

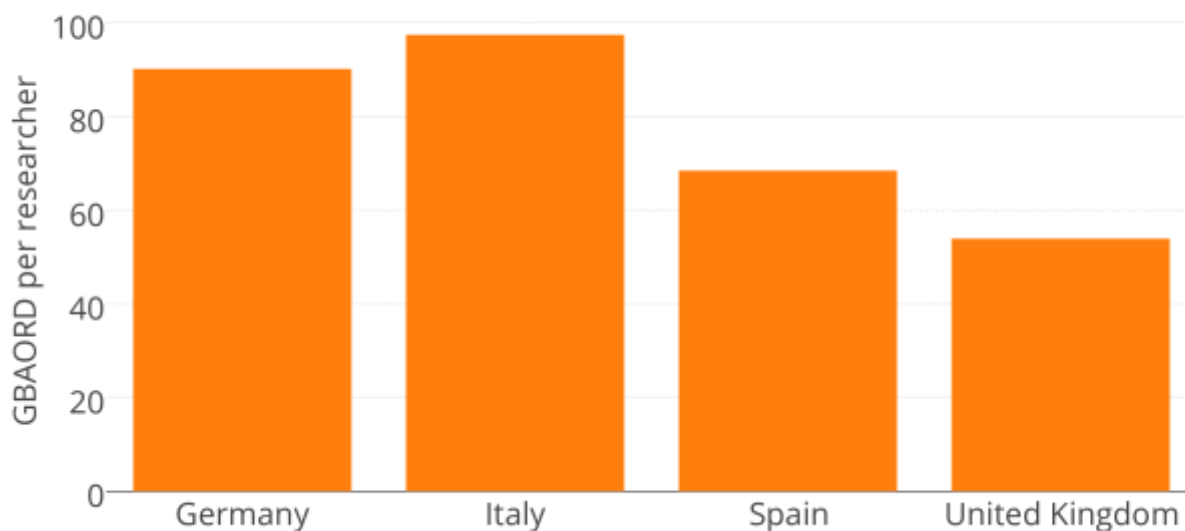
CRUDE DATA LASH

□

# Italian Researchers May Not Need More Funding, Just More Colleagues

Posted on March 7, 2016 March 7, 2016 by cdataflash

Government Budget for R&I per Researcher



*Comparing Italy and the United Kingdom is instructive to spot the most severe problems of Italy's Research and Innovation system. Despite Italy's disheartening scoring in innovation indicators (two examples [here](http://reports.weforum.org/global-competitiveness-report-2014-2015/rankings/) (<http://reports.weforum.org/global-competitiveness-report-2014-2015/rankings/>) and [here](http://www.bloomberg.com/graphics/2015-innovative-countries/) (<http://www.bloomberg.com/graphics/2015-innovative-countries/>)), on average Italian researchers seem not to lack funding. Fixing Italy's innovation performance requires much more than rising government spending.*

The United Kingdom is a top destination for the many frustrated and hopeless young Italian researchers that decide to continue their career outside their home country. The UK is one of the most dynamic and innovative economies in the world and British universities are well represented (<http://www.topuniversities.com/university-rankings/world-university-rankings/2015#sorting=rank+region=+country=+faculty=+stars=false+search=>) in the rankings of world's top 50 research institutions.

Is Research and Innovation (R&I) so much better funded in the UK than in Italy? The Organization for Economic Cooperation and Development (OECD) publishes a comprehensive set of indicators to evaluate the state of the R&I system in most industrialized countries. Let's have a look into the Main Science and Technology Indicators (<http://www.oecd.org/sti/msti.htm>) to see what really differs between Italy's and the United Kingdom's R&I. Tables 1-3 below report extracts for some selected indicators in 2013 and I add two column to include as well Germany and Spain. Germany is not only one of the global scientific powers, it

also shares similar traits with the Italian manufacturing-centred economic structure. Spain is a Mediterranean country that distinguished itself for R&D excellence despite not having the economic strength of other European partners.

| Year 2013  | Italy    | United Kingdom | Germany   | Spain    |
|--|----------|----------------|-----------|----------|
| Gross Domestic Expenditure on R&D, GERD (current PPP \$, millions) | 28128.12 | 41743.39       | 106780.75 | 19318.44 |
| GERD as a percentage of GDP (%)                                    | 1.31     | 1.66           | 2.84      | 1.26     |
| Total GBAORD (current PPP \$, millions)                            | 11319.69 | 14435.86       | 32640.11  | 8436.25  |
| GERD per capita population (current PPP \$, millions)              | 463.81   | 651.16         | 1271.89   | 414.62   |

Table 1. R&I funding indicators, year 2013 (Source: OECD).

GERD: Gross Domestic Expenditure on R&D ([definition \(http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Gross\\_domestic\\_expenditure\\_on\\_R\\_%26\\_D\\_\(GERD\)\)](http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Gross_domestic_expenditure_on_R_%26_D_(GERD)))). GBAORD:

Government budget appropriations or outlays for research and development ([definition \(http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Government\\_budget\\_appropriations\\_or\\_outlays\\_for\\_research\\_and\\_development\\_\(GBAORD\)\)](http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Government_budget_appropriations_or_outlays_for_research_and_development_(GBAORD)))).

