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Researchers' Report 2013

Country Profile: Italy



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1. Key data

National R&D intensity target

“The Italian national R&D intensity target will be achieved if the current trend continues, but the target is not very ambitious. Italy set an R&D intensity target of 1.53% in the context of the Europe 2020 strategy, well below the current EU average, thus running the risk of the country falling far behind a moving technology frontier in some sectors of its economy. Over the 2000-2011 period, R&D intensity in Italy increased by an average of 1.69% annually, passing from 1.04% in 2000 to 1.25% in 2010. Both public sector and private sector expenditure on R&D have grown during the period, but at modest rates. The difference between Italy's R&D intensity and the EU average is mainly due to lower industrial R&D. In 2011 business R&D intensity in Italy was 0.68% compared to an EU average of 1.26%. Public sector R&D intensity is also lower than the EU average (0.53% for Italy compared to an EU average of 0.74% in 2011).

Public funding for R&D as a percentage of GDP has been decreasing over the last eight years, after a period between 2000 and 2004 in which a substantial increase was registered. The need to reduce the public deficit has imposed budgetary constraints. The trend shows also a decreasing public R&D budget in 2011 and 2012. Likewise, Italy has one of the lowest levels of public expenditure on education as a % of GDP in the EU (4.7% in 2009). In addition, Italy faces the problem of very low business investment in R&D. The low level of business R&D intensity is partly linked to the structural composition of the economy which has a low share of high-tech industries in total manufacturing, and partly the result of low R&D investment by Italian firms. The small size of Italian firms, 95% of which are small or micro enterprises, aggravates this situation. There is also a low presence of foreign-owned firms which has remained unchanged over the period 2001-2008.

Italian R&D performers have received almost EUR 2.2 billion in EC contributions under the 7th Framework Programme (8.27% of the total EC contributions). Italy counts three universities (Bologna, Milan and Rome) among the top 50 participant HES organisations in FP7 and two research institutes among the top 20 participant REO organisations. For the ERDF programming period 2007-2013, Italy has been allocated a total of EUR 27 billion for research, innovation, support for SMEs, information technologies and other measures to stimulate innovation and entrepreneurship. These funds will be crucial for the development and catching up of some of the regions. However, by January 2012 only 34% of the available structural funds for research and innovation related themes had been allocated.”¹

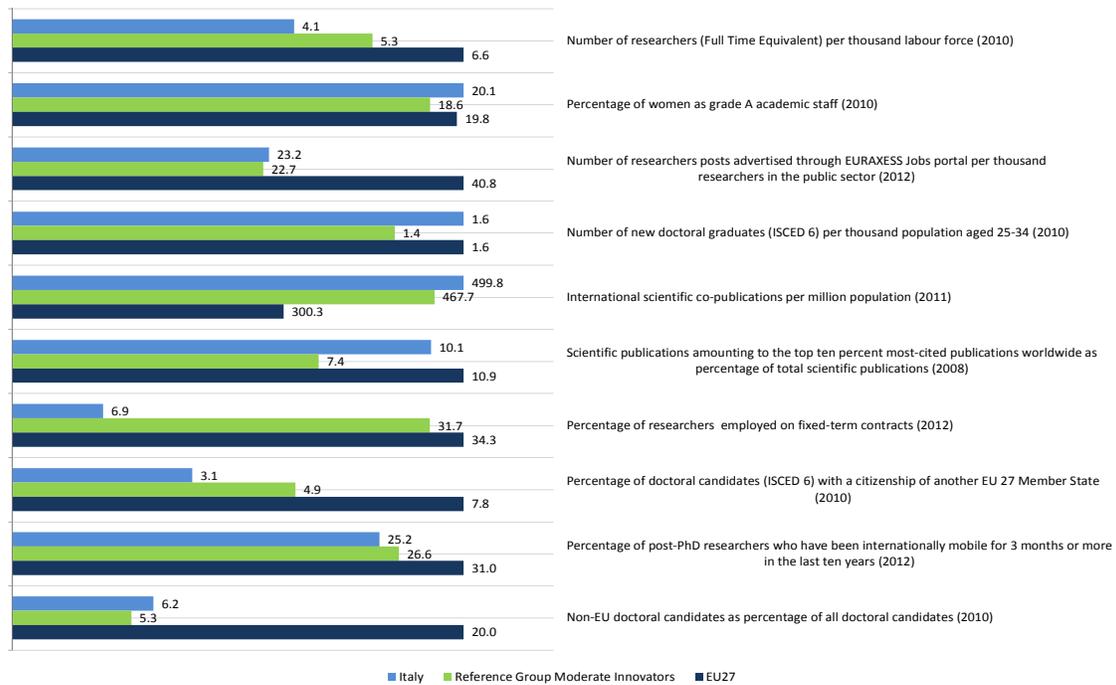
Key indicators measuring the country's research performance

