizon 2020 Italy (HIT2020) was published in March 2013. The document is addressed to all Italian R&I stakeholders and provides guidelines on the national assets to be exploited, the priority research areas for investment and the strategic partnerships needed to promote international cooperation on R&I. Finally, a major reform of Italy's public administration was approved in 2014, eliminating delays in procedures between government agencies so as to make public procurement more efficient. As part of this reform, MIUR was reorganised to improve institutional capacity.

Improving the framework conditions for innovation (including competitiveness)

In the framework of the European Digital Agenda, Italy has developed a national strategy for fostering its digital culture and economy. The aforementioned Agency for Digital Italy (Agenzia per l'Italia Digitale) was established in March 2012, and the Council of Ministers launched the Digital Growth Strategy (Strategia per la crescita digitale 2014-20) to make ultra-broadband subscriptions more attractive. Particular emphasis has been placed on the next Italia Log In platform. This tool will group all public administration services for citizens and enterprises in a "one-stop shop", and will be open for contributions from all the public administration agencies.

Supporting R&D and innovation in firms

While business enterprise R&D expenditure (BERD) as a share of GDP is quite low, innovation

outputs in terms of international patenting and trademark registration are only slightly below the OECD medians. The Italian business sector accounts for barely over half of GERD, a low share for an industrialised economy. A set of innovative firms coexists with a large majority of small and micro enterprises with low productivity. The Italian government has deployed a broad range of financial tools to support business R&D and innovation. Although the same policy emphasis is placed on every type of policy instrument, priority has recently been given to reforming the tax portfolio. The 2015 Stability Law (L190/2014) introduced a 25% tax credit, granted on incremental investments in R&I incurred by enterprises during the period 2015-19. The tax credit is increased to 50% if new investments are related to hiring highly qualified personnel. As part of the same Stability Law, the government has granted a total of USD 4.7 billion PPP (EUR 3.5 billion) in fiscal incentives to private employers who permanently hire new personnel. The Stability Law also reduces the regional tax on productive activities. Similarly, the Patent Box (Ministerial Decree of 30 July 2015) provides incentives through an optional system of taxation for income derived from the use of intellectual property, industrial patents, trademarks, designs and processes in legally protectable fields in industry, commerce and science.

Improving overall human resources and skills

Italy has one of the lowest shares of tertiary qualified adults and of technology-problem-solving skilled adults among OECD countries, and its tertiary education expenditure is also very low. The country faces a dearth of highly skilled human resources, in part because the most qualified may find better opportunities abroad. The poor correspondence between the education system and the labour market underscores a structural mismatch. To tackle this, the action plan for future youth employment, Italia 2020, aims to align higher education curricula better with the changing demands of industry and to promote technical vocational education. Furthermore, in 2015 the government approved a new set of measures aimed at modernising the national education system. As part of the Stability Law 2015, a new fund La Buona Scuola was created to invest USD 1.35 billion PPP (EUR 1 billion) in 2015 and USD 4.1 billion PPP (EUR 3 billion) in 2016 to strengthen school-work alternation and the training of school principals and to create a specific plan for teacher recruitment. In the framework of the new Partnership Agreement between Italy and the European Commission, the National Operational Programme for Schools (2014-20) funds infrastructure for education and institutional capacity with a budget of USD 4 billion PPP (EUR 3 billion). Since the university reform in 2010, significant efforts have also been made to support researchers' careers. A reform of doctoral education has focused on a stimulating research environment, collaborative doctorates and internationalisation. In 2015, the government provided USD 7 million PPP (EUR 5 million) for the continuation of the Programme for young researchers, initiating research programmes at Italian universities. The National Research Programme (NRP) (2015-20) that was launched in 2015 dedicates over 40% of its USD 3.3 billion PPP (EUR 2.5 billion) endowment to the priority of human capital, with the purpose of increasing the number of researchers and PhD graduates in Italy, as well as attracting the best talents from abroad.

Selected Highlights: New challenges

Several initiatives were launched to identify and address societal challenges related to youth unemployment and green growth between 2013 and 2015. In 2015, the youth unemployment rate reached a level of 40.3%, the third-highest rate among OECD countries. Societal challenges will be addressed by a special fund for youth employment in the green-economy sector and the National Energy Strategy to 2020. Job creation will be stimulated by the aforementioned NRP 2015-20, Industria 2015 and Destination Italy. The project PhD ITalents 2014-18 intends to favour the employment of highly qualified academics in fields such as agribusiness, cultural heritage, energy, health and life sciences, ICT and sustainable transport. Furthermore, the Italian government is emphasising food, water and environment policies. The Strategic Plan on Innovation and Research for the agricultural food and forestry system (2014-20) responds to the priority on rural development regulation (EU 1305/2013) and promotes knowledge transfer and innovation in agriculture and forestry in rural areas. It also deals with innovation and research in fishery and aquaculture. Moreover, transregional partnerships such as Bluemed and the Partnership for Research and Innovation in the Mediterranean Area (PRIMA) will promote research and innovation from 2017 onwards on food- and water-related issues among European countries bordering the Mediterranean

Sea.

