

National Survey of Research and Experimental Development (2012/13) RESULTS

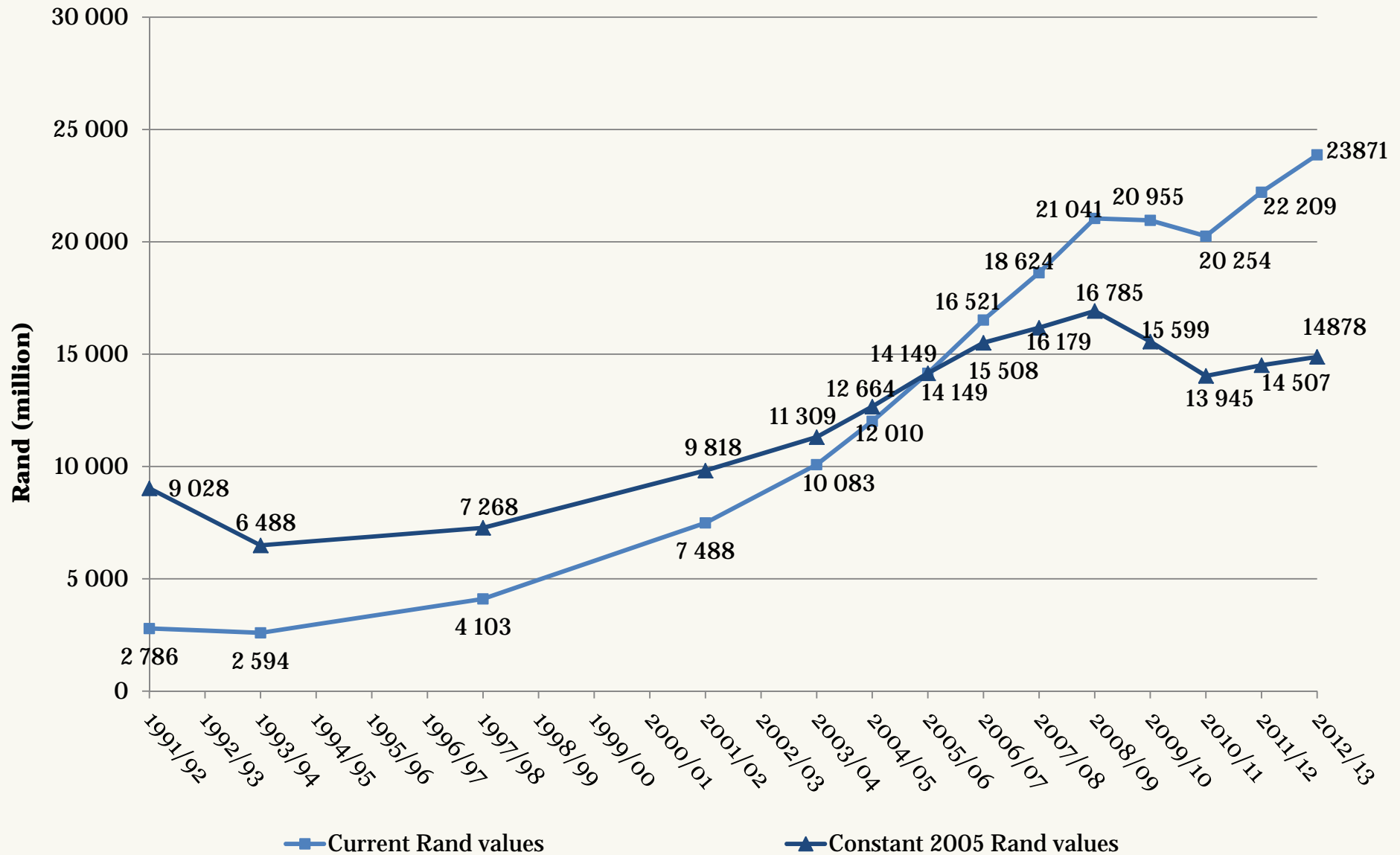
03 NOVEMBER 2014

Centre for Science, Technology &
Innovation Indicators (CeSTII)

