Mothers and Daughters: Heterogeneity of German direct investments in the Czech Republic

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Dataset

- Research on Locational and Organizational Change (ReLoc) survey
- Affiliates, their mother companies and control groups of domestic firms
- Reference period is 2010
- Industry and market services
- TNS Infratest Sozialforschung in Germany
- TNS AISA in the Czech Republic

Four survey groups

1. (T_CZ) Treatment group in the Czech Republic: German affiliates (daughters)

2. (C_CZ) Control group in the Czech Republic: Domestic Czech firms

3. (T_DE) Treatment group in Germany: German (mother) firms with an affiliate in the Czech Republic

4. (C_DE) Control group in Germany: Domestic German firms

Descriptive statistics (in %), continuing

Location	Czech Republic			Germany		Total
Ownership	Greenfield affiliate (T_CZ1)	M&A affiliate (T_CZ2)	Domestic owners (C_CZ)	MNC mother (T_DE)	Domestic owners (C_DE)	
Sector:						
Industrial activity	56.1	70.9	47.9	56.0	40.4	47.5
Value chain position:						
1: Upstream	1.1	0.0	0.8	0.8	1.7	1.2
2	2.3	1.2	2.4	4.4	3.5	3.1
3	7.2	9.3	5.0	9.6	5.7	6.4
4: Middle	18.2	7.0	13.6	27.2	16.3	17.1
5	23.1	29.1	18.9	25.3	18.9	20.6
6	23.1	24.4	20.2	20.1	21.6	21.3
7: Downstream	25.0	29.1	39.1	12.6	32.3	30.3
Intramural R&D activity:						
R&D engagement	18.6	26.7	23.3	67.3	28.5	31.7
Education attainment of employees:						
Low educated labor	20.4	23.5	18.2	21.3	22.3	20.9
Medium educated labor	46.9	57.4	58.8	60.5	67.3	61.4
Highly educated labor	32.7	19.1	23.0	18.2	10.4	17.7
Number of observations	264	86	662	364	1,065	2,441

Descriptive statistics (in %), continued

Location	Czech Republic			Germany		Total
Ownership	Greenfield affiliate (T_CZ1)	M&A affiliate (T_CZ2)	Domestic owners (C_CZ)	MNC mother (T_DE)	Domestic owners (C_DE)	
Task complexity:						
Repetitive manual tasks	31.4	39.3	25.2	25.5	29.0	28.1
Diverse manual tasks	20.0	27.9	33.9	20.5	26.5	27.0
Repetitive non-manual tasks	12.8	13.6	14.1	16.3	13.1	13.8
Interactive tasks	19.0	10.5	14.9	20.8	18.7	17.7
Analytical task	16.9	8.7	11.9	16.9	12.7	13.4
Technological level of equipment:						
-3: Absolutely obsolete	1.9	2.3	0.9	0.3	0.7	0.9
-2	6.4	2.3	3.0	1.6	1.7	2.6
-1	6.1	10.5	7.1	4.1	4.5	5.5
0: Average	32.6	23.3	28.4	14.6	12.2	19.5
1	23.5	23.3	29.5	22.3	21.5	24.0
2	19.3	33.7	24.6	42.3	41.6	34.4
3: State-of-the-art	10.2	4.7	6.5	14.8	17.8	13.0
Structural characteristics:						
Number of employees	60.5	131.6	62.7	264.8	155.5	135.5
Age	12.8	17.3	16.3	45.3	46.8	33.6
Number of observations	264	86	662	364	1,065	2,441

Results of the cluster analysis

	Cluster				Total
Variable	1 High-tech industry	2 Low-tech industry	3 High-tech services	4 Low-tech services	
Industrial activity	1.00	1.00	0.00	0.00	0.48
Value chain position	4.98	5.31	5.08	5.97	5.38
R&D engagement	1.00	0.00	0.38	0.00	0.32
Low educated labor	23.86	25.77	6.80	25.25	20.90
Medium educated labor	61.52	62.67	54.33	65.65	61.42
Highly educated labor	14.62	11.56	38.87	9.10	17.69
Repetitive manual tasks	34.16	41.46	10.69	25.60	28.08
Diverse manual tasks	26.17	30.14	18.02	31.71	26.95
Repetitive non-manual tasks	14.48	11.32	14.85	14.54	13.81
Interactive tasks	12.53	8.88	28.73	20.68	17.73
Analytical tasks	12.66	8.21	27.72	7.47	13.42
Technical level of equipment	1.32	0.87	1.57	1.06	1.19
Number of observations	567	593	550	731	2,441

