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Policy Note

## Factors influencing the FDI Location choice for knowledge intensive services and headquarters within the EU and Austria

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### Abstract

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This study investigates the determinants of bilateral Greenfield FDI projects and flows in knowledge intensive business services from OECD/BRIC countries to the EU countries for the period 2003-2010. Greenfield FDI projects are distinguished by type of activity: (i) business services, (ii) design, development and testing activities, (iii) headquarter activities and (iv) R&D services. Another aim of this study is to provide new empirical evidence on the patterns of Greenfield investments in knowledge intensive business services over time, source country and destination country. For Austria, the number of Greenfield investments in headquarter functions remains stable over time whereas Greenfield investments in R&D and related activities declined during the sample period. The same holds true for the number of jobs generated through greenfield investments. The results using panel count data models show that wage costs, tertiary education, corporate taxes, having a common border and sharing a common language all play a significant role in determining bilateral Greenfield FDI projects in knowledge intensive services. However, the impact of corporate taxation and labour costs differs widely across the functions and does not play a role in Greenfield investments in R&D and development, design and testing services.

**Keywords:** Greenfield foreign direct investment, knowledge intensive business services, headquarter functions, R&D activities, gravity equation, panel data, FDI determinants

**JEL-codes:** F23

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## **Determinants of Greenfield Investment in Knowledge Intensive Business Services**

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### **1 Introduction**

Austria holds a relatively strong position in FDI inflows in knowledge intensive business services. However, in recent years, the locational attractiveness of the EU countries and Austria for these activities decreased. In Austria, the number of Greenfield investments in R&D activities and development, design and testing activities have decreased significantly since 2008, while greenfield investments in headquarter functions remain stable over time. At the same time, multinational corporations in industrialized countries were increasingly engaged in the offshoring of higher value added knowledge intensive activities - often to low wage countries.

### **2 Descriptive statistics**

Descriptive statistics show that the number of FDI projects in R&D and related activities decreased after the financial and economic crisis in 2009. An exception is the number of FDI projects in headquarter services, which has remained relatively stable over time. The number of jobs generated through Greenfield investments is highest for headquarter services with about 680 new jobs per year on average and lowest for business services. Overall, the employment generation by Greenfield investment in different types of knowledge intensive services is small.

Furthermore, Austria's share in world FDI projects (defined by FDI projects in the OECD and BRICs) for business services and R&D design and testing steadily decreased over time. This indicates that Austria's attractiveness to investors in the area of knowledge intensive services decreased significantly after the financial crisis. In contrast, the share of Greenfield investments in headquarter services remains stable over time, but is highly volatile at the same time. Note that the increase in the number of jobs generated by Greenfield FDI in 2009 is caused by a large headquarter relocation in the electronics equipment sector.

As expected German multinationals are the largest investors in knowledge intensive business services by far dominating other investors. This already indicates that cultural

proximity, namely, sharing a common language and geographical proximity, such as sharing a border, are major factors driving Greenfield FDI activities between the two countries. Table 2 shows a cross-country comparison of the number of FDI projects and corresponding jobs generated. Among the EU countries, the United Kingdom, Germany, Spain, France, Ireland and Switzerland are the primary destinations for the four types of knowledge intensive business services accounting for both 63 per cent of total Greenfield investment projects in the EU-27, plus Norway and Switzerland, and 64 per cent of jobs generated by these investments. Given the country's size, Austria has attracted a significant number of Greenfield FDI in knowledge intensive activities, such as R&D and headquarters services. Between 2003 and 2010, the cumulated number of jobs created by foreign multinationals in headquarter services and through Greenfield FDI was about 5,960. The United Kingdom, followed by Spain, Germany, Netherlands, Switzerland and France, is the most attractive location for headquarter services in the EU/EFTA countries in terms of new jobs generated by Greenfield FDI. The United Kingdom is particularly successful in attracting headquarter function, accounting for 29 per cent of all Greenfield headquarter projects in the EU countries (plus Norway and Switzerland) and 20 per cent of the number of jobs generated by these investment. For FDI in headquarter functions, Austria is in the 10th and clearly ahead of other comparable countries, such as Sweden, Denmark and the Czech Republic. Furthermore, the Netherlands and Switzerland both exhibit a relatively large share of FDI in headquarter functions given their size in terms of population. This may indicate that locations in core regions in Western Europe are preferred over more peripheral locations, but may also reflect favourable tax regimes for holding conditions.

