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The Impact of Austrian FDI in Central and Eastern Europe on Domestic Exports and Employment

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Abstract

Since the opening of Eastern European Economies in 1989 Austria has invested quite heavily in those countries. This has lead to renewed interest within Austria in the impact of these investments on domestic exports and employment. This paper reports findings from a comprehensive data set as well as from a questionnaire. In contrast to most of other studies this paper analysed the relationship of foreign sales and domestic exports by sectors and for different periods. Results show that the relationship at an aggregate level is clearly positive. However, there are several manufacturing sectors which show strong and growing substitutive relationships.

JEL classification: F15, F21, F23

Keywords: FDI, Trade, Economic Integration

1. Introduction

The discussion on the relationship of outward foreign direct investment (FDI) and domestic exports is a long lasting issue. In Austria this topic has received considerable new attention due to the opening of Central and Eastern European Countries (CEECs) and their envisaged integration into the European Union. Since the opening of CEECs in 1989 Austria's trade and investment relations have intensified quite rapidly. Economic co-operation has multiplied in particular with Austria's neighbouring countries Hungary, the Czech Republic, Slovenia and Slovakia. Austria has not only achieved a high surplus in its balance of trade with these countries throughout the period 1990-97 **Error! Bookmark not defined.**, but has also improved its overall employment through this surplus by a significant number **Error! Bookmark not defined.**. At the same time Austria has carried out considerable FDI activities in CEECs. The FDI stock has increased from nearly zero in 1989 to 40 bn ATS in 1996 (or 28.9% of total FDI). In accordance with FDI even employment of Austria's enterprises show a rather steep increase of their foreign employment in CEECs. Between 1991 and 1996 their employment in CEECs expanded from 25,000 to more than 85,000. However, the share of foreign employment to total employment remained relatively stable throughout this period!

Hence, at the aggregate level it seems to be the case that trade, FDI and employment between Austria and its CEE neighbours show a rather simultaneous development. However, there is preliminary evidence that these relations are rather different by region, time and sectors **Error! Bookmark not defined.**. One study even shows a significant negative impact of outward FDI on exports for the period 1990-1995 while the impact on real wages and employment is positive, although only significant for the latter **Error! Bookmark not defined.**.

This paper tries to analyse the relationship between FDI and exports only for one region which has influenced the internationalisation of Austria's companies during the last decade most heavily, namely the CEECs. For that purpose we have conducted a questionnaire in summer 1997 which allows an

investigation of the relationship between FDI and exports simultaneously for a particular sample of companies. The paper is organised as follows: In section 2 we provide a brief survey of the theoretical as well as empirical literature. Section 3 presents the general structure of Austria's FDI and its employment in CEECs. The analysis of the relationship between FDI and exports is provided in section 4. A summary and some policy implications of the increasing association between international trade and production for Austria are outlined in the concluding section 5.

2. Trade and Investment - Complements or Substitutes?

The empirical and theoretical literature discusses a broad range of explanations concerning the relationship between FDI and exports. Cantwell (1994) and Graham (1996) provide comprehensive surveys of this topic. Cantwell addresses several issues which are of importance. First, he distinguishes between three different types of international production: resource-based, local-market-oriented and internationally integrated production. All three types influence trade in different ways. Since at a world level there has been a historical evolution from resource-based, to local-market oriented, to internationally integrated production, it is possible to depict the structure of the linkage between international trade and production as gradually shifting over time. Second, international production may be trade-replacing or trade-creating depending on the context. Hence it is mainly an empirical issue to estimate the net result. Third and linked to the first issue, the relationship between trade and production varies with the degree of maturity and strategies of the firms, and with the stage of development of the countries. In particular this point is further developed by Lankes and Venables (1996) for CEECs. They conclude that the type of investment depends very much on the stage of transition of the host countries. While in Russia a dominance of resource-based projects can be observed, in the more advanced transition countries like Hungary and the Czech Republic export supply projects are gaining momentum.