It appears quite striking that yes, the UK invests more in R&I than Italy does, but the difference is quite small. In terms of spending per unit of Gross Domestic Product (GDP), Italy invests only 0.35 percentage points less than the UK, but less than half than Germany. Total government expenses in research can be measured by *Government budget appropriations or outlays for research and development* (GBAORD). As Table 1 shows, in Italy GBAORD are very similar to the level of public expenses in the UK (note: GBAORD are planned, not actual). Are Italian researchers just too many to share the pie?

### Government Budget for R&I per Researcher

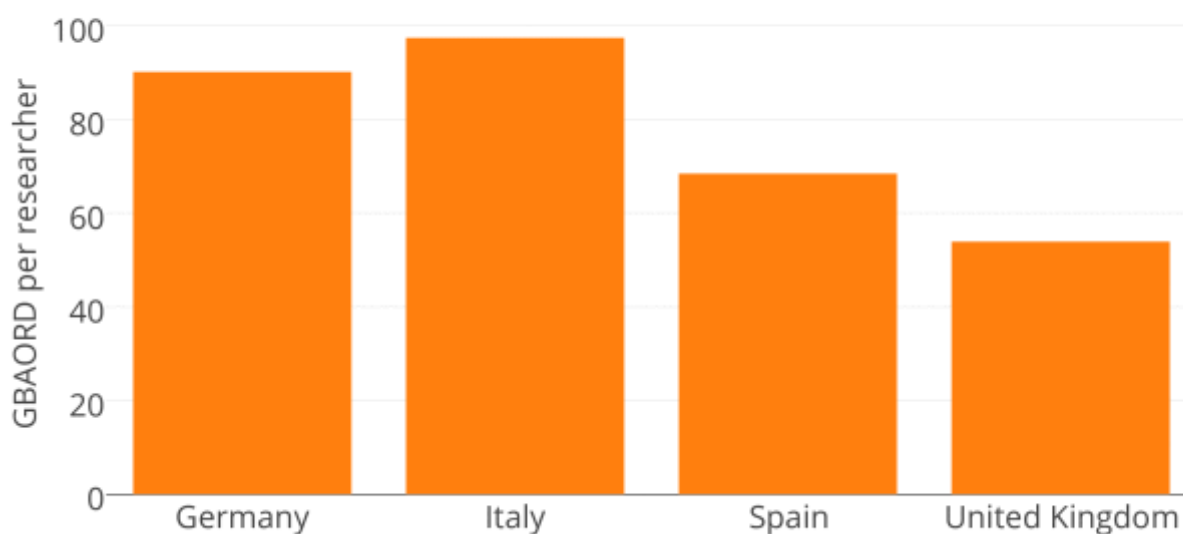


Figure 1. Government budget appropriations or outlays for R&D per full time equivalent researcher (own calculation, OECD-MSTI data)

The answer seems to be No. **According to official aggregate statistics, Italian researchers are not underfunded.** The paradox arises from looking at the amount of funding per unit (full time equivalent researcher), which is much higher in Italy than in the UK (Figure 1 and Table 2). The amount of funding that both the private and public sectors invest in research and innovation and that is available on average per one researcher is quite high in Italy, even higher than in Germany in 2013.

Yet, the situation appears not so bright for Italy once we take into account of all R&D personnel, that includes technical support as well as administrative staff (definition here (<https://stats.oecd.org/glossary/detail.asp?ID=2313>)). Data suggest that the Italian R&I system is highly bureaucratic. Researchers in Italy are only 47% of R&D personnel (Table 3), whereas in the UK the share of scientists on all people involved was 70% in 2013. The percentage is also low compared to Germany (61%) and Spain (61%).

| Year 2013                                  | Italy | United Kingdom | Germany | Spain |
|--|-------|----------------|---------|-------|
| GERD per researcher (thousand \$/FTE)      | 242   | 156            | 289     | 157   |
| GERD per R&D personnel (thousand \$/FTE)   | 114   | 111            | 175     | 95    |
| GBAORD per researcher (thousand \$/FTE)    | 97.5  | 54             | 90.2    | 68.5  |
| GBAORD per R&D personnel (thousand \$/FTE) | 45.9  | 38.3           | 54.3    | 41.5  |

Table 2. Other selected indicators of R&I strenght (Own calculation from OECD data). FTE: Full Time Equivalent.