Universities and public research

Italy's public R&D expenditure is below the OECD median, as is its research output in terms of international publications in top scientific journals. However, it has a relatively high share of top universities . In 2015, Italy approved a National Roadmap defining the country's contribution to the full implementation of the European Research Area (ERA). The Italian ERA Roadmap includes objectives, actions and targets. The same year, the new multiannual NRP 2015-20 set out objectives and modes of implementation for all public research activities in Italy. Currently, MIUR plans to invest about USD 3.3 billion PPP (EUR 2.5 billion) by 2020, along six axes: i) internationalisation, ii) human capital, iii) research infrastructure, iv) public-private partnerships, v) southern Italy and vi) the efficiency and quality of expenditure. Major efforts have also been made under the Cohesion Action Plan (CAP) 2013 to reinforce public research capacity. To continue on this path, and in line with the NRP axes, a National Plan for Research Infrastructure (2015-20) has been developed that aims at defining a national roadmap and prioritising public investment on research infrastructure, in compliance with the ESFRI Roadmap criteria. To improve bottom-up interdisciplinary research in the public sector, USD 135 million PPP (EUR 100 million) has been allocated for 2016 under the PRIN2015 scheme, which is intended to be re-iterated annually. Furthermore, in 2014 a new legislation and policy guidance initiative was adopted to incentivise open access compliant practices (the open access "golden rule") in scientific research.

Innovation in firms

Italy's position on the Ease of entrepreneurship index is near the top of the OECD ranking. While young firms are reasonably active in patenting, venture capital is still in severely short supply, which hinders the commercialisation of innovative ideas. On this account, Italy introduced a new venture capital fund in 2015 to boost the development of innovative start-ups und SMEs. Italy Venture I is endowed with USD 67 million PPP (EUR 50 million) and will invest in sectors such as biotech, green technologies, health, ICT, the Internet and mechatronics. Destination Italy, initialised in 2013, also includes several measures to facilitate access by small and micro enterprises to bank credit and equity financing, to support their internationalisation and to encourage venture capital investment.

ICT and Internet infrastructures

While Italy's wireless subscription rate is close to the OECD median, overall ICT investment is significantly below the median. Several recent initiatives highlight ICT investment and digitalisation, partially revising and adjusting already existing initiatives. In the framework of the European Digital Agenda, Italy has revised its national strategy for fostering the digital culture and economy (Italian Digital Agenda). In this context, the Council of Ministers approved the National Ultra-broadband Strategy (Strategia italiana per la banda ultralarga) in 2015, committing USD 8.1 billion PPP (EUR 6 billion) to investment in ultra-broadband networks. The strategy's former objective of supplying 100% of the population with 100 Mbps internet connections by 2020 has been adjusted downward to 85%. The programme will have equal funding through the Juncker Plan and is expected to attract private investment for an amount equal to USD 5.4 billion PPP (EUR 4 billion).

Technology transfers and commercialisation

Industry-science linkages are poorly developed in Italy. The share of public research institutions (PRIs) and universities patenting their research results has recently increased and is now slightly above the OECD median. Brevetti +2 provides patent holders from university spin-offs and start-ups with funding of up to USD 189 000 PPP (EUR 140 000) to commercialise their products. Various fiscal incentives are now in place to encourage the private sector to participate in funding public research. One example is a tax exemption for amounts related to investments in joint programmes with universities or PRIs. Intersectoral mobility is also a key channel for knowledge transfer. The 2014 Financial Law includes a commitment to encourage the inter-institutional mobility of Italian researchers, and the MIUR has recently adopted measures to encourage the mobility of researchers between universities and PRIs.

Clusters and regional policies

Business innovation performance varies across regions, and much R&D and innovation capacity is concentrated in Italy's northern and central regions. Focussing on the potential of southern Italy is one of the six pillars of the NRP 2015-20. In 2012, the MIUR launched a national call for the creation and strengthening of technological clusters, and in 2013 it allocated new resources under the Cohesion Action Plan (CAP) to strengthen public research infrastructures particularly in southern regions. A project to support regional governments in designing and implementing their smart specialisation strategies was also launched in 2013. The NRP 2015-20 identifies 12 special research fields corresponding to the 12 technological clusters.

Globalisation

Italy is weakly integrated into international knowledge networks, as is reflected in its poor performance in international co-authorship and co-patenting. International agreements are the most important instruments within the Strategy for the Internationalisation of Italian Research. Over 2014-16, Italy has reinforced its network of bilateral and multilateral agreements for scientific and technological co operation with partner countries, covering almost all European and a growing number of non-European countries. Executive intergovernmental Protocols for S&T bilateral cooperation came into force or have been renewed with Serbia, Algeria, the People's Republic of China and the Republic of Korea. Strengthening the internationalisation of Italian universities, PRIs and businesses is also an aim of Destination Italy. Since 2013, the ITA-Italian Trade Agency, which replaced the former Institute for Foreign Trade, has been supporting the internationalisation of Italian firms. In 2015, the MISE committed funding (Decree of 1 July) to consortia for internationalisation to support SMEs in foreign markets and promote the international spread of their products and services. In addition, people's international mobility is actively encouraged. The government launched an internship programme in cooperation with Italian diplomatic representations abroad to promote international experience for Italian students. Visa application procedures have been simplified and new amendments introduced in the Immigration Act so as to attract a broad range of skills, i.e. investors, students, researchers and the highly skilled. The MIUR has also introduced measures to attract researchers from abroad.

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BERD: http://innovationpolicyplatform.org/STICharting/BERD.htm?iso=IT [2]
IPM: http://innovationpolicyplatform.org/STICharting/IPM_FUND.htm?iso=IT [3]
RTA: http://innovationpolicyplatform.org/STICharting/RTA.htm?iso=IT [4]
Other STI Outlook Resources: e-Outlook Homepage [5]
STIO Highlights [6]
Printable Italy 2016 Country Profile [7]
STIO Country Profiles Reader's Guide [8]
Methodological Annex to the 2016 OECD STIO Country Profiles [9]
Prior STIO Country Profiles: 2014 [10]

Links
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[9] http://www.oecd-ilibrary.org/science-and-technology/oecd-science-technology-and-innovation-outlook-2016/methodological-annex-to-the-2016-oecd-sti-outlook-country-profiles_sti_in_outlook-2016-95-en
[10] https://innovationpolicyplatform.org/system/files/sti-outlook-2014-italy.pdf