In another recent article Blomström, et. al. (1997) analyse the relationship between FDI and domestic employment. They conclude that this relationship depends quite strongly on the specific type of investment. U.S. multinational enterprises display a stronger substitution effect on domestic employment while Swedish MNEs display a complementary development between foreign and domestic employment. This can be explained by the different network connections within these enterprises. Since Swedish affiliates produce mainly for local markets with positive effects on domestic employment, U.S. MNEs have allocated some of their more labour intensive operations abroad, reducing the labour intensity in their home production.

Agarwal (1996) provides one further important theoretical piece of evidence. He explains the impacts of different motives of investment on trade. For that purpose he distinguishes three different types of impact: the substitution of former exports through FDI, growing reimports of goods and services produced abroad by foreign affiliates of domestic firms and FDI associated exports of goods and services. The overall impact of FDI on trade is the sum of negative (export substitution, reimports) and positive effects (associated exports). It is assumed that FDI in 'market based' sectors as well as services show a complementary relationship and therefore have a positive impact on domestic exports. In contrast, efficiency oriented FDI of industries and services and exports may have a substitutable relationship. Hence negative impacts on the home economy are conceivable.

Most of the previous empirical studies suggest that the relationship between FDI and exports is complementary **Error! Bookmark not defined.** Some of these studies found even a complementary relationship between FDI and imports **Error! Bookmark not defined.** although the complementary effect between FDI and exports is generally much stronger than between FDI and imports. However, during recent years several studies have been published which cast some doubt on this general finding **Error! Bookmark not defined.**

Even empirical studies for Austria found mostly a complementary relationship between FDI and

exports **Error! Bookmark not defined.**. However, as mentioned above, one study suggests a substitutive relationship of outward FDI and exports for the period 1990-1995 **Error! Bookmark not defined.** All of these studies have been performed only for the manufacturing sector. However, the manufacturing sector shows only one part of the puzzle. Due to the fact that Austria's FDI in CEECs has been carried out mainly in the non-manufacturing sector we will also include this sector into our analysis. Further we will concentrate our analysis on Austria's FDI in CEEC only. Due to the large differences in factor prices this region is of particular interest for such an analysis. Indeed there is strong public concern that such investments substitute exports and increase (re-) imports.

For our analysis we have chosen the following approach: Firstly, we investigate the sectoral pattern of Austria's FDI. Such an analysis provides a first understanding of the different kinds of Austria's FDI. Furthermore, we can see which sectors expose substantial shares of overall FDI. Hence we will focus the subsequent analysis of the relationship between FDI and exports on these sectors. Secondly, we analyse the regional structure of parent and affiliate sales. Following the considerations above we would expect that internationally integrated FDI show low and decreasing exports by parent firms and high exports to the European Union (EU) by their affiliates. In contrast, we would assume that market-oriented affiliates stimulate exports by the parent firms and expose high local market shares by the affiliates. Thirdly, we will investigate the development of foreign sales and domestic exports simultaneously by correlation analysis.

To analyse the hypotheses explained above we make use of two different sets of data: One has been provided by the division of 'International Balance of Payments' at the Austrian National Bank. This data present the results of a survey that is conducted annually (see section 3). A second set of data presents results of a particular questionnaire that was conducted in summer 1997. Among others this data set includes sales, export and employment data for 1989, 1995 and expected figures for 1998. Hence this data provides a unique opportunity to analyse the relationship between domestic exports

and foreign sales by different sectors and for different periods (see section 4).