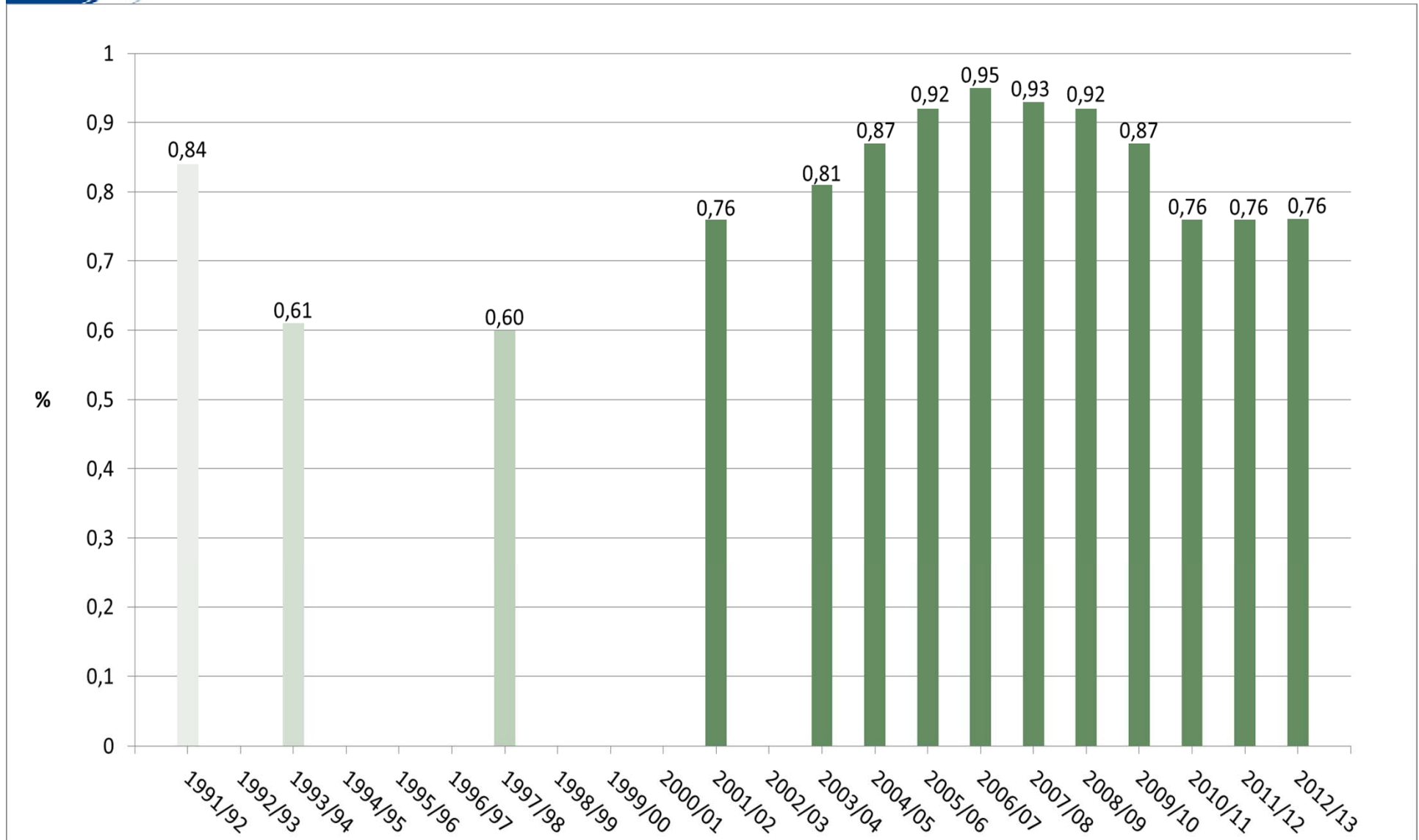
OUTLINE

- Key Results
 - Overall expenditure
 - R&D as a proportion of GDP
 - Performers of R&D
 - Funders of R&D
 - Economic Sectors within business R&D
 - Type of R&D activity
 - R&D headcounts
- National and Global Context
- Policy implications

