Institut für Wirtschaftsforschung Halle

Halle Institute for Economic Research

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IWH-FDI-Micro-Database

Methodological Note

Survey 2013

In Hungary, Czech Republic, Poland, Romania, Slovakia and East Germany (including Berlin)

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Content

1. Motivation and research questions

With the integration of post-communist countries into the European and global economy after 1990, there was strong research interest into the role of multinational enterprises (MNEs) for economic restructuring and technological catching-up. Most of the existing empirical studies on locational determinants of FDI and host country effects did not take account of East Germany. This might be for different reasons: Firstly, theoretical and empirical difficulties derive from the fact that East Germany followed a distinct transition pattern as it became a region subsumed in a larger and more mature economy. Secondly, East Germany received private investment from foreign as well as West German firms. Only the first can be considered as a foreign direct investment (FDI). Finally, there had long been a lack of micro data to adequately analyse the activities of corresponding firms from a production as well as technological perspective.

So far, the existing empirical research on locational determinants of FDI in transition economies of Central East Europe (CEE) indicates that labour costs, market size, geographical proximity, as well as institutional factors do explain MNE investment in the region (see for example Bevan and Estrin 2004, Bevan et al. 2004). Existing studies are implemented at the country rather than regional level and, therefore, neglect the role of agglomeration economies in choice of location (ibid.). However, the new economic geography argues that the presence of increasing returns, local externalities and economic integration leads to the spatial concentration of economic activities (see for example Fujita and Thisse 2002). Therefore, other recent studies switched to analysing at a regional level and suggest that various forms of intra and inter industry agglomeration effects have to be taken into consideration when analysing the relevance of locational determinants of MNEs (Basile 2004, Basile et al. 2008, Barrios et al. 2006, Chung and Alcácer 2002, Crozet et al. 2004, Guimarães et al. 2000).

The empirical research on host country effects in transition economies by and large focused on FDI induced productivity spillovers to domestic firms. This literature assumes there is a unidirectional technology transfer from the foreign investor in the West to domestic firms in East without an active role of the local foreign affiliate. The resulting evidence is rather mixed which is mainly explained by the lack of absorptive capacity of domestic firms (see Jindra 2005 or Meyer and Sinani 2009 for an overview). Recent contributions in the field shifted the emphasis from a technology transfer perspective to viewing the MNE as an international network for the generation and diffusion of technology. This view would suggest that centrally and locally driven technological heterogeneity of MNEs is an important factor in explaining the incidence of spillovers to the host country (Castellani and Zanfei 2006, Marin and Bell 2006).

The theory of technological accumulation and firm internationalisation (Cantwell 1989) proposes a dynamic relationship between spatially bounded technological externalities, the internationalisation of firms' R&D and innovation, as well as the potential for technological spillovers from MNEs to the domestic economy. This type of theorising was crucial for the design of a research project at the Halle Institute of Economic Research (IWH) which looks at the role of MNEs in selected transition economies as well as East Germany from a comparative perspective. The project currently addresses three inter-related research

questions: What is the role of various agglomeration economies in the location of the MNEs? What is the nature of the technological activities of the multinational affiliates? Does the technological heterogeneity of the MNEs explain the incidence of technological spillovers to other firms? With the emerging internationalisation of domestic firms, another set of research questions became relevant that deals with the motives for and home country effects of outward FDI from transition economies as well as East Germany.

2. Micro data availability

Traditionally research on FDI location by MNEs uses bi-lateral country level aggregate data on FDI flows. Empirical studies on FDI spillover effects based on a production function approach by and large employ aggregate industry-level data on FDI stocks in combination with inter-sectoral linkage coefficients derived from national-level input-output tables. However, recent theoretical advances require micro data sets at the enterprise level in order to take account of firm heterogeneity.