3. Structure of Austrian FDI in CEECs

Table 1 presents the development of Austrian MNEs for 1991-96.¹ During the 1990s Austrian outward FDI has improved from 184.8 bn ATS in 1991 to 284.0 bn ATS in 1996. This period of 'globalisation' was characterised by two new and substantial economic developments: the pre-EU-accession period² and the opening of Eastern European economies. Both of them have enforced Austrian international economic activities considerably. However, in 1996 the Austrian outward FDI stock, measured as a percentage of gross domestic product, was only 5.8% and thus far below the EU average of 16.8% **Error! Bookmark not defined.** One of the main reasons for this low degree of internationalisation is the Austrian industry structure, especially the prevalence of small and medium enterprises (SMEs). Most of this specific Austrian economic feature can be explained only historically **Error! Bookmark not defined.**

Austrian outward FDI to the CEECs started from a ATS 1.4 billion low (4.4% of total FDI) in 1989 and increased to a ATS 39.5 billion high in 1996 (28.9% of total FDI). Although Austrian financial capabilities are not very large by international standards her FDI has reached considerable market shares in CEECs (23.6% in Slovenia, 21.4% in Slovakia and 19.6% in Hungary). Measured by this share Austria is ranked first in Slovenia and Slovakia and only second (behind Germany) in Hungary. The regional structure of Austrian FDI is strongly influenced by geographical as well as historical proximity. Close to 90% of Austrian total FDI in Eastern Europe is located in the four adjacent countries Hungary, Slovakia, Slovenia and the Czech Republic.

Furthermore, we can see that parent employment of Austrian MNEs doubled as well as affiliate

employment. Hence at the aggregate the relation between affiliate and total employment (foreign and domestic employment) remained roughly stable at 26%. However, there are some distinctive differences between Austrian outward FDI in CEECs and the 'Rest of the World' (RoW).³ While in CEECs the share of affiliate employment to total employment has risen from 35% (1991) to 38% (1995) this share declined from 22% to 18% in the RoW. The main explanation for these contrasting developments is the very different capital/labour ratios of FDI between these two regions. Whilst on average this ratio was 1 mn ATS per foreign employee in 1996 the production in CEECs was four times more labour-intensive (0.46 mn ATS per employee) than in the RoW (1.94 mn ATS per employee). This huge difference of capital-labour ratios explains the different employment patterns of these two regions to a very large extent. The contrasting affiliate/total employment ratios are mainly a result of uneven productivity levels between affiliate and parent companies.

Table 1: Parent and Affiliate Employment of Austrian MNE, 1991-96

		1991	1992	1993	1994	1995	1996
CEECS	Total capital of affiliates (bn ATS)	11288	17989	26273	32521	33723	39478
	Affiliate Employment	24681	33452	50329	65085	78035	85425
	Parent Employment	46193	57125	107532	115320	127155	140786
	Affiliate/total employment	35%	37%	32%	36%	38%	38%
	Capital/labour ratio (in 1000 ATS)	457	538	522	500	432	462
RoW	Total capital of affiliates (bn ATS)	53167	59924	72195	70458	84325	96899
	Affiliate Employment	38401	39352	40552	40978	46983	50005
	Parent Employment	137602	194025	248163	232670	220068	143194*
	Affiliate/total employment	22%	17%	14%	15%	18%	26%
	Capital/labour ratio (in 1000 ATS)	1385	1523	1780	1719	1795	1938
Total	Total capital of affiliates (bn ATS)	64455	77913	98468	102979	118048	136377
	Affiliate Employment	63083	72805	90881	106063	125019	135430
	Parent Employment	183796	251150	355695	347990	347222	283980*
	Affiliate/total employment	26%	22%	20%	23%	26%	32%
	Capital/labour ratio (in 1000 ATS)	1022	1070	1083	971	944	1007

Source: Austrian National Bank, author's own calculations

* see endnote 1)

Generally we can observe that the development of affiliate employment is approximately in accordance with the development of parent employment. It is not only that affiliate employment has increased by nearly 100% between 1991 and 1995 but parent employment did as well. Hence this data emphasises that during the early 1990s the internationalisation of Austria's economy has involved many new companies. As demonstrated elsewhere this process has been profoundly conducted by Austrian SMEs **Error! Bookmark not defined.**

Table 2 shows the structure of Austrian FDI in the CEECs by sectors for 1996, registered by sectors of host countries. We can mainly see six sectors in which Austrian FDI is concentrated: finance and insurance (20.5%), wholesale and retail trade (18.1%), non-metallic products (8.6%), chemicals and petroleum (7.7%), food and beverages (6.6%) and construction (6.0%). Additionally, we have aggregated an 'engineering sector' which consists of metal products, mechanical products, electric and electronic equipment, motor vehicles and other manufacturing products. This sector accounts for 10.7% of total FDI. Together these seven sub-sectors account for 78.3% of Austrian FDI in the CEECs.