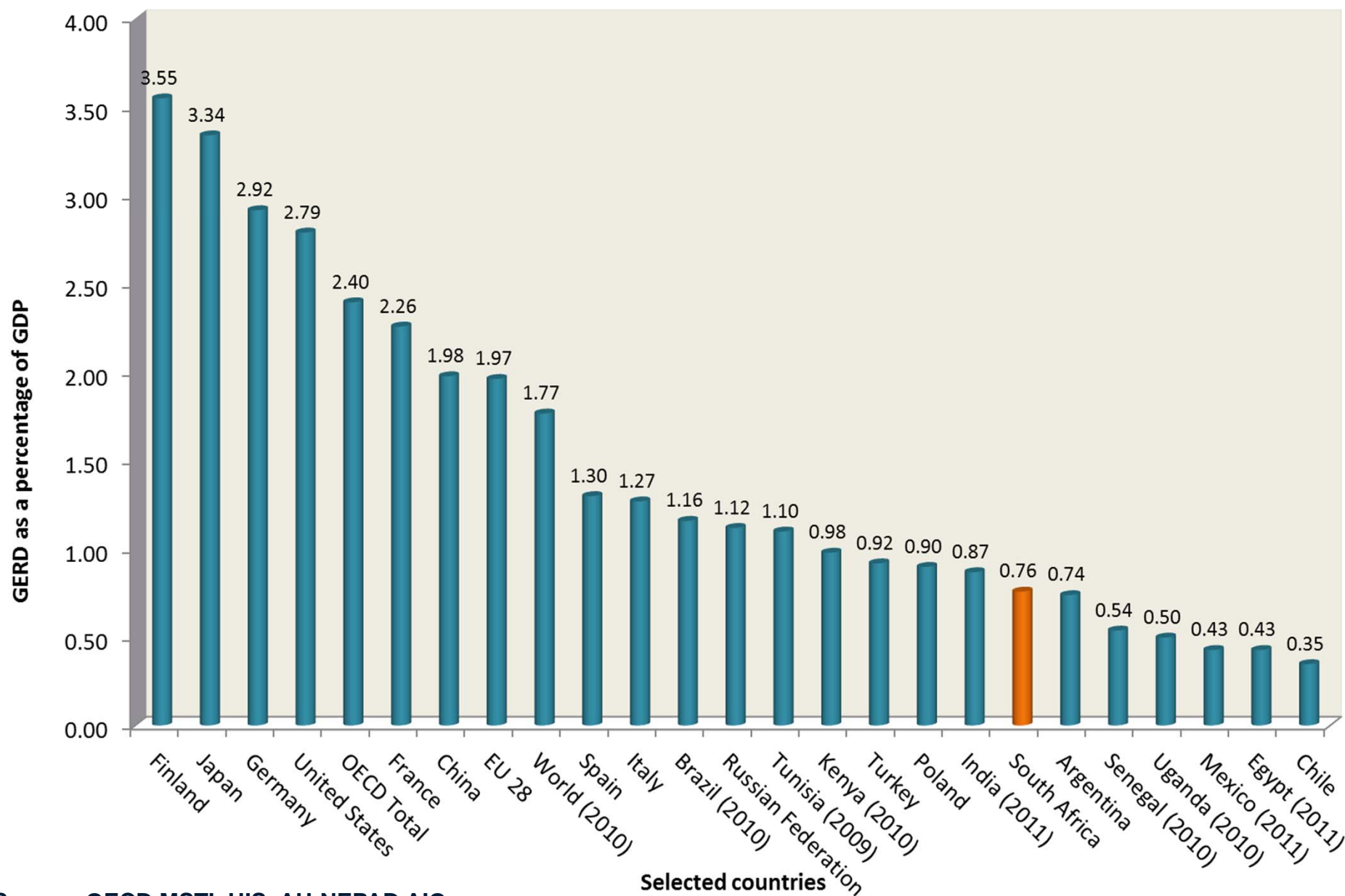
GERD, 1991/92 to 2012/13



GERD/GDP ratio (1991/92 to 2012/13)