In the case of Germany, the Microdatabase Direct Investment (Mikrodatenbank Direktinvestitionen, MiDi) maintained by the Bundesbank could serve as a potential initial choice. Companies with direct investment report their international capital links if their balance sheet total exceeds €3 million (see Lipponer 2009). Shares and voting rights held by affiliated investors from foreign economic territories are consolidated. Reports are submitted by German enterprises if a non-resident or several economically-linked non-residents hold a total of 10 per cent or more of the shares or voting rights in the enterprise on the date the balance sheet is issued. Indirect participating interests must be reported if a dependent investment enterprise has a stake of 10 per cent or more in another enterprise. The database also includes German branches and permanent establishments of non-residents having operating assets totalling more than €3 million. Two or more resident branches and permanent establishments of any one non-resident are to be regarded as a unit (ibid). Thus, the MiDi is a full census of obligatory administrative information. The MiDi has been used for a regional analysis of MNE choice of location in Germany at NUTS-1 level ('Bundesländer') (Arndt et al. 2009, Spies 2010). However, the registration of companies only above a certain threshold (total balance sheet/operating assets) introduces a bias towards large enterprises (Pflüger et al. 2010). In addition, the consolidation procedure of different units at the level of the German regional headquarter creates an unknown degree of distortion in terms of regional disaggregation (Arndt et al. 2009, Becker et al. 2009). As a result of size bias as well as the distorted regional disaggregation, the number and volume of foreign investment is underestimated for regions in East Germany (Günther 2005, Votteler 2001). By nature, the MIDI only contains information on foreign participation. However, West German investment played a crucial role in the transition process in East Germany (Belitz et al. 2000, Haas 1996, Günther 2005). Thus, the MiDi is only suitable to a limited extent as a micro data source for our research purposes.

An alternative choice for micro data is the Establishment Panel of the Institute for Employment Research (IAB). It is an annual survey of establishments that is representative of industries and firm size for all of Germany and can also be analysed on a longitudinal basis (see for an overview Fischer et al. 2009). The panel currently contains information on about 16,000 establishments. The net sample has a stratification in which large

establishments, small federal states, small industries and the manufacturing industry in East Germany are overrepresented. For descriptive analysis these are checked by cross-sectional weighting factors for each establishment in the sample. The panel also provides information on majority ownership (foreign, West German, East German, public). Therefore, Arndt et al. (2009), for example, use the IAB Establishment Panel for their study on the impact of foreign entry on employment, turnover, exports, and productivity. Lehmann and Günther (2007) use it to analyse the incidence of vertical productivity spillovers from foreign and West German affiliates. From our point of view, the IAB Establishment Panel is a possible micro data source for any research that looks at host country effects of foreign and West German owned affiliates that requires a control group of East German owned firms. However, ownership is not a criterion for survey stratification. Thus, we cannot tell whether the survey data is representative for the sub-group of foreign-owned or West German-owned establishments in East Germany. In addition, caution is required with regard to regional disaggregation of the survey data, which in the best case would be possible at the NUTS-1 level ('Bundesländer'). Thus, more regionally fine grained analysis on the effects of location choice requires an alternative micro data set that could serve as a source of information that draws from total population enterprises.

Peri and Urban (2002, 2006) use an unbalanced panel of manufacturing firms based in reunified Germany with ultimate foreign (or West German ownership in the case of East Germany) drawn from the Amadeus database. They estimate productivity spillovers at the NUTS-1 level ('Bundesländer'). The data shows representativeness deficiencies with regard to East Germany as such, and several industries, which are partially corrected by weighting observation according to statistics drawn from the 'Bundesbank' (Peri and Urban 2002). As described above, the Bundesbank data is only a limited guide for regional disaggregation of FDI. As a result, their regionalised dataset suffers from insufficient coverage of foreign-owned firms in East Germany. For example, they do not find any foreign firms in the East German federal state of Saxony (Peri and Urban 2002).

The micro data availability is similarly limited for most other transition economies in CEE. The Vienna Institute for International Economic Studies (wiiw) publishes the *wiiw Database on Foreign Direct Investment in Central, East and Southeast Europe*. However, this database contains only aggregate data on FDI flows for 18 CEE countries. Damijan et al. (2003, 2008) provide by far the most comprehensive firm level studies on FDI productivity spillovers. They use balance sheets/financial statements as well as ownership information from about 91,000 firms in 10 transition economies from 1995 to 2005 taken from the Amadeus database (Bureau von Dijk). The country coverage and presumably also quality of the collected data differs considerably across countries.