The figure below presents key indicators measuring Italy's performance on aspects of an open labour market for researchers against a reference group and the EU-27 average².

¹ European Commission (2013), “Research and Innovation performance in EU Member States and Associated countries. Innovation Union progress at country level 2013”

² The values refer to 2012 or the latest year available.

Figure 1: Key indicators – Italy



Source: Deloitte

Data: Eurostat, SHE Figures, EURAXESS Jobs Portal, UNESCO OECD Eurostat education survey, Innovation Union Scoreboard 2013, MORE2

Notes: Based on their average innovation performance across 25 indicators, Czech Republic, Greece, Hungary, Italy, Lithuania, Malta, Portugal, Slovakia and Spain show a performance below that of the EU-27. These countries are the Moderate innovators³.

Stock of researchers

The table below presents the stock of researchers by Head Count (HC) and Full Time Equivalent (FTE) and in relation to the active labour force.

Table 1: Human resources – Stock of researchers

Indicator	Italy	EU Average/Total
Head Count per 1 000 active labour force (2010)	6.0	10.17
Head Count (2010)	149 807	2 435 487
FTE per 1 000 active labour force (2010)	4.14	6.64
Full time equivalent (FTE) (2010)	103 424	1 589 140

Source: Deloitte

Data: Eurostat

2. National strategies

Italy has introduced a range of initiatives aimed at creating the conditions to train enough researchers to meet its R&D targets and at promoting attractive employment conditions in public research institutions. The table below presents key programmes and initiatives intended to implement the strategic objectives to train enough researchers to reach Italy’s R&D targets, to promote attractive working conditions, and to address gender and dual career issues.

³ European Commission (2013), “Innovation Union Scoreboard 2013”

Table 2: National strategies

Measure	Description
Law 240/2010 on the General Reform of University Education (2010)	The Law on the General Reform of University Education introduced a new procedure in relation to the research profession 'career ladder' in state-owned universities. In addition, it has set out a two-step process for researchers' careers ⁴ . Its Articles cover several relevant topics, e.g. researcher statutes, industry-academia partnerships, etc. Gender equality provisions are limited to a generic 'declaration of intent'.
Law 238/2010: Tax incentives for the return of workers to Italy (2010)	The Law offers fiscal incentives to EU citizens who are holders of a university degree or an advanced tertiary degree. The beneficiaries need to have a work experience of at least twenty four months working out of Italy or out of their country of origin.
National Agency for the Evaluation of Universities and Research Institutes (ANVUR) (since 2012)	ANVUR, which became operational in 2012 aims to evaluate the quality of research of all Italy's public research institutions and universities. The evaluation exercise for the seven-year period 2004-2010 (known as VQR) is currently under way. In addition, the Agency has a mandate to establish a procedure for the accreditation of university teaching as well as to establish the criteria for participation in the national accreditation (<i>abilitazione</i>) university professors and researchers.
National University Science Degree Plan (2010-12)	The National University Science Degree Plan was adopted by the Ministry of Education, University and Research. It aimed to increase the number of enrolments in scientific disciplines at university level through an improved approach to teaching. The National Plan was the successor of the University Science Degrees project that started in 2004.
Resolution of 6th October 2009 (2009)	In the context of the European Partnership for Researchers, the Italian Parliament adopted a Resolution aimed at improving researchers' employment and working conditions. Law 240/2010 is partly compliant with the objectives set out in the Resolution.