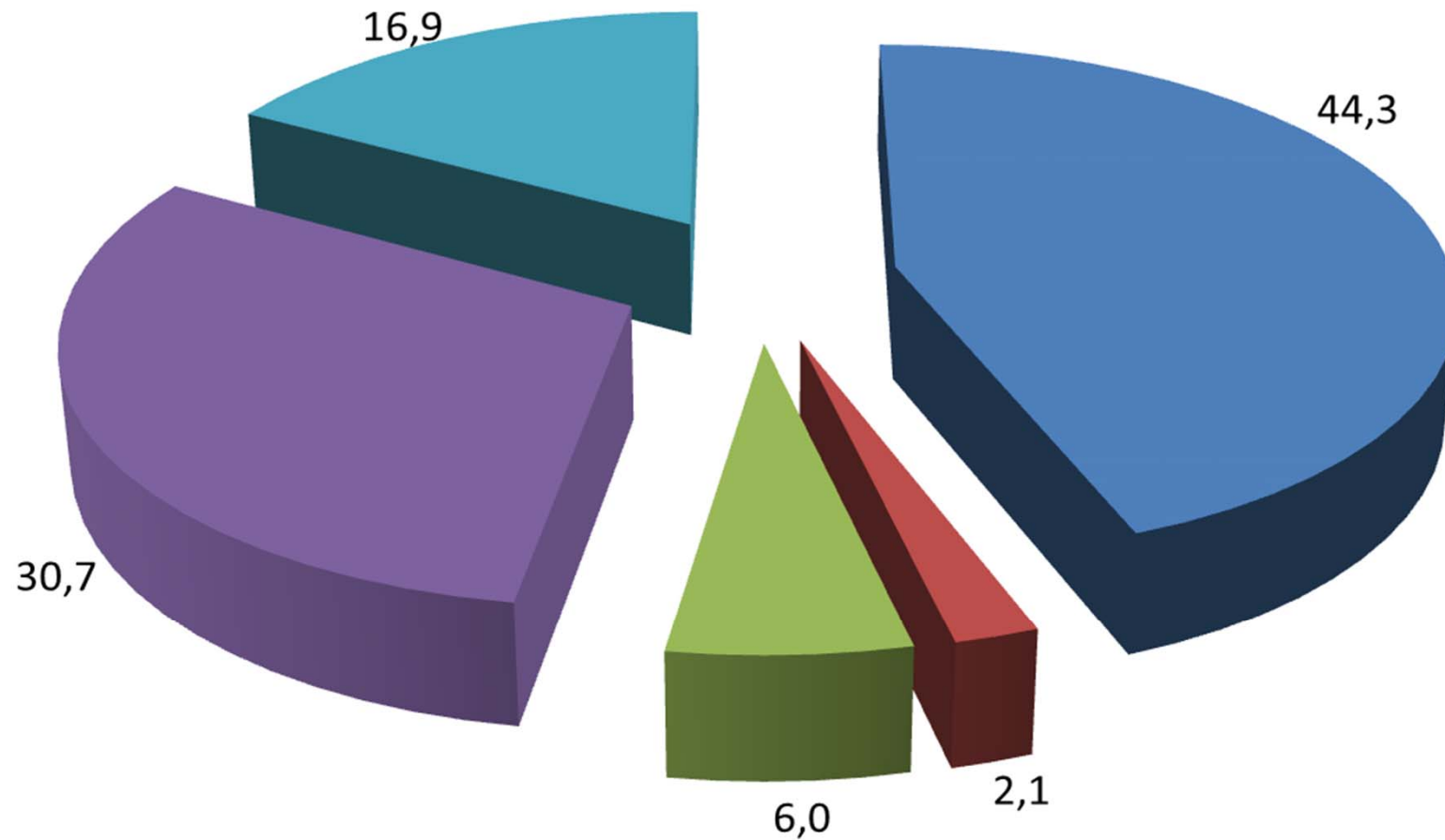


Comparative GERD ratios (2012)