By detailed industry categories (in %)

NACE (rev. 2)	Name	Number of observations	Cluster 1 High-tech industry	Cluster 2 Low-tech industry
05 - 09	Mining and quarrying	8	37.5	62.5
10, 11, 12	Food, beverages and tobacco products	123	43.1	56.9
13, 14, 15	Textiles, apparel and leather products	69	47.8	52.2
16, 17, 18	Wood, paper and printing products	97	33.0	67.0
19, 20, 21	Chemicals, petroleum and coke products	27	74.1	25.9
22, 23	Rubber, plastic and non-metallic products	142	43.0	57.0
24	Basic metals	101	46.5	53.5
25	Fabricated metal products	170	47.6	52.4
26	Computer and electronic products	49	73.5	26.5
27	Electrical equipment	84	64.3	35.7
28	Machinery and equipment n.e.c.	132	68.9	31.1
29, 30	Motor vehicles other transport equipment	51	56.9	43.1
31, 32	Furniture and other manufacturing	52	34.6	65.4
35-39	Energy and utilities	55	16.4	83.6

By detailed service categories (in %)

NACE (rev. 2)	Name	Number of observations	Cluster	
			3 High-tech services	4 Low-tech services
41, 42, 43	Construction	162	40.1	59.9
45, 46	Wholesale and trade of motor vehicles	307	42.7	57.3
47, 55, 56	Retailing, hotels and restaurants	132	23.5	76.5
49-53	Transportation and storage	111	31.5	68.5
58-63	Information and communication	65	69.2	30.8
64-66	Financial and insurance activities	59	40.7	59.3
33, 68, 77-82	Real estate and other support services	146	25.3	74.7
69-75	Professional and technical activities	178	77.5	22.5
85-88	Health, education and social services	54	44.4	55.6
84, 90-96	Other services n.e.c	67	29.9	70.1

By location and ownership categories (in %)

Ownership	Location	Cluster			
		1 High-tech industry	2 Low-tech industry	3 High-tech services	4 Low-tech services
Greenfield affiliate	Czech Rep.	11.7	44.3	26.5	17.4
M&A affiliate	Czech Rep.	19.8	51.2	15.1	14.0
Domestic owners	Czech Rep.	17.1	30.8	21.6	30.5
MNC mother	Germany	49.7	6.3	28.8	15.1
Domestic owners	Germany	21.1	19.2	20.6	39.1
Subtotal	Czech Rep.	15.9	36.1	22.3	25.7
Subtotal	Germany	28.4	16.0	22.7	33.0
Affiliate & mother	Subtotal	32.1	25.8	26.3	15.8
Domestic owners	Subtotal	19.6	23.7	21.0	35.8
Total		23.2	24.3	22.5	29.9

Results of a probit model

Dependent variable	Cluster	
	1 and 2 High-tech industry	3 and 4 High-tech services
Log of employees	0.094 (0.014)***	-0.003 (0.010)
Log of age	0.072 (0.023)***	0.016 (0.020)
Greenfield affiliate	-0.642 (0.050)***	-0.049 (0.064)
M&A affiliate	-0.616 (0.067)***	-0.124 (0.108)
Czech domestic owners	-0.460 (0.042)***	-0.208 (0.051)***
German domestic owners	-0.391 (0.039)***	-0.312 (0.045)***
Industry dummies	Included	Included
Wald χ^2	301.74***	191.51***
Log pseudolikelihood	-589.80	-757.63
Pseudo R^2	0.26	0.12
Number of observations	1,150	1,267

Note: Marginal effects at the mean of other explanatory variables are reported; robust standard errors in brackets; ***, **, and * indicate significance at the 1, 5, and 10 percent level.

Conclusions

- Significant technological gap between the mothers and their cross border daughters - hence vertical division of labour - in industry

- But a little difference between them – hence predominantly horizontal investment - in the service sector

- Implications for technological upgrading on both sides of the border but broader welfare effects not investigated

- Only cross-sectional evidence but plans for building panel data

Thank you!