Source: Deloitte

3. Women in the research profession

Measures supporting women researchers in top-level positions

In 2010, the percentage of women grade A academic staff was 20.1% in Italy compared with 18.6% among the Innovation Union reference group and the EU average of 19.8%⁵.

At policy level, there is only a Memorandum of Understanding on gender equality in the research profession between the Ministry of Education, Universities and Research and the Ministry for Equal Opportunities. The latter has also participated actively in two EU-funded projects promoting gender equality.

Table 3: Measures promoting equal representation of genders

Measure	Description
Practising Gender Equality in Science – PRA.G.E.S (2008-09)	The PRA.G.E.S project collected and described strategies which had been implemented for promoting the representation of women in decision-making bodies in Italian public institutions. Experiences, policies and good practices in all OECD countries were collected, classified and made accessible to decision-makers and other relevant stakeholders.
Women's careers hitting the target: gender management in scientific and technological research – WHIST (2009-11)	The WHIST project addressed gender diversity on the management boards of organisations conducting scientific and technological research (STR). In the framework of this project, experiences, policies and good practices on gender equality in the research sector were collected in different EU and non-EU countries. The project highlighted key problem areas to be tackled for achieving gender diversity.

Source: Deloitte

Under the auspices of the European Structural Funds, local administrations participate in so-called 'Twinning Actions' (2007-13)⁶ related to gender equality. In addition, Italian regional authorities have implemented

⁴ The two-step process for researcher careers is: (1) a three year fixed-term contract (type A contract) – with the possibility of a two-year extension, awarded via an open selection process (which must be advertised on EURAXESS Jobs), the researcher can participate in calls for a type B contract (three year fixed term, not renewable), under a public competitive process (also advertised on EURAXESS Jobs). During this triennium, the researcher can participate in a national evaluation aimed at obtaining a *habilitation* (the highest academic qualification). If the researcher is successful, the university can enrol him/her in a permanent position. A similar procedure is expected to be introduced in state-run Research Centres (e.g. CNR).

⁵ See Figure 1 "Key indicators – Italy".

⁶ Under the Education, Audiovisual and Culture Agency Executive Agency (EACEA) "Europe for Citizens" programme.

specific measures to support female students' participation in scientific programmes in Universities (mostly at bachelor level) and to support women's careers through scientific training schemes.

Quotas to ensure a representative gender balance

In Italy, only a few universities indicate that they have quotas in the composition of their internal boards. However, Law 240/2010 calls for a representative gender balance in the 'Board of trustees' of research institutions.

Maternity leave

Researchers may be entitled to maternity leave, depending on the type of contract with the host institution. Maternity leave is generally provided for in temporary contracts in accordance with the conditions defined by national laws and regulations. Since 2011, the Government Act, which sets the annual amount of financial resources allocated to the state-owned universities, has also included a specific budget of EUR 3.5 million to guarantee the salary of postdoc women researchers who interrupt their contract during maternity leave. Research institutions enjoy the right autonomously to provide additional benefits to women researchers.

4. Open, transparent and merit-based recruitment

Recruitment system

Law 240/2010 promotes an open and transparent recruitment system.

Although the level of openness and transparency is not yet fully in line with the principles of the 'Charter & Code', the process is under way and this has been proved by the increasing number of institutions interested in joining the Human Resources Strategy for Researchers process. In addition, universities and public research organisations are requested to publish their research grant offers on the EURAXESS portal.

Open recruitment in institutions

The table below presents information on open recruitment in higher education and public research institutions.