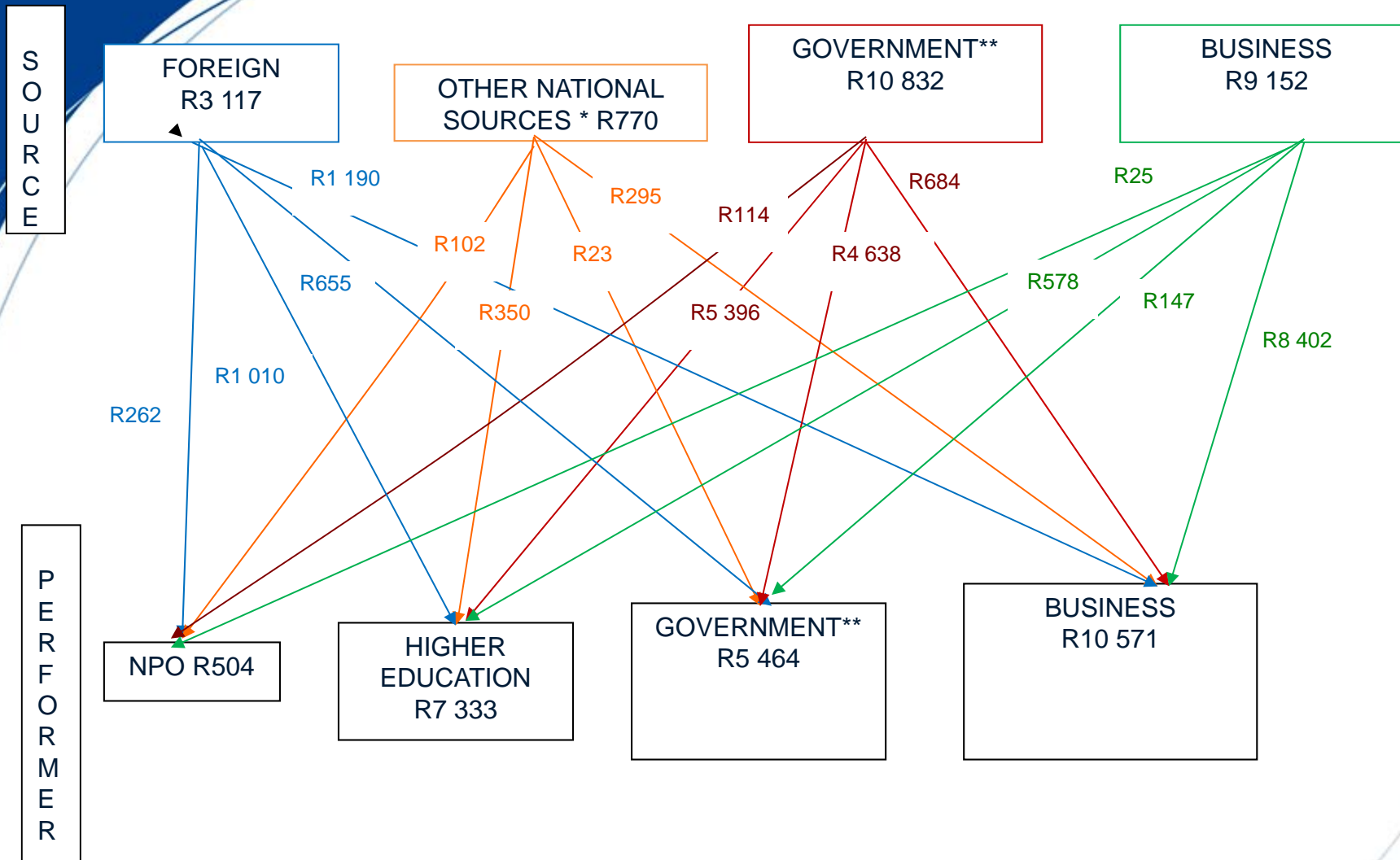
Source: OECD MSTI, UIS, AU-NEPAD AIO

R&D expenditure by sector of performance, 2012/13



■ Business ■ Not-for-profit ■ Government ■ Higher Education ■ Science Councils

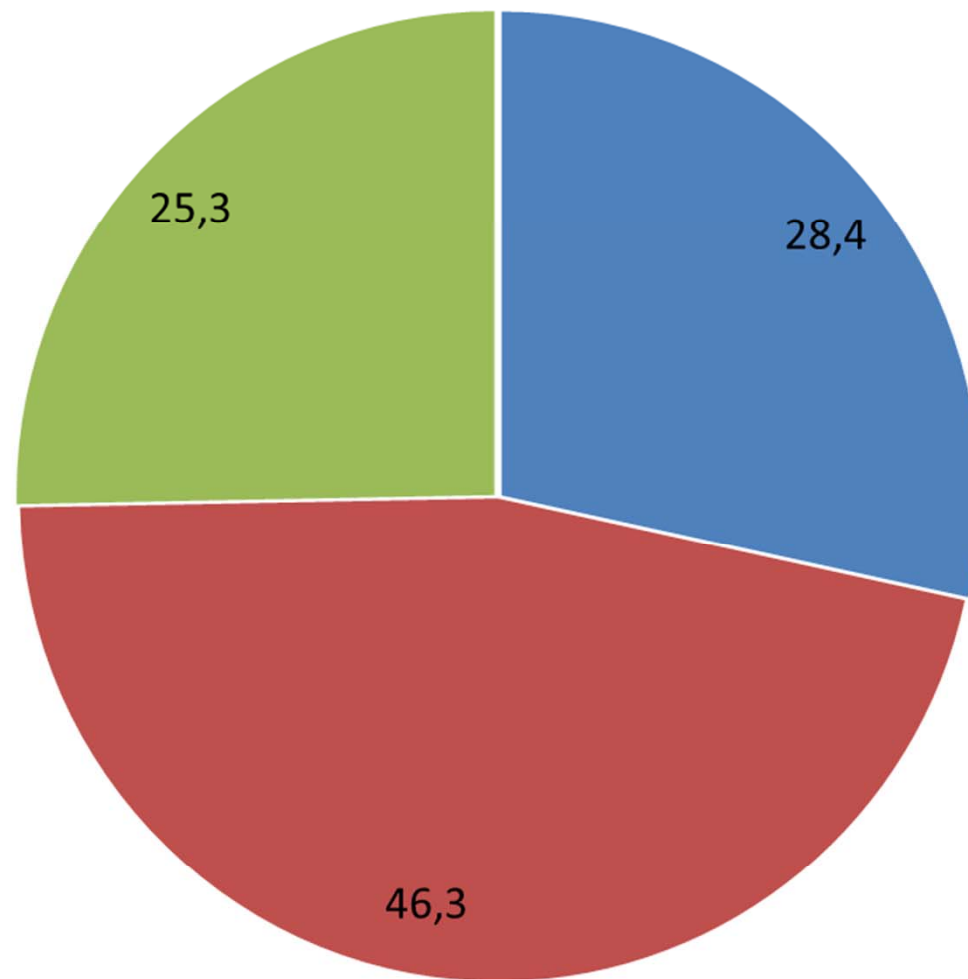
R&D expenditure by sources of funds



*Other national sources includes contributions from Higher Education, Not-for-profit organisations and individual donations