Table 2: Austrian Total Capital in CEECs by Foreign Economic Sectors, at End-1996

Mining and quarrying	1.4%
Food, beverages, tobacco	6.6%
Textiles, clothing, leather	0.7%
Wood processing	1.2%
Paper, printing and publishing	3.8%
Chemical products and refined petroleum	7.7%
Non-metallic products	8.6%
Metal products	2.6%
Mechanical products	1.3%
Electric and electronic equipment	5.6%
Motor vehicles	0.4%
Other manufacturing	0.7%
Engineering sector1)	10.7%

Manufacturing	39.2%
Construction	6.0%
Wholesale and retail trade	18.1%
Tourism	5.0%
Transport and communication	0.8%
Finance & Insurance	20.5%
Real estate (incl. Holdings)	7.9%
Miscellaneous	1.2%
Non-manufacturing	59.5%
Total ATS million	39.478

1) metal products, mechanical products, electric and electronic equipment, motor vehicles, other manufacturing
Source: OeNB

On average nearly 60% of Austrian FDI in CEECs is located in the service sector while the share of manufacturing is only close to 40%.⁴ The dominance of service-related FDI is a specific Austrian feature. Within the service sector the trading sector is of extraordinary significance. Austrian activities in trade are mainly a result of acquiring merchandise trading chains and, in addition, building up its own sales units. This pattern is similar for the financial and insurance sector. Investments within these service sectors are mainly determined to take advantage of the emerging markets. Even the construction sector is of importance. These activities are mainly a result of the strong demands caused by the development in the infrastructure in the transformation countries. Most of this demand could not be satisfied by their domestic construction industries.

FDI within the manufacturing sector is also strongly concentrated. The huge investment activities of the petroleum sector is a typical resource-based FDI which was brought about through joint ventures between refineries of Austria, Slovenia, Slovakia and partially Hungary. Further investments have been carried out in food and beverages as well as non-metallic products. One sector, which is of particular interest, is the 'engineering sector'. FDI within this sector is very often assumed as mainly

taking advantage of cheap labour. In 1996 this sector comprised 10.7% of Austrian total FDI in CEECs.

Far the largest share of Austrian FDI in the CEECs has been invested in Hungary. In 1996 four countries adjacent to Austria (Hungary, Czech Republic, Slovenia and Slovakia) accounted for 90% of Austrian overall FDI in the CEECs. This regional pattern emphasises the importance of geographical proximity.

This brief outline of sectoral and regional patterns of Austrian FDI in the CEECs brings to the fore two important issues: First, the importance of geographical proximity and second, the significance of investments in the non-manufacturing sector. Consequently, the subsequent analysis on production and trade will focus on those seven sectors which account for the bulk (78.3%) of Austrian FDI in CEECs: finance and insurance, wholesale and retail trade, non-metallic products, chemicals and petroleum, food and beverages, construction and engineering.

4. Sales and Exports Patterns of the Sample

The empirical evidence presented in this section is the result of a survey which was conducted in summer 1997. The questionnaires were sent by mail to a total of 1,843 Austrian firms. A total of 295 firms (16.0%) responded to the survey of which 283 firms (15.4%) returned completed questionnaires. Out of these 283 firms a total of 150 firms have invested in CEECs.⁵ The following analysis covers these firms only! Since each firm did not reply to all the questions the number of respondents in the following tables is always below the total of 150.

