

Innovation

BOOSTING PRODUCTIVITY BY FOSTERING INNOVATION

- ▶ Hungary has scope to boost labour productivity by fostering innovation and continuing to intensify the links between domestic firms and public research to global innovation networks and value chains, as some sectors have been doing already.
- ▶ Business R&D capacities are insufficient and are mostly concentrated in foreign-owned companies and some large domestic companies.
- ▶ SMEs in particular have much to gain from innovation in lifting their productivity and benefitting from participation in Global Value Chains (GVCs).
- ▶ Funding for public research has fallen in the wake of the crisis and has not sufficiently recovered to match efforts to improve its quality or to commercialise research results. A weak public research base limits the scope for generating knowledge spillovers that are needed to raise productivity.

What's the issue?

Gross expenditure on R&D in Hungary, at 1.38% of GDP in 2015, is significantly below the OECD average. The structural decomposition of business R&D expenditures (BERD) shows that relative to 2007, the share of R&D spending by large high-tech manufacturing firms has fallen while the share of small and domestic firms has increased, mainly in services, though the share of domestic firms remains below the OECD average (see Figure).

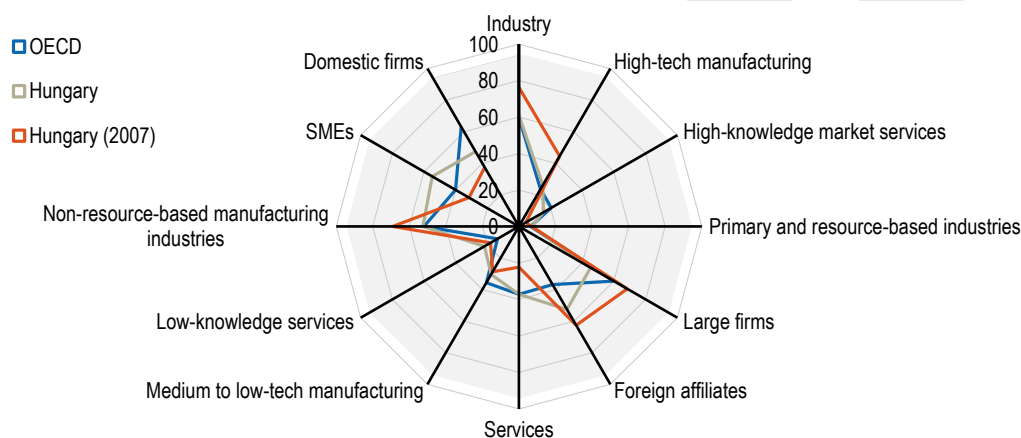
In contrast to countries like Germany and Sweden, which provided counter-cyclical support to R&D after the financial and economic crisis of the late 2000s, in Hungary government-financed R&D had recovered only to its 2005 level by 2014. In

terms of the higher education sector, R&D spending in GDP terms fell from 0.23% in 2005 to 0.17% in 2015. Due to the low rate of investment, Hungary's public research infrastructure is considerably outdated, and below European quality standards, especially in equipment, machines and tools.

In recent years, more emphasis has been placed on improving research excellence and raising the direct contribution of research to innovation and economic development. For the period 2014-20, the allocation of resources to R&D and innovation from national sources and EU Structural Funds reflects the priority given to the development of research infrastructure, domestic and international co-operation

Domestic firms could contribute more to innovation

Structural composition of business R&D expenditure, in % of total BERD or sub-parts of BERD, 2013 or latest year available



Source: OECD, 2016.

(networking), business innovation, the start-up ecosystem and the building of research capacities. The Hungarian higher education strategy envisions a new performance-based funding system for Higher Education Institutions (HEIs) via the awarding of an excellence qualification. The Higher Education Strategy also includes measures to foster collaborative research, development and innovation activities between HEIs and companies, as well as tailoring the curricula toward the needs of the business sector. These are positive developments, but such efforts need to be scaled up and policy initiatives need to be regularly evaluated for impact.

Skills are also critical here; less than one quarter of 25-64 year-olds have achieved tertiary education in Hungary and youth perform below the OECD average in the OECD's Programme for International Student Assessment (PISA) rankings in science, mathematics and reading. In 2014, Hungary lagged the OECD in the share of students graduating from science programmes with Bachelors or Masters-level qualifications; it was also below the OECD average in the share of doctoral graduates in engineering programmes (11% vs 17%) (OECD, 2016). In addition, drop-out rates are particularly high among students of STEM subjects (EC, 2016).

Why is this important for Hungary?

Innovation is key to boosting long-term productivity. Following the global financial crisis, Hungary, like several other OECD countries, experienced a deceleration in productivity growth. Despite the recent acceleration of growth, labour productivity continues to lag behind other OECD countries. Labour productivity of small and medium-sized enterprises (calculated as a ratio of value added to employment), for example, was only one-third of the EU average in 2015. Next to weak labour market dynamics that slow the reallocation of labour to more productive activities, a low innovative activity of firms and insufficient attention to the diffusion of technology and the upgrading of worker skills are behind this disappointing productivity performance.

Investments in R&D – which are still relatively low in Hungary – and other knowledge-based assets such as software, intellectual property rights and organisational capital, are important for firms and countries to strengthen their competitiveness, move up the value chain and capture greater value in terms of the domestic share of value added in exports. Moreover, OECD evidence shows that over the last 15 years, the OECD countries with the highest increases in participation in global value chains (GVCs) experienced average or above-average productivity gains.

What should policy makers do?

- ▶ Improve framework conditions for innovation by boosting market-friendly regulatory and competition policy.
- ▶ Enhance the funding and quality of public research, including in fostering greater internationalisation.
- ▶ Strengthen support to science-industry linkages between universities, domestic SMEs and foreign multinationals, through public-private partnerships for example.
- ▶ Strengthen STEM education among youth and the upgrading of worker skills, especially in SMEs.
- ▶ Improve the entrepreneurial ecosystem for start-ups and SMEs by evaluating the suite of public programmes and initiatives to support business incubators, accelerators, technology transfer and support to start-ups.



Further reading

OECD (2017), *Global Productivity Forum: Country Profiles, Hungary*. <http://www.oecd.org/global-forum-productivity/country-profiles/hungary.htm>.

OECD (2017), *Small, Medium, Strong. Trends in SME Performance and Business Conditions*, OECD Publishing, Paris. <http://dx.doi.org/10.1787/9789264275683-en>

OECD (2016), *OECD Economic Surveys: Hungary 2016*, OECD Publishing, Paris. DOI: http://dx.doi.org/10.1787/eco_surveys-hun-2016-en

OECD (2017), *Main Science and Technology Indicators, Volume 2016 Issue 2*, OECD Publishing, Paris. DOI: <http://dx.doi.org/10.1787/msti-v2016-2-en>

OECD (2016), "Hungary", in *OECD Science, Technology and Innovation Outlook 2016*, OECD Publishing, Paris. http://dx.doi.org/10.1787/sti_in_outlook-2016-63-en

OECD (2016), *Education at a Glance 2016: OECD Indicators*, OECD Publishing, Paris. DOI: <http://dx.doi.org/10.1787/eag-2016-en>

European Commission (2016), *Education and Training Monitor Hungary 2016*. https://ec.europa.eu/education/sites/education/files/monitor2016-hu_en.pdf