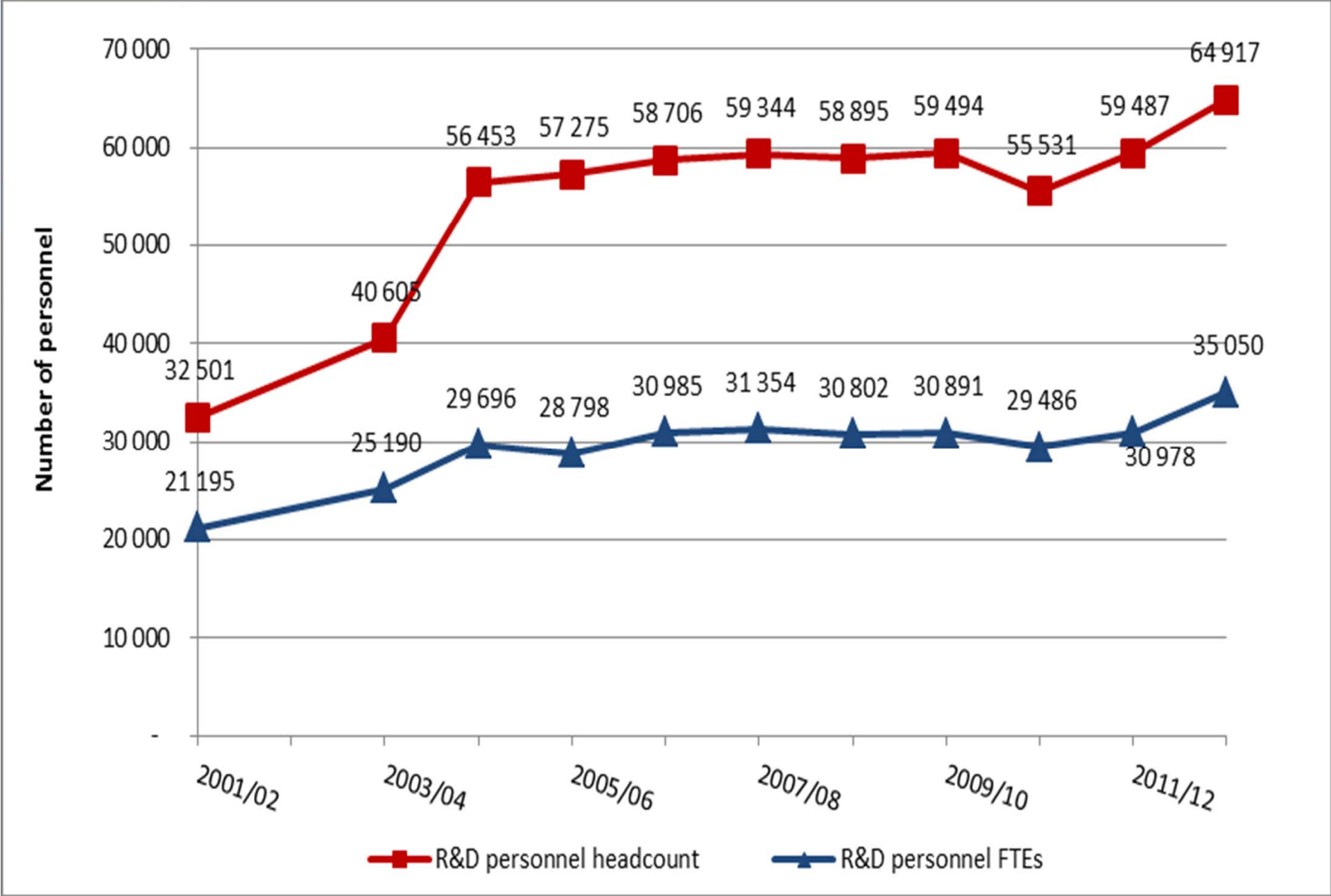
** Government includes Science Councils

GERD by type of research

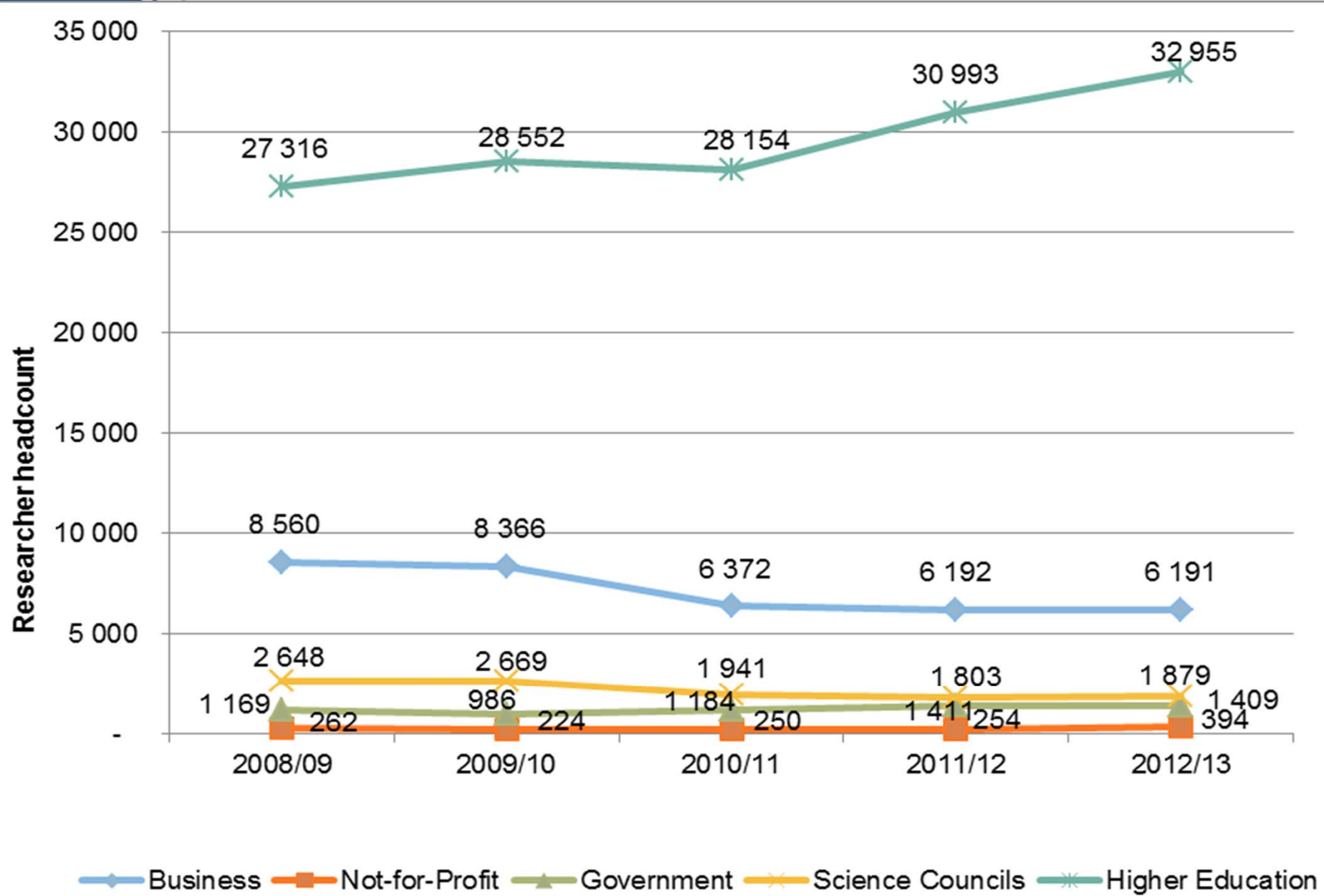