Table 4: Open recruitment in higher education and public research institutions

Do institutions in the country currently have policies to ...?	Yes/No	Description
– publish job vacancies on relevant national online platforms	Yes	Law 240/2010 states that all (fixed-term) positions should be made publicly available on the national and EU websites. Even before adoption of this law, some Italian universities and research institutions were publishing their vacancies on the EURAXESS Jobs section on a voluntary basis.
– publish job vacancies on relevant Europe-wide online platforms (e.g. EURAXESS)	Yes	Law 240/2010 states that all positions should be made publicly available on national and EU websites. Other positions are published on the EURAXESS Jobs section by all research institutions on a voluntary basis.
– publish job vacancies in English	Yes	
– systematically establish selection panels	Yes	Institutions have policies systematically to establish selection panels.
– establish clear rules for the composition of selection panels (e.g. number and role of members, inclusion of foreign experts, gender balance, etc.)	Partly	The number and role of selection panel members is established by law. Inclusion of foreign experts is recommended by law 240/10, but it is not mandatory. A foreign member is always included on panels for awarding national accreditation for professors. There are no provisions for gender balance.
– publish the composition of a selection panel (obliging the recruiting institution)	Yes	Institutions must (by law) publish the composition of the selection panels.
– publish the selection criteria together with job advert	Partly	The selection criteria are published together with the job advert..
– regulate a minimum time period between vacancy publication and the	No	Some institutions have adopted the 60-day rule defined by the 'Charter & Code' on an autonomous and

Do institutions in the country currently have policies to ...?	Yes/No	Description
deadline for applying		voluntary basis.
– place the burden of proof on the employer to prove that the recruitment procedure was open and transparent	No	The burden of proof is placed on the applicant who has to prove, by a redress procedure, that the procedure was neither open nor transparent
– offer applicants the right to receive adequate feedback	Yes	All relevant documents are accessible to the applicants, on request
– offer applicants the right to appeal	Yes	Institutions offer applicants the right to appeal.

Source: Deloitte

EURAXESS Services Network

In 2012, the number of researcher posts advertised through the EURAXESS Jobs portal per thousand researchers in the public sector was 23.2 in Italy compared with 22.7 among the Innovation Union reference group and an EU average of 40.8⁷.

Research grants from public research organisations and universities are regularly posted on the EURAXESS jobs portal. Law 240/2010 requires all (fixed-term) positions should be published on national and EU websites. The new Act on Doctoral Training (published on February 8, 2013) explicitly mentions publication of doctoral training calls on the EURAXESS portal.

EURAXESS Italy provides information on entry conditions, transfer of social security and pension contributions, accommodation and administrative assistance, etc.

5. Education and training

Measures to attract and train people to become researchers

The Italian Government has implemented a set of initiatives aimed at increasing students' interest in (natural) science and technology with the ultimate aim of attracting them to become researchers.

For instance, the annual Week of Scientific Culture and the organisation of similar events by Italian institutions during the European Union's 'Researchers' Night' aim to make young people more familiar with and attract them to science. Additionally, most Italian universities and research centres meet regularly with primary and secondary education authorities to promote the research profession.

The National Plan for University Science Degrees introduced an improved approach to teaching to increase of the number of enrolments in scientific disciplines at university level. As a result, the number of enrolments in science and technology-related disciplines has increased in recent years by approximately 20% on average (taking the year 2008 as baseline).

Doctoral graduates by gender

The table below shows doctoral graduates in Italy by gender as a ratio of the total population cohort.

Table 5: Doctoral graduates by gender

Indicator	Italy	EU average (2008)
New doctoral graduates (ISCED 6) per 1 000 population aged 25-34 (total) (2008)⁸	1.6	1.6
Female Graduates (ISCED 6) per 1 000 of the female population aged 25-34 (2008)	1.6	1.5
Male Graduates (ISCED 6) per 1 000 of the male population aged 25-34 (2008)	1.5	1.7

Source: Deloitte

Data: Eurostat

Funding of doctoral candidates

In Italy, doctoral candidates are not always supported by fellowships. In 2008, approximately 60% of some 37 000 PhD students received a fellowship. Until recently, the Government promoted various funding schemes on specific or general topics and subject to specific conditions.

⁷ See Figure 1 "Key indicators – Italy".

⁸ More recent data are not available.