By looking at a wider set of statistics (Table 3), we might get a better idea of which is the most serious problem of the Italian R&D system. **Researchers in Italy need more colleagues than more funding.** The total number of researchers in Italy is only 4.78% of all people employed in the economy, that is nearly half of in the UK and in Germany, and still much lower than in Spain. **Is this the result of austerity and spending cuts? Well, no.**

| Year 2013   | Italy    | United Kingdom | Germany   | Spain     |
|---|----------|----------------|-----------|-----------|
| Total Researchers (Full Time Equivalent)                          | 116163.3 | 267698.5       | 359640    | 123224.69 |
| Total R&D personnel (Full Time Equivalent)                        | 246764   | 377342.9       | 588615.03 | 203302.03 |
| Total researchers per thousand total employment                   | 4.78     | 8.91           | 8.37      | 6.92      |
| Business Enterprise researchers as a percentage of national total | 37.12    | 36.78          | 56.85     | 36.29     |

Table 3. Employment in the R&I sector (OECD, MSTI data)

Figure 2 clearly indicates that the number of researchers in Italy has grown by 80% over the period 2000-2013. The statistic sums up all researchers in the public and private sector and it shows no sign of slowdown during the last recession after 2008. Despite this trend, the Italian R&I sector remains understaffed and the reason for this is absolutely not clear.

Why are hordes of young Italian researchers fleeing from a system that still provides a good level of funding compared to the UK, one of the countries where they are heading to?

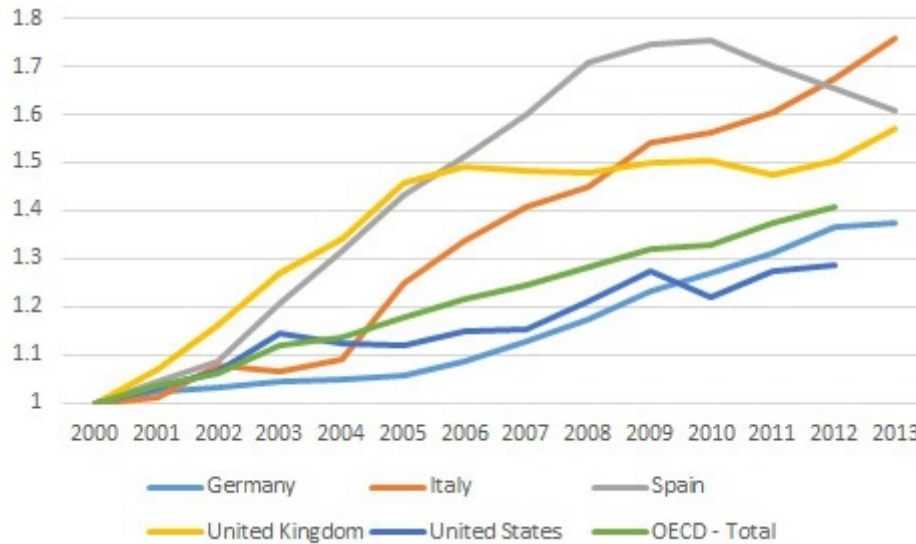


Figure 2. Growth in number of total researchers (FTE), index 2000 = 1. (OECD-MSTI data)

The MSTI has more disaggregated information, but I avoid to break data into different sectors (High Education, Business, Government, Non-profit). Comparing countries with statistics is always a slippery ground because differences may be due to accounting methods rather than reality. The OECD dataset is highly harmonized but, for instance, it does not allow to make precise statements in diversity with respect to resources allocated to the High Education and Government sectors because, as the documentation explains, government-sponsored National Research Centres are not included in the same sector in all countries. That is why I keep using aggregates. Italy seems to have a much lower funding directed to Universities compared to the UK, but this might be just due to a different statistical classification.

What we get from this pieces of evidence is the **paradox** of a country that experiences a massive brain drain in the research sector (there is an in-depth analysis on the topic in the latest European Commission's Country Report ([http://ec.europa.eu/europe2020/pdf/csr2016/cr2016\\_italy\\_en.pdf](http://ec.europa.eu/europe2020/pdf/csr2016/cr2016_italy_en.pdf)), page 41) but does not perform badly in terms of funding per researcher. The data shown here do not explain much, but they give an important hint: **in Italy investing more money in R&I is not a sufficient condition for improving the country's innovation performance.**

My take is that money does not attract researchers because of the unappealing institutional framework (that includes the business environment). Research activities in Italy are like oasis in the desert. **The country must invest on a lot of complementary factors**, as human capital and scientific culture, as well as finally making the university system more meritocratic, before thinking about spending more money on research. Data on Venture Capital funding in Italy is horrific. If you have a look at chapters 4-7 of the pocketbook "Science, Technology and Innovation in Europe" (<http://ec.europa.eu/eurostat/documents/3930297/5969406/KS-GN-13-001-EN.PDF>), you can get a better idea of what I am talking about. In Italy more than in all other industrialized countries, investing in teachers and training is the prerequisite for investing in more researchers.

**Note:** OECD data for Italy are provided by ISTAT and the original dataset can be found here (<http://www.istat.it/it/archivio/175999>). By contacting ISTAT, the institute confirmed that "Assegnisti di Ricerca" are included in the calculation of Total Researchers.

Posted in [Economic view: the world out there](#) [1 Comment](#)

# One thought on “Italian Researchers May Not Need More Funding, Just More Colleagues”

1. Pingback: [Researchers in Italy May Not Need More Funding, Just More Colleagues | crude data lash](#)

[Create a free website or blog at WordPress.com.](#)