3. IWH FDI Micro Database

Given the constraints described above on the availability of enterprise-level data for East Germany and other selected transition economies, the IWH opted for a novel collection of primary data. The IWH FDI Micro Database provides a total population drawn from the MARKUS data base, in the case of East Germany, and from the AMADEUS database in the case of the selected transition economies. Both commercial datasets are compatible and allow for a uniform identification of the population through complex ownership information. This serves as a basis for an annual survey in East Germany and a bi-annual survey in selected transition economies. After a pilot survey[1] in 2002, the project was fully launched in 2007 as part of a Strategic Targeted Research Project *("Understanding the relationship between knowledge and competitiveness within the enlarging EU" – Uknow 2006-2009*) financed by the 6th EU Framework Programme (see Table 1 for an overview).

In 2007 the survey was implemented in Slovenia, Croatia, Poland, Romania and East Germany. In 2009 as well as in 2011 the countries selected were Hungary, Czech Republic, Poland, Romania, Slovakia, and East Germany. This country set-up will remain fixed for all subsequent bi-annual surveys. In 2007 the survey covered only manufacturing industries (NACE Rev.1: 15-37). Since 2008 this has been extended to include mining and quarrying (NACE Rev.1: 10-14), electricity, gas, steam and hot water supply (NACE Rev.1: 40-45), wholesale (NACE Rev.1: 51), transport and financial services (NACE Rev.1: 60-67), computer, R&D and other business related services (NACE Rev.1: 72-74), as well as sewage and waste disposal, media, and other services (NACE Rev.1: 90-93). This sectoral selection will remain fixed for all subsequent surveys. Until 2007 the survey covered only inward FDI. Since 2008, this survey has been extended to also include enterprises with outward FDI. Since 2009 the bi-annual survey has been implemented centrally by one provider for the CEE countries. Each survey has a standard set of questions on shareholder structure as well as technological capabilities. The survey implemented in even years (2008, 2010 and 2012) only in East Germany has a set of questions on expectations for future employment, turnover, exports, and investment. Each bi-annual survey (2007, 2009, 2011 and 2013) has a particular special thematic focus. The survey data can be used for cross-sectional analysis. Data from the population has a longitudinal dimension.

[1] The pilot survey was of an EU 5th Framework Programme RTD research project on the "Determinants of the productivity gap between EU and CEECs (ProdGap)" coordinated by the IWH.

Table 1: Overview of IWH FDI Micro Database

	2002	2007	2008	2009	2010	2011	2012	2013
Host countries	Estonia Hungary Poland Slovakia Slovenia	East Germany Romania Croatia Poland Slovenia	East Germany	East Germany Romania Slovakia Czech-Republic Hungary Poland	East Germany	East Germany Romania Slovakia Czech-Republic Hungary Poland	East Germany	East Germany Romania Slovakia Czech-Republic Hungary Poland
Sectors	Manufac-turing	Manufac-turing	Manufac-turing, Other selected Services	Manufact-uring, Other selected Services	Manufact-uring, Other selected Services	Manufact-uring, Other selected Services	Manufact-uring, Other selected Services	Manufact-uring, Other selected Services
Type of FDI	Inward	Inward	Inward Outward	Inward Outward	Inward Outward	Inward Outward	Inward Outward I	Inward Outward
Sample*	CEE: 434	CEE: 514 EG: 295	Inward: 638 EG Outward: 43 EG	Inward: 632 EG, 616 CEE Outward: 46 EG, 48 CEE	Inward: 624 EG Outward: 94 EG	Inward: 573 EG, 620 CEE Outward: 73 EG, 113 CEE	Inward: 421 EG Outward: 72 EG	Inward: 317 EG, 751 CEE Outward: 49 EG, 85 CEE
Population	n.a.	CEE: 5,421 EG: 1,412	EG: 3,669	CEE: 7,894 EG: 3,905	EG: 3,672	CEE: 9,538 EG: 3,372	EG: 3,181	CEE: 12,065 EG: 3,862
Method**	Local	Local	Central	Central	Central	Central	Central	Central
Focus	Pilot Survey	Techno-logy Transfer	Business Forecast	Invest-ment motives & location	Business Forecast	Production and Innovation Linkages	Business Forecast	Upgrading
Funding	IWH EU FP5	IWH EU FP6	IWH	IWH	IWH	IWH	IWH	IWH EU FP7

Note: *CEE = Central and East European countries; EG = East Germany, ** Coordination method: Locally implemented survey in each country; centrally implemented survey for all countries.