As a result of the current economic and financial crisis and accompanying austerity measures, the Ministry of Education, University and Research has put many funding schemes on hold. Consequently, some Italian Universities have introduced internal rules to co-fund doctoral studies with financial resources based on their research grants.

Measures to increase the quality of doctoral training

The new Act on Doctoral Training (2013) includes measures aimed at increasing the quality of doctoral training, and encourages academia-industry collaboration, but it does not fully cover the “Principles for Innovative Doctoral Training”.

Doctoral Programmes are assessed and evaluated at national level by the Ministry of Education, University and Research, on the basis of an evaluation performed by the National Agency for the Evaluation of Universities and Research Institutes (ANVUR).

Skills agenda for researchers

The Italian Government has not adopted a Skills’ Agenda to improve researchers’ employment skills and competencies. However, higher education institutions are increasingly providing a variety of training and several skills portfolios on an autonomous basis.

6. Working conditions

Measures to improve researchers’ funding opportunities

The ratio of R&D investment to GDP is lower than the average in other countries. The Italian government has introduced fiscal incentives for the private sector to invest in R&D development. A private company is able to fund doctoral study only on the basis of an agreement with a university.

Remuneration

Under Law 240/2010, researchers’ pay no longer increases automatically with age, but is results-related: young researchers receive regular pay increases irrespective of age, but in general the remuneration of active researchers will increase based on their effectiveness and research activity.

For further information, see the new country profile on remuneration of researchers from the MORE2 study (forthcoming, on the EURAXESS website).

Researchers’ Statute

Researchers (including doctoral candidates not receiving fellowships/stipends/grants) are eligible for social security coverage. Law 240/2010 on the General Reform of University Education ‘discourages’ exploitation of researchers and doctoral candidates. Once employed under a fixed-term contract, researchers are supposed to receive a fixed salary.

Italian universities and state-run research centres (e.g. the National Research Council - CNR) statutorily enjoy a high degree of autonomy in allowing students and researchers to participate in decision-making processes.

Law 240/2010 includes a fixed 15% quota for student representation on the decision-making boards of Italian universities. However, the fixed quota does not explicitly cover ‘research fellows’; they are generally included in the quota reserved for the ‘academic staff’ on the Academic Senates.

‘European Charter for Researchers’ & the ‘Code of Conduct for the Recruitment of Researchers’

The ‘Charter & Code’ principles are referred to in several Articles of Law 240/2010. However, they are merely promoted based on an ‘encouragement to comply’ rather than a mandatory obligation.

Autonomy of institutions

Italian universities and research centres are autonomous in developing the different profiles of their academic staff. However, under Law 240/2010, institutions are in theory free to develop specific profiles for their staff – ranging from 100% teaching to 100% research, with all possible ‘mixtures’ in between. However, institutions need to take into account the restrictions established by the Law and the minimum number of annual

teaching hours for professors and maximum amount of annual teaching hours for ‘research fellows/lecturers’).

Career development

Law 240/2010 foresees a two-step process for researcher careers: (1) a three year fixed-term contract (type A contract) – with the possibility of a two-year extension, awarded via an open selection process, the researcher can participate in calls for a type B contract (three year fixed term, not renewable), under a public competitive process. During this triennium, the researcher can participate in a national evaluation aimed at obtaining *abilitazione* (accreditation - the highest academic qualification). If the researcher is successful, the university has to enrol him/her in a permanent position.

A similar procedure is expected to be introduced in state-run Research Centres (e.g. CNR).

Shift from core to project-based funding

In Italy, the shift from core to project-based research funding is still modest. Most researchers have the status of public servants and their salary is covered by core funding. Over the last three years, State ‘core’ funding could not (by law) increase or decrease by more than 5% relative to the previous year. Overall, core funding guarantees the salaries of the staff (researchers, technicians and administrators), while project-based funding covers research activities and infrastructures.

Social security benefits (sickness, unemployment, and old-age)

Researchers with publicly funded fellowships/grants or employment contracts are entitled to sickness benefits, but do not have an automatic right to maternity leave.