The corresponding cumulated number of jobs in R&D activities created by FDI is about 3,760 for the similar time period. Here, Austria is in the seventh position, but clearly ahead of other countries with similar country size, level of GDP per capita and level of absorptive capacity (e.g. R&D/GDP ratio), such as Finland, the Netherlands, Denmark, Switzerland, Belgium and Sweden. However, as mentioned above, the number of Greenfield FDI projects in R&D activities significantly decreased after 2008. As expected, the most advanced countries in Europe account for the largest proportions of FDI in R&D activities. However, the Czech Republic, Hungary, Poland and Slovakia

received a significant amount of FDI in R&D activities as can be seen in the number of jobs generated by this type of FDI when compared to their country size and absorptive capacity.

Furthermore, there is a large urban concentration of FDI inflows in knowledge intensive services. For headquarter functions, London is number one in Europe, followed by Dublin, Copenhagen and Amsterdam. Vienna is in the eighth position. When measured in terms of jobs generated by these investments, Vienna is in the fifth position. For FDI in R&D services, Vienna is in the seventh position in Europe.

### **3 Empirical results**

The findings using the Poisson Pseudo Maximum Likelihood estimator show that corporate taxes, wage costs, tertiary education, common border and a common language all play a significant role for bilateral FDI flows in knowledge intensive business services. However, the impact of these FDI determinants differs greatly across the different knowledge intensive services. In particular, the effect of corporate taxation and wage cost is only significant for Greenfield investments in business services and headquarter functions, but is not relevant for investments in R&D activities and development and design and testing activities (see Figure 2 for selected correlation coefficients). Variables measuring the regulatory burden of businesses are significant for R&D services and development, design and testing activities. ICT infrastructure measured as broadband penetration is a significant factor for FDI in R&D services.

### **4 Policy implications**

The findings have several important policy implications. First, wage costs and corporate taxation are not as important for the location of R&D services and related activities as the media and political organizations suggest. Second, access to skilled workers is a substantial driver of FDI in business and headquarter services. However, general tertiary education is not relevant for FDI in services. Cultural factors, such as sharing a common language, are more important. This indicates that FDI in R&D is partly a result of historical factors, which are exogenous and difficult to overcome.

Furthermore, Greenfield FDI activity in knowledge intensive activities is a relatively tiny proportion when compared to domestic employment in business services. Between 2003-2010, the number of jobs generated by Greenfield investment in R&D activities and development, design and testing activities amounted to eight per cent of the total domestic R&D personnel or one per cent when measured on an annual basis. This suggests that direct employment effects are small.

The decrease in Greenfield investment in both R&D activities (including development, design and testing activities) since 2009 is striking and deserves further attention. Measures to increase the attractiveness of FDI in R&D services should be a major concern of policymakers. One particular problem is the extremely strong concentration of German FDI in Austria. However, there is a widespread fear that German multinationals will further increase their offshoring activities in R&D activities in certain Central and East European countries as well as in China and South-East Asia (Belitz 2012). It seems to be that much of the investment in the emerging markets is likely to be at the expense of investment in the neighboring regions.

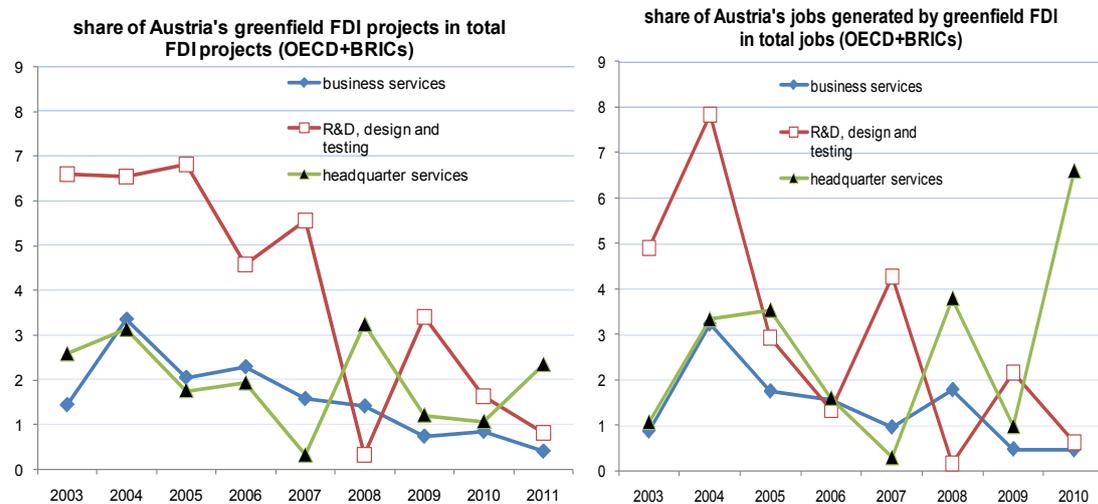
The empirical results of the sensitivity of Greenfield investments in headquarter services to corporate taxes also has important policy implications. In contrast to FDI in R&D and related activities, FDI in headquarter functions remains stable over time. The decline in corporate tax rates in 2004 clearly contributed to this development. In addition, the introduction of the cross border group taxation regime in 2004 also helped to attract new headquarter functions from abroad. Therefore, the cross-border group taxation regime should be maintained.