Table 3 presents the regional sales structure of the parent firms. As can be seen only 56.3% of total output has been sold at domestic markets. The remaining 43.7% were sold at foreign markets. Thereof far the largest share (24.5%) was shipped to the EU and another 12.6% to CEECs. A

breakdown by sectors reveals that it is the engineering sector which shows by far the largest degree of internationalisation. Within this sector only 31.1% were sold at domestic markets and the remaining 68.9% have been exported. Within the manufacturing sector even petroleum and chemicals indicate a high degree of internationalisation. The other manufacturing sectors rely to a large extent on local markets.

Table 3: Regional Sales Structure of Parent Firms, 1995 (in %)^a

Sectors		Austria	EU (except Austria)	CEEC	Others
Food & Beverages	mean	83.6	4.6	7.6	4.1
	N	8	8	8	8
Petroleum, Chemicals	mean	46.3	29.5	10.2	14.0
	N	8	8	8	8
Non-metallic products	mean	80.3	11.6	3.9	4.1
	N	8	8	8	8
Engineering	mean	31.1	53.0	8.8	7.1
	N	28	28	28	28
Other manufacturing	mean	57.3	34.3	2.1	6.3
	N	15	15	15	15
Construction	mean	88.5	2.5	6.5	2.5
	N	8	8	8	8
Trade	mean	58.8	13.9	20.4	6.9
	N	27	27	27	27
Other non-manufacturing	mean	58.9	6.4	29.5	5.2
	N	14	14	14	14
Total	mean	56.3	24.5	12.6	6.5
	N	116	116	116	116

a. Finance and Insurance excluded

Within the non-manufacturing sector it is in particular the trading sector which shows large export shares (41.2%). Most of these exports were sold at CEE markets. Additionally, the remaining non-manufacturing sectors⁶ show a large reliance on these markets.

Furthermore we will analyse the sales structure of the affiliates. For that purpose we distinguish between two different types of FDI: 'supply-based driven' and 'market-driven' FDI. Presumably the

first one would indicate that the dominant factor of investment is to get access to a cheap industrial workforce. As long as the national purchasing power of the host country remains low - which is a necessary requirement of this approach - a large part of the production will be exported to developed countries with strong demand. Such a scenario would presumably substitute exports from the home country and encourage reimports to the home country. Hence such investments should display high export shares to EU markets. Such patterns are usually associated with 'relocation'. In contrast to this type is 'market-driven' investment. Such FDI requires quick emerging markets. This would be accompanied by a considerable expansion of customer demand. Therefore the production of the affiliates should be sold to a large extent on local markets.

Table 4: Regional Sales Structure of Affiliates, 1995 (in %)^a

Sectors		local market	EU (incl. Austria), 1995	thereof: Austria	other CEECs	Others
Food & Beverages	mean	83.0	8.6	4.1	8.3	.1
	N	9	9	9	9	9
Petroleum, Chemicals	mean	81.6	17.2	17.2	1.2	.0
	N	5	5	5	5	5
Non-metallic products	mean	78.7	9.1	6.3	6.1	6.1
	N	9	9	9	9	9
Engineering	mean	39.5	51.3	17.4	6.1	3.1
	N	23	23	23	23	23
Other manufacturing	mean	55.2	38.4	22.5	4.5	2.0
	N	13	13	13	13	13
Construction	mean	89.2	5.3	5.3	5.4	.0
	N	9	9	9	9	9
Trade	mean	75.1	13.0	6.7	7.0	4.8
	N	31	31	31	31	31
Other non-manufacturing	mean	58.2	19.6	6.4	21.2	1.1
	N	19	19	19	19	19
Total	mean	65.5	23.3	10.6	8.5	2.7
	N	118	118	118	118	118

a. Finance and Insurance excluded

Table 4 shows the regional sales structure of the affiliates for 1995. On average the local markets account for 65.5% of total sales. Hence the predominance of local markets is obvious. However,