■ Experimental development ■ Applied research ■ Basic research

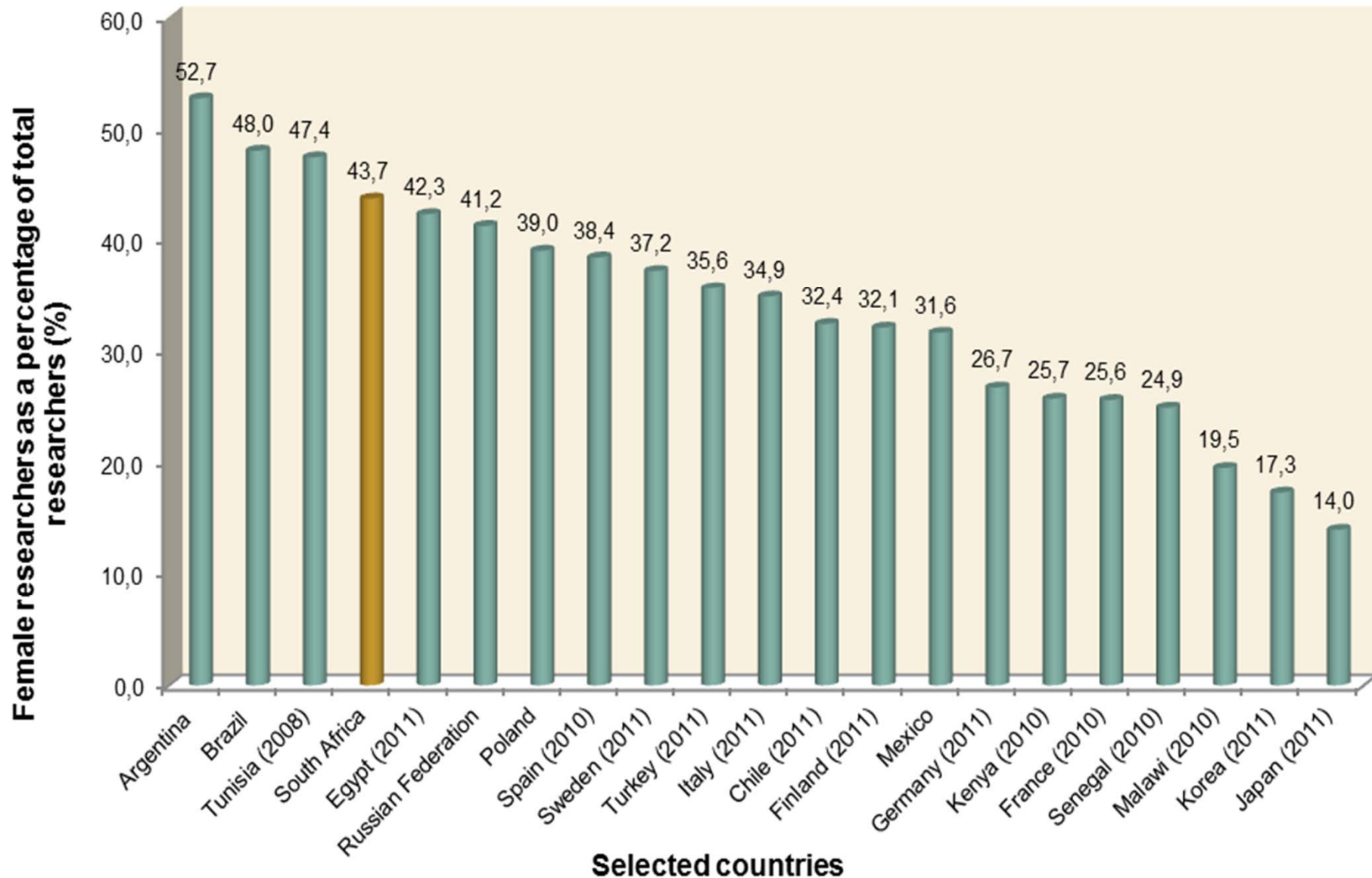
R&D personnel (2001-2012)



Researchers by sector (headcount)



