



Country Profile: Austria

*Internationalisation of business investments in
R&D and analysis of their economic impact
(BERD Flows)*

November 2015

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SPECIFIC CONTRACT Nº 30-CE-0677869/00-21/A4/2014

Internationalisation of business expenditures on R&D
and analysis of their economic impact (BERD Flows)
implementing

Framework Contract n° - 30-CE-0496925/00-52

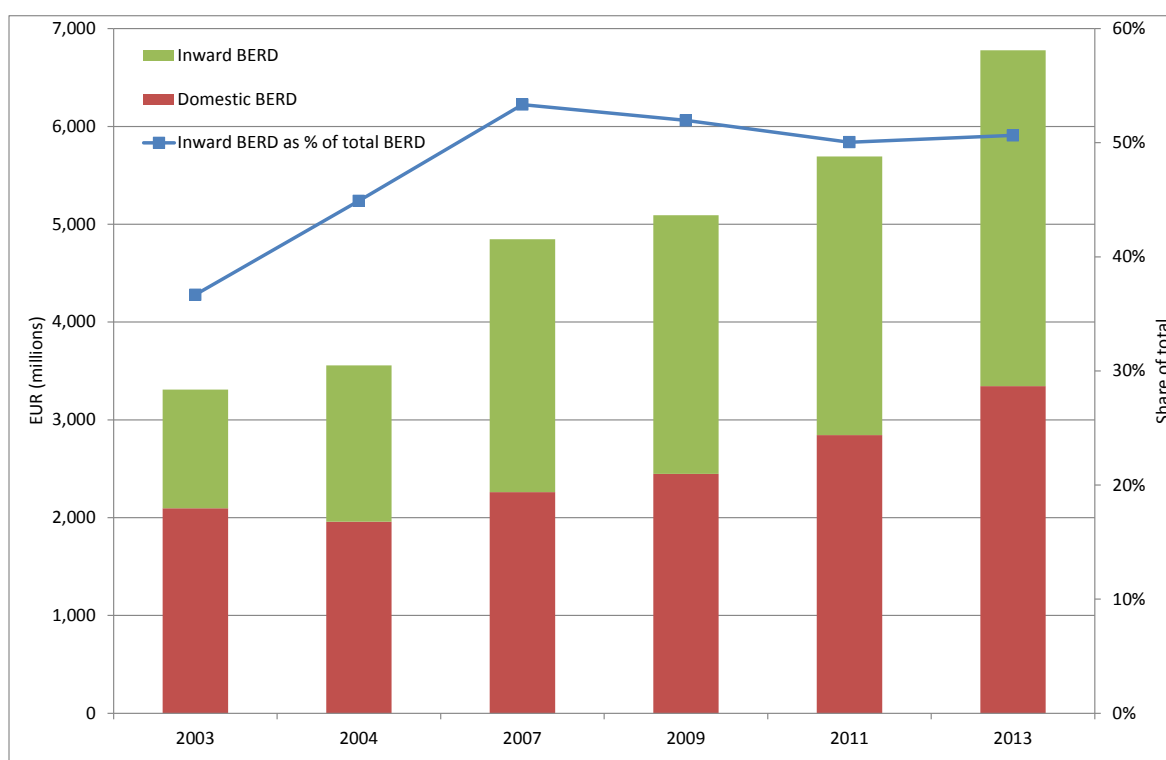
for the provision of Services in the Field of Research Evaluation and Research Policy
Analysis (Nº 2010/S 172-262618) - Lot 2: Data collection and performance indicators
to monitor European research policy.

Introduction

Austria is a small, open European economy with strong economic ties to neighbouring countries. Exports and imports have a high share on GDP. Added together, exports and imports equal Austria's GDP. Hence, in terms of internationalisation of trade, Austria can be compared to other small European countries such as Belgium, Finland, Sweden, Denmark, Ireland, the Czech Republic or Hungary (OECD 2010).

Austria is also highly internationalised in terms of terms of R&D. We measure R&D internationalisation by inward R&D intensity, which is R&D expenditure of foreign-owned firms (inward BERD) divided by total business R&D expenditure (BERD). With a value of around 50%, Austria has one of the highest inward R&D intensities among all countries covered in the project (see Figure 1 below).