Old-age benefits are only foreseen for employees (permanent and fixed-term contracts), in the same way that pension contributions⁹ are collected in a separate track (*gestione separata*) of the National Social Security Institute.

7. Collaboration between academia and industry

Law 240/2010 establishes a legal framework for regulating partnerships between academia and industry. A vast majority of universities and doctoral schools offer doctoral programmes between academia and industry on the basis of a memorandum of understanding. Thanks to their autonomy, Italian universities are free to establish bilateral relations with the business sector.

Moreover, doctoral students are free to sign a high level apprenticeship contract (*contratto di alto apprendistato*) with an enterprise. Enterprises and other (private) employers can recruit a PhD student (under the age of 29) under a fixed-term contract subsidised by the local (regional) governments.

Decree 297/1999 allocates financial contributions to SMEs where a researcher from a university or a (public) research centre is employed by the company for a period of at most four years, renewable only once (eight years in total). However, this possibility has rarely been taken up; in total, there have been only a few dozen inter-sectoral mobility cases since the adoption of the decree.

The new Act on Doctoral Training promotes industry-academia doctoral programmes. Recently, several Regions have financed mixed industry-academia doctoral programmes which are conditional on the doctoral candidate’s inter-sectoral mobility.

8. Mobility and international attractiveness

In 2010, the percentage of doctoral candidates (ISCED 6) with citizenship of another EU-27 Member State was 3.1% in Italy compared with 4.9% among the Innovation Union reference group and an EU average of 7.8%¹⁰. In the same year, the percentage of non-EU doctoral candidates as a percentage of all doctoral candidates was 6.2% in Italy compared with 5.3% among the Innovation Union reference group and an EU average of 20.0%¹¹.

⁹ More information on pension schemes can be found on the EURAXESS Italy Portal.

¹⁰ See Figure 1 “Key indicators – Italy”.

¹¹ Ibid.

Nevertheless, there are a few Italian universities attracting a higher number of non-Italian students and/or doctoral candidates (even up to 30%), thanks *inter alia* to the development of teaching activities in English.

Measures aimed at attracting and retaining 'leading' national, EU and third country researchers

The *Rita Levi Montalcini* Programme is a national fellowship programme managed by the Ministry of Education, University and Research. It promotes the internationalisation of Italian universities by enabling early-stage researchers working abroad to carry out research projects at an Italian university of their choice. Its purpose is to recruit outstanding post-doctorate researchers working abroad and give them the opportunity to submit a proposal for a temporary position in conjunction with a proposal for a research grant. The total budget of the programme is EUR 6 million.

Inward mobility (funding)

Although Italy has transposed the Scientific Visa Directive 71/2005, there are still problems with practical implementation e.g. in terms of the time taken to issue it. This is sometimes incompatible with the timing of research programmes, calls for fellowships etc.

Outbound mobility

The Italian Government has not put in place concrete measures to encourage young researchers to spend some time as a researcher in another country. However, the activation of Doctoral Training Courses in IT since 1985 has opened up the opportunity for doctoral candidates to spend some time working abroad. Since then, approximately 20% of doctoral candidates have benefited from this mobility support.

A few universities have also adopted, on a voluntary basis, an internal regulation which requires that doctoral students spend at least six months outside Italy before they sit their final exam to obtain their doctoral degree. In general, the outbound/inward mobility ratio is extremely high, to an extent that it has become a worry for the Research Authorities.

Promotion of 'dual careers'

The Italian Government has no national policy to support researchers' dual careers, but some general measures are being implemented, on a voluntary basis, by a few universities (e.g. reserved places at kindergartens for researcher couples' children). Typically, higher education institutions and public research centres do not promote researchers' dual careers.

Portability of national grants

In Italy, publicly funded grants or fellowships are not portable per se but they can potentially be portable on a case-by-case basis.

Access to cross-border grants

In Italy, national grants or fellowships are open to graduate students of all nationalities. However, all non-national beneficiaries are obliged to carry out part of their project in Italy, though they do not necessarily need to become Italian residents.