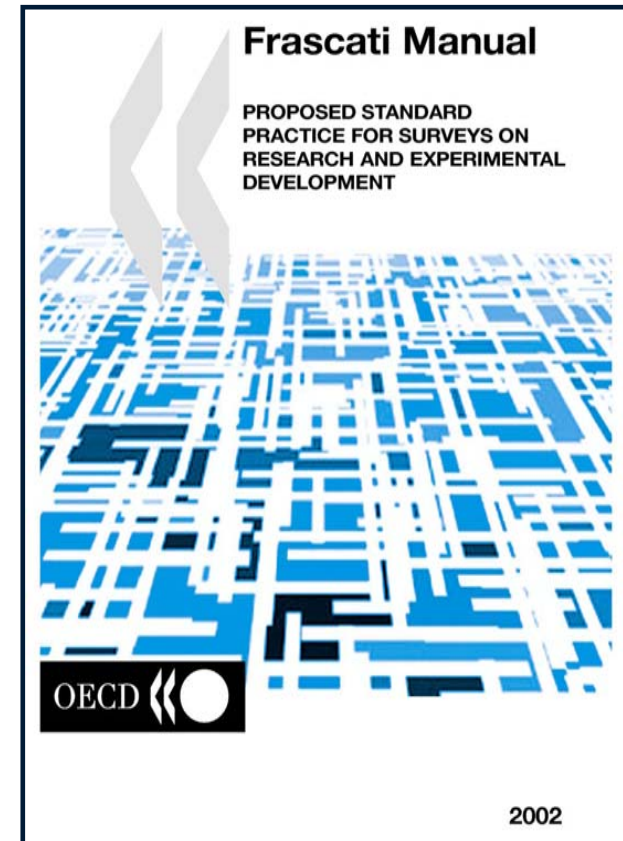
Comparative analysis: female researchers



Source: OECD MSTI, UIS, AU-NEPAD AIO

Methodology

- The R&D survey employed the guidelines of the Frascati Manual (2002).
- Quality management was performed in line with practices recommended by Stats SA in the South African Statistical Quality Assessment Framework (SASQAF) (Stats SA 2010).



Scope and coverage

R&D survey:

- identifies and measures all financial and personnel resources devoted to R&D activities in all R&D units,
- mainly addressed to **R&D-performing** units (*which may also finance R&D in other performing units- extramural R&D*),
- measures in-house (intramural) expenditures,
- all fields of R&D are covered,
- covers business enterprises, government departments, higher education, not-for-profit and science councils

Measures of R&D inputs

- ❖ R&D personnel
- ❖ R&D expenditures
- ❖ R&D facilities
- ❖ National R&D efforts

- **R&D expenditures**
 - The basic measure is “intramural expenditures” i.e. all expenditures for R&D performed within a statistical unit or sector of the economy.
- **R&D personnel**
 - Head counts and full time equivalents (FTEs)

Summary

- GERD increased by 7.5% in nominal and 2.6% in real terms between 2011/12 and 2012/13;
- GERD/GDP remained at 0.76% for three consecutive years;
- Business sector was the largest performer of R&D, self-funding most of its efforts;
- Government was the largest funder of the R&D performed in South Africa;
- R&D headcounts increased by 9,1% largely as a result of increase in the number of postgraduate students.

National Context (1)

- R&D Expenditures recovering slowly, in part because of the repercussion of the global economic crisis,
- South African government has retained commitment to investment in R&D despite pressure on the fiscus,
- Business sector still remains largest performer of R&D of all sectors,
- Business investment in R&D in South Africa has not returned to pre crisis levels and continues to grow slower than overall growth in R&D investment from all sources,
- Higher education sector achieved good growth in R&D expenditure and accounted for largest growth in R&D personnel

National Context (2)

- Applied research accounts for a much larger share of total R&D expenditure; this is partly linked to shifts in composition of R&D funding sources,
- Emphasis on the type of research performed differs from country to country,
- R&D expenditure in finance, IT and business services is growing faster than in traditional sectors such as mining and manufacturing,
- South Africa has objectives to use R&D expenditures to foster transition to knowledge-intensive economy and to meet the challenges of poverty alleviation, reduction of inequality and generation of jobs

Global Context (3)

- Global R&D expenditure remains highly concentrated; attracting inward investment flows in R&D is competitive,
- Landscape for international R&D expenditure is shifting and patterns benefitting a small number of developing countries, as well as conventional hubs for R&D investment; South Africa has not attracted a high proportion of that investment,
- International benchmarks around GERD ratios are under scrutiny; guidelines around measuring R&D are under discussion and South Africa has a seat at the table.

Policy Implications

- Government direct investment in R&D through its funding efforts should be continued and intensified. MTSF (2014-2019) set a target of GERD ratio of 1.5%,
- Government facilitation of (and incentives for) R&D investment in business should be maintained and strengthened including in parastatals which have a broad and deep impact on SA economic performance and resilience (energy, transport, water and sanitation),
- Efforts to facilitate cross sectoral R&D partnerships should be encouraged and strengthened,
- International partnerships, particularly with BRICS countries that have attracted large inflows of global R&D expenditure should be designed and efforts to understand the nature of their locational advantages and to replicate and adapt in SA context

R&D survey 2012/13

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<http://www.hsrc.ac.za/en/media-briefs/cestii/research-and-development-survey-released>