Figure 1: Inward BERD, domestic BERD and inward BERD as % of total BERD (2003-2013)



Source: Statistics Austria, own calculations

This is mainly due to developments in the last decade. From 2003 to 2007, the R&D expenditure of foreign-owned firms (inward BERD) in Austria increased from about 1.2 billion Euros to 2.6 billion Euros, while domestic BERD only slightly increased from about 2.1 billion Euros to almost 2.3 billion Euros during the same time period.

As a result, inward BERD rose in relative terms from 37% of total BERD in 2003 to 52% in 2007. The increase of total BERD in this period can therefore mainly be attributed to the activities of foreign-owned affiliates. However, it is important to note that according to representatives from Statistics Austria, this increase is at least partly caused by advances in identifying foreign-owned firms, particularly in the service sector.

Internationalisation of R&D lost momentum after 2007. From 2007 to 2011, inward BERD intensity decreased from 53% to 50%. This was mainly due to a stronger growth of domestic BERD and may also be related to the financial crisis of 2008/09 which hit international economic activity severely. There was, however, no decrease in inward BERD.

The most recent data indicates that the growth of inward BERD has accelerated in the period 2011 to 2013. For the first time since the crisis, R&D expenditures of foreign-owned firms grew faster than R&D by domestic firms. The share of foreign-owned firms on employment, in contrast, remained constant. This is a strong sign that Austria is still an attractive location for R&D of foreign multinationals.

The country perspective

The distribution of inward BERD in Austria in terms of countries of origin reveals two important facts. First, internationalisation of R&D – despite the term – is still very much a regional phenomenon. Austria's neighbouring countries – most important Germany and Switzerland - together account for 60% of total inward BERD in Austria. This reflects the fact that distance between countries, cultural proximity, relative size of the home and host country, and the existence of foreign direct investment stocks between the two countries are decisive for R&D internationalisation (Leitner, Stehrer and Dachs 2013). No inward BERD is reported for Austria's neighbouring countries Czech Republic, Hungary, Slovakia and Slovenia.

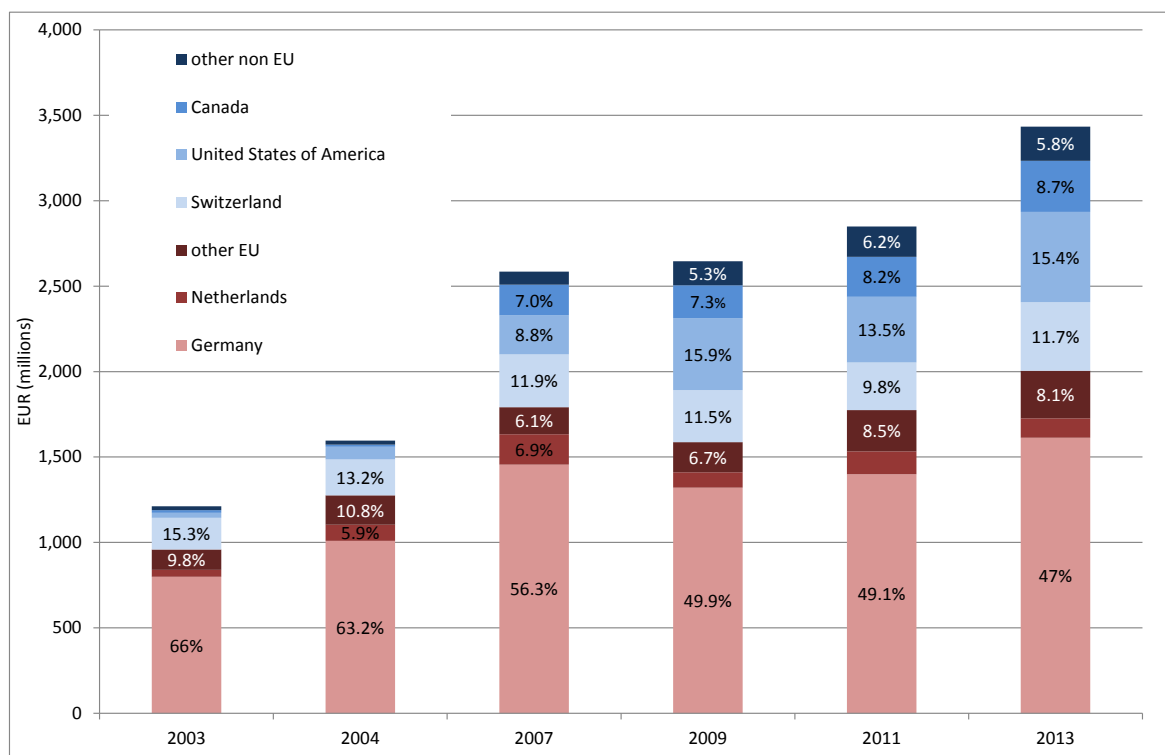
Germany is by far the most important home country for inward BERD performed in Austria (Figure 2). German firms account for 1.6 billion Euros or around half of total inward BERD in Austria in 2013. This is double the amount of German inward BERD in 2003 in current prices. However, due to the large increase of R&D expenditure by firms from other countries, Germany's share on total inward BERD decreased from 66% in 2003 to 47% in 2013.