*Table 1: Number of Greenfield FDI projects and number of jobs in Austria, 2003-2010*

	business services	Design, Development, testing	Headquarters	R&D services
	number of Greenfield FDI projects			
2003	8	2	4	4
2004	17	5	6	2
2005	15	3	4	6
2006	22	2	4	6
2007	19	8	1	8
2008	20	1	11	0
2009	10	4	5	6
2010	11	5	4	0
2011	7	2	7	0
mean	14	4	5	4
	number of jobs generated by Greenfield investment			
2003	87	500	212	278
2004	290	960	480	540
2005	233	350	737	527
2006	289	150	296	327
2007	346	670	100	1176
2008	547	70	1318	0
2009	145	248	348	915
2010	122	276	2169	0
2011	153	355	459	0
mean 2003-11	246	398	680	418

Source: FDImarkets database.

*Figure 1: Number of Greenfield FDI projects and number of jobs created by service activity in Austria, 2003-2010*



Source: FDImarkets database.

Table 2: Number Greenfield FDI projects and their jobs generated by activity and destination country cumulated between 2003-2010

	business scvs	dev, design, testing	head- quarters	R&D	business scvs	dev, design, testing	head- quarters	R&D
	number of projects				number of jobs			
Austria	126	32	45	32	2127	3526	5949	3763
Belgium	167	49	70	32	4824	4975	6176	2480
Bulgaria	115	20	1	6	2093	1263	84	360
Cyprus	22	0	0	0	286	0	0	0
Czech Republic	149	60	20	17	2281	5868	1887	1999
Denmark	124	30	76	20	1906	2187	4872	1262
Estonia	47	9	5	1	660	325	426	92
Finland	61	12	7	10	959	976	436	508
France	576	124	145	107	18561	7276	9606	5474
Germany	733	166	247	70	11588	11064	16918	6642
Greece	101	3	7	0	1953	197	741	0
Hungary	175	37	22	39	2956	4085	1972	3365
Ireland	238	87	129	81	7155	5627	11479	5316
Italy	281	38	17	38	4264	2959	2865	3897
Latvia	28	1	4	2	1381	67	390	32
Lithuania	39	3	1	4	762	185	104	309
Luxembourg	57	3	9	1	1412	138	424	5
Malta	23	0	2	1	313	0	146	173
The Netherlands	171	32	125	17	3620	2587	16282	882
Norway	30	7	3	4	436	673	308	427
Poland	230	69	22	30	8342	5217	2952	3241
Portugal	96	14	5	9	1370	1341	324	663
Romania	331	69	33	15	6157	9126	6609	1223
Slovakia	61	12	12	4	950	1485	941	1570
Slovenia	26	3	4	0	352	114	368	0
Spain	387	91	142	96	6425	11239	19286	7263
Sweden	157	45	45	26	3151	3589	4137	2606
Switzerland	304	29	148	16	5774	2686	15828	1286
United Kingdom	1159	248	539	159	28399	20595	32523	17174
coefficient of variation	1.20	1.26	1.70	1.33	1.35	1.22	1.38	1.20

Source: FDI markets database.

Figure 2: Correlation between Greenfield FDI activity in headquarter services, taxes and costs of starting a business