even 23.3% were shipped to EU markets, thereof 10.6% to Austria. Another 8.5% were sold at other CEE markets and only 2.7% were destined for other markets (Asia, America). Table 4 shows further some important differences by sectors. Interestingly, all sectors which have invested strongly in CEECs show high local market shares.⁷ Construction shows a local market share of 89.2%, followed by food and beverages (83.0%), petroleum and chemicals (81.6%), non-metallic products (78.7%) and trade (75.1%). Among all sectors included in Table 4 there is only one which yields important export shares to the EU, the engineering sector. This sector sells 51.3% at EU markets. The share of local markets is 39.5% only. The sales pattern of the remaining manufacturing sectors ('other manufacturing')⁸ is similar to the engineering sector. Even these sectors have high exports to the EU and relatively low local market shares. This contrasting pattern of affiliate sales structure is essential. It indicates that within these manufacturing sectors some specialised division of labour has already taken place. And it is not only Austria where these products are shipped to. Even other EU countries are involved into this European division of labour. This specific feature strengthens a presumption which already has been postulated by several scholars: Intra-industry trade between the EU and CEECs is developing rather quickly and this kind of integration is not based on inter-sectoral specialisation any longer.⁹

Furthermore it is of particular interest to look at the sales structure of the miscellaneous service sectors. First, they do have rather small local market shares. Second, and more interestingly, this is the only sector where exports to other CEECs are significant (21.2%). Most of these firms are transport and business service companies.

Summarising the results of Table 3 and Table 4 we can postulate that it is mainly the engineering and the 'other' manufacturing sector which exhibits patterns of efficiency-oriented FDI. In particular the

high export shares of the affiliates to EU markets indicate such kind of investment. However, all other sectors rely to a very large extent on local markets. Therefore these investments show typical characteristics of market-oriented FDI.

Finally we want to look at the dynamic pattern of these developments. Table 5 shows the strong growth of employment and sales in and exports to the CEECs alike. The share of employment in CEECs by total (parent and affiliate) employment increased from 5.3% in 1989 to 35.1% in 1998.¹⁰ In accordance with employment sales also increased from nearly zero to 24.4% in 1998.¹¹ Interestingly, even the share of exports by total domestic sales doubled during this period. This share increased from 7.0% (1989) to 14.4% (1998). Hence the CEEC-export share of the sample is far above the Austrian average **Error! Bookmark not defined.** Data of Table 5 seem to indicate that the internationalisation of these firms occurred by expanding foreign sales and parent exports simultaneously. However, this is only the overall result. The particular patterns by sectors might be rather different. This we will analyse in the subsequent section.

Table 5: Employment, Sales and Export Patterns of the Sample (in %)

Sectors		E_CEEC89 ^a	E_CEEC95	E_CEEC98	S_CEEC95 ^b	S_CEEC98	Ex_CEEC89 ^c	Ex_CEEC95	Ex_CEEC98
Food & Beverages	mean	1.9	33.8	43.1	17.9	21.7	3.9	7.6	6.4
	N	9	9	9	6	6	8	8	8
Petroleum, Chemicals	mean	.1	10.4	19.4	13.6	18.2	5.2	10.2	13.8
	N	7	9	9	4	6	5	8	8
Non-metallic products	mean	9.7	42.6	44.6	22.3	29.9	1.1	3.9	4.7
	N	9	9	9	7	6	8	8	8
Engineering	mean	.7	14.9	24.2	12.6	18.3	5.2	8.8	9.0
	N	23	29	27	18	20	26	28	28
Other manufacturing	mean	2.1	37.5	43.4	18.5	24.9	1.1	2.1	4.4
	N	14	16	17	9	10	14	15	16
Construction	mean	5.2	32.9	36.9	22.2	28.2	2.9	6.5	11.3
	N	9	9	9	7	7	8	8	8
Trade	mean	11.1	27.6	32.9	18.4	24.1	15.2	20.4	21.9
	N	34	36	33	16	14	25	27	27
Finance & Insurance	mean	1.3	19.8	29.0					
	N	6	8	7					
Other non-manufacturing	mean	5.4	43.3	46.8	29.5	38.6	11.1	29.5	32.7
	N	13	20	20	9	8	11	14	14
Total	mean	5.3	28.5	35.1	18.8	24.4	7.0	12.8	14.4
	N	124	145	140	76	77	105	116	117