The focus on neighbouring countries decreases only slowly. The share of EU member states on total inward BERD decreased between 2003 and 2013 from 80% to 58%, while the share of non-EU countries increased proportionally. It should be noted that total inward BERD more than doubled between 2003 and 2013, so the decrease of EU member states was in relative, but not in absolute terms.

The second most important home country is the United States, with slightly more than 520 million Euros inward BERD in 2013. The corresponding share of the US on total inward BERD is 15%. US firms have overtaken Switzerland in terms of total inward BERD in 2009. Switzerland is now on third place. Another important non-European investor country is Canada (298 million Euros)

The country group which grew fastest between 2003 and 2011 is 'other non-EU countries' excluding the US, Canada and Switzerland. These countries could more than triple their share, from 1.8% in 2003 to 5.8% in 2013. Total inward BERD for these countries amounts to 200 million Euros in 2011. It includes R&D expenditures by firms from China, (86 million Euros) the United Arab Emirates (49 million Euros), various offshore financial centres (36 million Euros) and a number of other non-European countries. No data is reported for India, South Korea, Turkey, or Israel on the country level.

Figure 2: Inward BERD - country of origin, Austria, 2003 to 2013



Source: Statistics Austria, own calculations

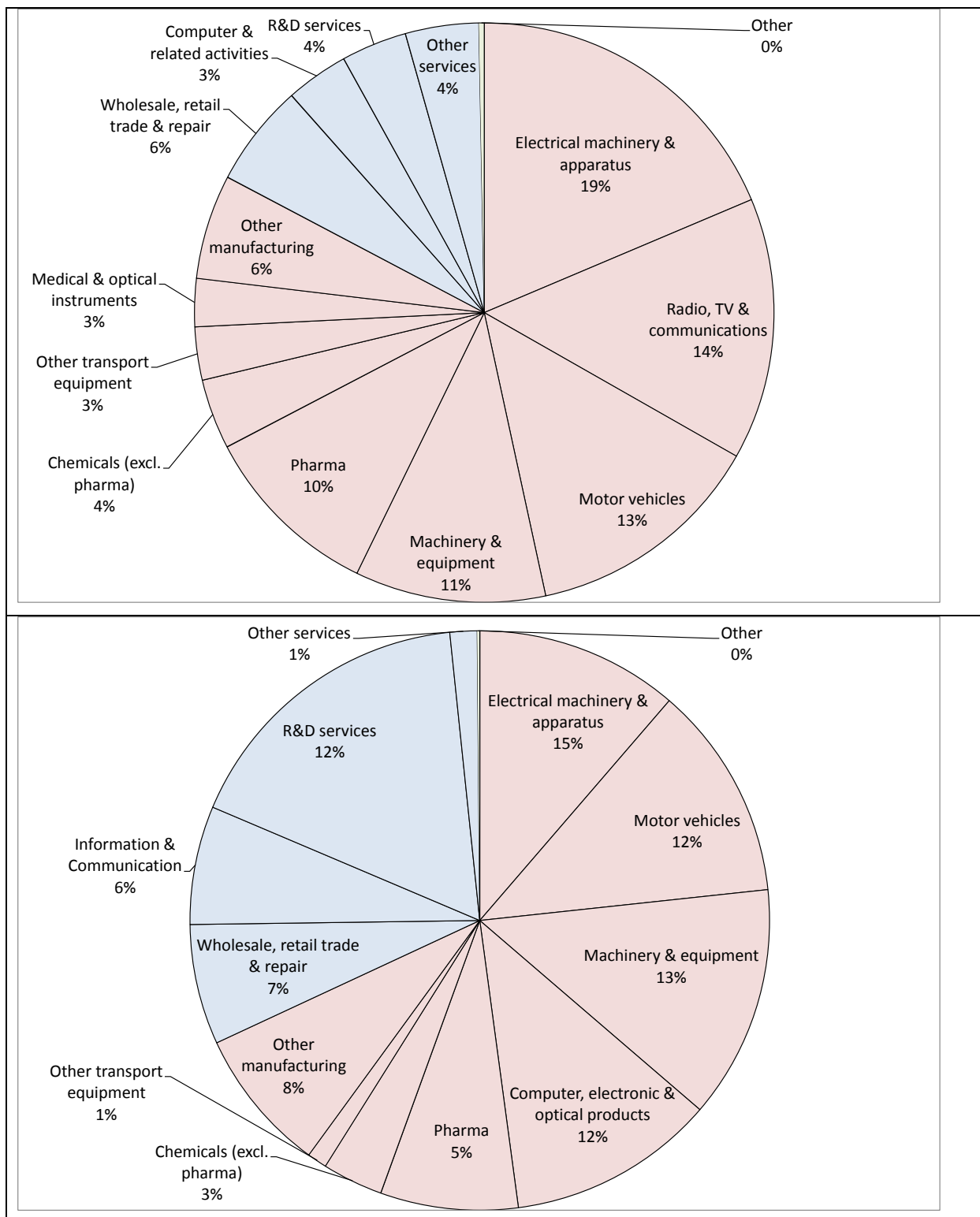
The sectoral perspective

In terms of sectors, there was a remarkable shift in Austrian inward BERD between 2007 and 2013. In 2007, medium-high- and high-technology manufacturing industries accounted for around than $\frac{3}{4}$ of all inward BERD in Austria. This share has decreased considerably in favour of service industries which account for about a third of total inward BERD in 2013 (Figure 2). Commercial R&D services and communication and information services are leading this trend. A similar development can also be observed in other countries (Dachs, Stehrer and Zahradnik 2014).

The growth of R&D by service firms is, on the one hand, triggered by the international expansion many service firms have started in recent years. On the other hand, it is also a sign of structural change; commercial R&D services also include biotechnology firms, so the decrease of pharmaceutical research by foreign firms in Austria may reflect a shift from 'old pharma to biotech. A similar shift may have occurred between electrical machinery and apparatus and information and communication which also includes software services.

Due to changes in the NACE classification of industries the shares of different sectors between 2007 and 2013 are not fully comparable. However, we can say for sure that the share of the pharmaceutical and the electrical and electronics industry has decreased considerably, while the shares of communication services and commercial research and development services increased.

Figure 3: Shares of various industries on total inward BERD, Austria, 2007 and 2013



