

»» R&D expenditure in Germany: positive trend since 1995, but levels need to increase further



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R&D drives prosperity

A growing economy is the prerequisite for broad income growth and rising prosperity. From an overall economic perspective, research and development (R&D) is the key driver of productivity and growth. It is therefore pleasing that Germany was able to substantially increase its R&D expenditure in relation to GDP from the low of 1995. With levels of just under 3.0%, it almost meets the target formulated in the Lisbon process in 2002.

Significant increase in R&D ratio ...

The R&D ratio increased in two stages – in the second half of the 1990s and in the second half of the 2000s – from 2.13 to 2.87%. Contributors were the expansion of R&D efforts by both the private and the public sector. Public R&D expenditure increased faster than in other OECD countries, particularly since 2005 in the context of the high-tech strategy.

The comparatively high R&D ratio in German business is primarily due to the favourable industry structure ('structural effect'). Thus, R&D-intensive industries

in particular are more prominent in Germany than in other countries. Within the economic sectors, on the other hand, expenditure is often lower than across the OECD ('behaviour effect').

... secures a spot in the top one-fourth of the OECD countries

In international comparison, the German R&D ratio is impressive. In 2011 Germany overtook the USA and also clearly outranked comparable large industrialised countries such as France and the United Kingdom. Overall, Germany occupies eighth place within the OECD.

In the ranking, however, this actually means Germany slipped down one notch from the level of 1995. The reason is that many countries are pursuing ambitious research strategies. Smaller countries in particular, such as Israel, Austria and Denmark, but also South Korea, have made greater R&D efforts than Germany.

In assessing the rise in Germany, it also needs to be considered that the current R&D ratio of 2.87% is only moderately

higher than the 1987 peak of 2.74%. Another aspect that should be eyed with scepticism in Germany is the R&D focus on a small number of economic sectors. In 2015, the automotive industry alone accounted for nearly 35% of private sector R&D expenditure. The figure also illustrates that no further significant increase has been achieved in R&D since 2012.

Further efforts are necessary

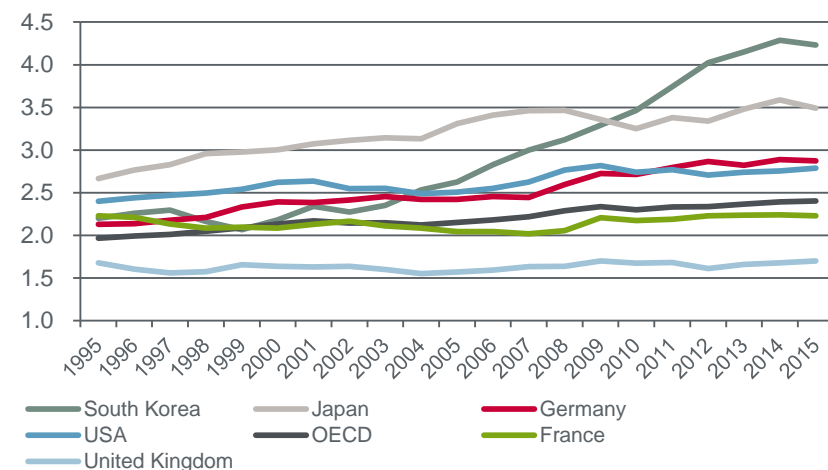
More ambitious targets should be set for R&D expenditure growth in order to secure the future competitiveness of Germany's economy. R&D expenditure should thus be raised to 3.5% of GDP. To achieve this, the first step should be to broaden the base of enterprises undertaking R&D and reduce the sectoral concentration of R&D. ■

Definition of R&D

Research and development is defined by the OECD as 'creative and systematic work undertaken in order to increase the stock of knowledge [...] and to devise new applications of available knowledge'. R&D is thus a subset of activities aimed at bringing forth innovations. The latter also include, for example, product design, service design and preparatory and continuous education measures in the context of innovations and their market introduction.

Figure: Development of R&D intensity 1995–2015

R&D-to-GDP ratio in per cent



Source: OECD https://stats.oecd.org/Index.aspx?DataSetCode=MSTI_PUB, retrieved on 27 February 2017

Note: This paper contains the opinion of the authors and does not necessarily represent the position of KfW.