- a. E_CEEC.....employment in CEE affiliates by total (parent and affiliate) employment
- b. S_CEEC.....sales in CEE affiliates by total (parent and affiliate) sales
- c. Ex_CEEC.....parent exports to CEECs by total parent sales

We want to prove the correlation between domestic exports to CEECs by the parent companies and foreign sales in CEECs by the affiliates. If there were a complementary relation between these two we would expect a positive correlation. In contrast, a substitutable relationship would be indicated by a negative correlation between domestic exports to CEEC and foreign sales in CEECs. Such a pattern might indicate some kind of relocation and a substitution of domestic exports by foreign production.

To distinguish between different stages of the internationalisation process we will analyse this relationship for two different sub-periods. According to Lankes and Venables (1996) it might be the case that in the initial stage of investment the vertical integration aspect may dominate and therefore investment will boost exports. In later stages horizontal investment may be more important, leading to a substitutive relationship in subsequent periods. Hence we will distinguish the period of initial investment (1989-95) from the succeeding period (1995-98). Hence we would expect a complementary relationship between foreign sales and domestic exports to CEECs during the first period and a diminishing (or even a reverse) relationship during the second period.

Table 6: Correlation between foreign sales and domestic exports, 1995

	Total				
Pearson's R	0.55**				
Significance	0.00				
Number	75				
Manufacturing	Food & Beverages	Petroleum & Chemicals	Non-metallic Products	Engineering	Other Manufacturing
-0.17	0.41	-0.41	-0.07	-0.31	0.35
0.26	0.42	0.59	0.88	0.21	0.35
44	6	4	7	18	9
Non-Manufacturing		Construction	Trade	Other non-Manufacturing	
0.76**		0.84*	0.81**	0.84**	
0.00		0.02	0.00	0.01	
31		7	16	8	

** Significant at 1% level.

* Significant at 5% level.

Table 6 presents the results of the correlation between domestic exports and foreign sales for 1995.¹² The results are rather interesting. As can be seen, there is a significant positive correlation (0.55) between the share of domestic exports and foreign sales at the aggregate level. Hence this

seems to indicate that the penetration of new markets in CEEC by Austrian companies proceeded by some kind of double-strategy, namely exports and increasing local sales. However, this aggregate result comprises some caveats. *First*, the positive correlation holds only at the aggregate level. *Second*, this simple correlation presents the static point of view only. Hence nothing can be said about the dynamic development of this relationship.

A breakdown by sectors reveals a rather diverse pattern of this correlation. In particular it is the non-manufacturing sector which is responsible for the significant positive relationship (0.76). This is not the case for manufacturing! Within the manufacturing sector we can observe a negative (but insignificant) correlation (-0.17). Among the eight sub-sectors there are only three with significant positive relationships (construction, trade and other non-manufacturing). Although three sub-sectors of the manufacturing sector show a negative relationship (petroleum and chemicals, non-metallic products, engineering) none of these are significant.

Moreover, it is of particular interest to look at changes between the two periods. Considerations explained above suggest that the stage of transition of the host countries as well as the stage of the FDI determine the relationship between exports and investment to a large extent. The better-advanced transition countries are the more efficiency-based FDI projects gain momentums. Local suppliers (and therefore local value added) become more competitive and increase market shares. Hence we would expect that in particular within the manufacturing sector the substitutive relation between FDI and exports should increase.

Table 7: Correlation between foreign sales and domestic exports, 1998

Total

Pearson's R	0.46**
Significance	0.00
Number	76

Manufacturing	Food & Beverages	Petroleum & Chemicals	Non-metallic Products	Engineering	Other Manufacturing
-0.25	0.26	-0.37	-0.21	-0.47*	0.48
0.09	0.62	0.47	0.70	0.04	0.16
48	6	6	6	20	10
Non-Manufacturing	Construction	Trade	Other non-Manufacturing		
0.71**	0.73	0.81**	0.69		
0.00	0.06	0.00	0.09		
28	7	14	7		

** Significant at 1% level.

* Significant at 5% level.