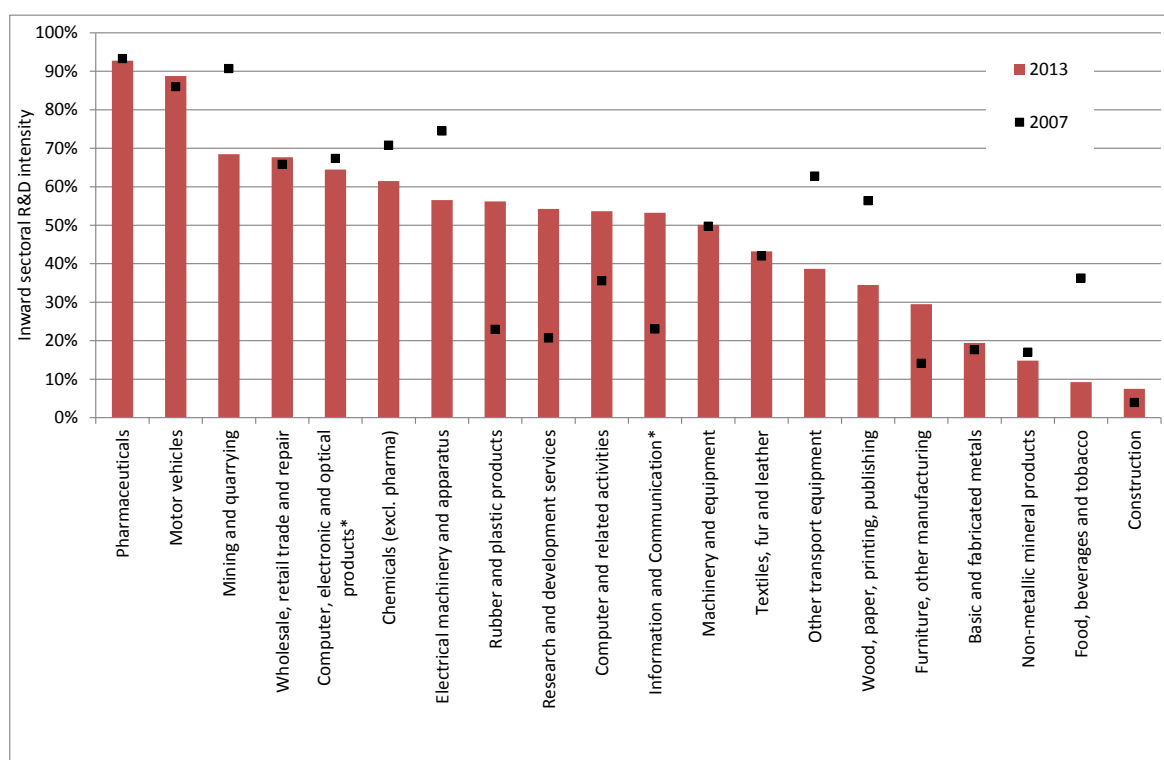
Source: Statistics Austria, Eurostat, OECD, own calculations

Inward R&D intensity - the ratio of inward BERD to total BERD – can also be applied at the sectoral level to measure which industry is most internationalized in terms of R&D

(Figure 4). In Austria, the highest inward R&D intensity is found in pharmaceuticals with a value of around 90%, followed by motor vehicles and the mining industry. Nearly all other R&D intensive sectors have values of over 50% which indicates that the majority of R&D activities in these sectors are performed by foreign-owned firms. Machinery and equipment is the large R&D performing sector with the highest share of domestic ownership.

The lowest inward BERD intensities are found in low-technology sectors and in construction. Service sectors mostly reveal inward BERD intensities below or around 50%, but are catching up fast. The comparison between 2007 and 2013 shows that inward R&D intensity has more than doubled in the largest service sectors, information and communication and research and development services.

Figure 4: Inward sectoral R&D intensity (2007 and 2013)



Note: The inward sectoral R&D intensity is defined as inward BERD in sector Y / total BERD in sector Y

Source: Statistics Austria, Eurostat, OECD, own calculations

Country summary

Austria is one of the most internationalised countries in the European Union in terms of inward BERD. Inward BERD amounts to 50% of total BERD in 2013. The sectors with the highest share of inward BERD are mostly high- and medium-high-technology industries – electrical machinery and apparatus, motor vehicles, computer, electronic products or pharmaceuticals. The share of service industries is growing fast.

Inward BERD in Austria mainly originates from two neighbouring countries – Germany and Switzerland – which together account for around 60% of total inward BERD in Austria. The share of these two countries, however, is decreasing due considerable growth of R&D activities by non-EU firms, most notably the US. Asian countries have

also a fair share on this development. Altogether, R&D internationalisation in Austria became less dependent on investment from other EU countries in recent years.

References

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