Table 7 shows the correlation between foreign sales and domestic exports for 1998. We can see that at the aggregate level the relationship between exports and foreign sales is still positive (0.46) and significant. However, the results differ very much by sectors. The negative correlation for the manufacturing sector became significant at the 10%-level (-0.25). Moreover, the data emphasise that within the engineering sector the negative correlation increased and became strongly significant (-0.47). Hence these results suggest that within the engineering sector the substitutive relationship between foreign production and domestic exports increased significantly in the post-investment period 1995-1998. However, the correlation for the non-manufacturing sector is positive and significant even for this period (0.71).

5. Conclusion

A breakdown of Austria's FDI stock in CEECs by sector reveals that the non-manufacturing sector (trade, finance and insurance, construction) has invested most strongly. Within the manufacturing sector four sectors comprise the bulk of FDI: chemicals and petroleum, food and beverages, non-

metallic products and the 'engineering sector' which comprises metal products, mechanical products, electrical and electronic equipment and motor vehicles. Together these seven sectors account for 78.3% of total investment in CEECs.

Investments were primarily accompanied by increasing exports from the parent firm. This complementary relationship of investment and domestic exports holds for the initial stage of investment (1989-95) as well as for the proceeding period (1995-98). Hence the internationalisation of these firms took place simultaneously. The correlation analysis shows quite clearly the positive relationship between domestic exports and foreign sales at the aggregate level. However, separated by sectors, this correlation is rather diverse. In particular it is the non-manufacturing sector which shows a significant positive correlation. Within the manufacturing sector even the reverse relationship can be observed. In particular this is the case for the engineering sector. Interestingly, this negative correlation increased and became significant during the post-investment period 1995-1998. Hence this observation is in strong accordance with the postulated suggestion of Lankes and Venables (1996, 346) 'that progress in transition will make more economies host to vertical FDI' which is used as a synonym for efficiency-oriented FDI. Although this observation is an important issue which makes some further research at the firm level indispensable we have to keep in mind that this kind of FDI accounts for 10.7% of total FDI only. During the 1990s it was in particular the non-manufacturing sector (trade, construction, finance and insurance) which has gained from Austria's new internationalisation further East.

Given the empirical evidence so far we are tempted to conclude that Austria's FDI in CEECs presents a considerable push of Austria's internationalisation which was in particular accompanied by a large improvement of Austria's trade balance with CEECs. Geographical proximity and close

historical and cultural ties between Austria and her adjacent countries mainly explains this encouraging economic development.

References

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¹ Parent employment data for 1996 are not comparable due to the withdrawal of one large transport company from foreign investment **Error! Bookmark not defined.**. Hence we will concentrate our comparison on 1995.

² Austria became a member of the EU on 1 January 1995.

³ Austrian FDI in RoW is mainly performed within the European Union.

⁴ Interestingly, the manufacturing-share of German FDI in Hungary has been 54.8% and in the Czech Republic 65.6% respectively at the end of 1993 **Error! Bookmark not defined.**

⁵ The remaining 133 firms have been included as a control group and will not be investigated in this paper.

⁶ Among others these sectors are transport and communications, real estate and business services like marketing, advertising, controlling and counselling.

⁷ We did not get enough responses from finance and insurance. Hence this sector is not included in Table 3 and Table 4. However, this sector is certainly dependent to a very large extent at local markets.

⁸ Among others these sectors are textiles, clothing, leather, wood processing, paper, printing and publishing.

⁹ E.g. Landesmann, 1997; Kurz and Wittke, 1997; Lemoine, 1997; Lorentzen, et al., 1998

¹⁰ Note the figures for 1998 are expected ones only. However, results from a pre-questionnaire confirmed that these figures are very reliable.

¹¹ For 1989 sales data are not available. However, due to the specific legal circumstances at that time they must have been very low.

¹² The correlation is measured by a simple Pearson correlation coefficient which uses actual data values (Norušis, 1997).