4. The 2013 survey

4.1 Background

The 2013 survey of the IWH FDI Micro Database was co-founded by the EU 7th Framework Programme RTD research project "***Growth-Innovation-Competitiveness: Fostering Cohesion in Central and Eastern Europe*** (GRINCOH)[2]". Within the project it is positioned as part of Workpackage II "International context of cohesion: the role of trade and FDI". Within the project the survey was intended to shed light upon production and innovation linkages of foreign firms within selected transition economies of Central and Eastern Europe.

In cooperation with the IEHAS (Magdolna Sass, Andrea Szalavetz), IER (Matija Rojec) and UCL (Slavo Radosevic) as project participants the development of the conceptional background of the survey questionnaire was discussed. Existing research based on extensive case studies showed evidence of up-grading processes in foreign subsidiaries in the Central and Eastern European automotive and electronics sectors (Pavlinek and Zenka 2010, Szalavetz 2011, Sass and Szalavetz 2013). Already prior surveys of the IWH FDI Micro Database included various indicators of R&D, product innovation and process innovation, which can be used to measure the technological dimension of firms' upgrading. However, firms may also undergo functional upgrading i.e. extending the portfolio or nature of performed business functions such as R&D, design, development, production, distribution and marketing. In turn value creation and value capture within global value chains is linked to functional composition and upgrading of firms' activities as well as reigning governance structures of the chain (Kaplinsky and Morris 2001, Gerreffi et al. 2005). By definition foreign affiliates or subsidiaries operate in vertically integrated chains, since they are owned by foreign often large multinational firms and therefore from part of a hierarchy. However, depending upon product architecture and industry specific characteristics we find different patterns of governance and power asymmetries of buyer-supplier relationships also within large multinational firms (ibid), which should be taken into consideration when examining upgrading processes of foreign owned firms.

4.2 Questionnaire design

In order to link to this type of global value chain analysis, it was decided to include a number of new measure into the questionnaire that capture a) foreign subsidiaries employment across business functions, b) human capital across business function, c) changes to the distribution of employment across business functions since entry of the foreign/multinational shareholder, d) information of business functions executed by own affiliates, e) the nature of relationship to the foreign/multinational shareholder before entry, and f) the complexity of inputs sourced by the foreign subsidiary. The classification of business functions was based in a standard adopted in a set of survey on international sourcing and organisation of business functions implemented by a network of European Statistical agencies (Sturgoen et al. 2012).

[2] Grant agreement no: 290657

In addition, IWH decided to include into the existing questionnaire a number of novel measures that focus on investment and finance of foreign subsidiaries. These aspects are often neglected in international business research (Bowe et al 2010). After external consultation the IWH team designed questions on a) investment by foreign subsidiaries, b) sources of finance for investment, c) financial constraints, d) sources of finance for R&D and innovation, e) information on export performance (destinations, new/termination of export relationship) and f) any external shocks as perceived by the foreign subsidiary.

The resulting final questionnaire of the 2013 survey includes 52 questions[3] and is divided into nine sections. The first section (questions 1-11) mainly covers questions concerning the foreign owned enterprise's financial sources and restrictions for investment and the distribution and educational background of its employees. The second part (questions 12-20) covers standard questions about the shareholder structure of enterprises with foreign/West German ownership. This includes questions on date of entry, mode of entry, as well as the autonomy over particular business functions. Part three (questions 21-23) is directed to enterprises with outward FDI and contains similar questions as the second section. The fourth part of the questionnaire deals with questions about domestic investment (questions 24-25) and part five deals with research and development (R&D) (questions 26-30) including R&D employment and R&D expenditure. All R&D indicators are in line with the international standards as codified in the Frascati Manual (OECD 2002). Part six of the questionnaire (questions 31-39) deals with product and process innovations including their intensity and sources of financing R&D/innovation. All innovation-related indicators are in line with the international standards as codified in the Oslo Manual (OECD 2005). The seventh part of the questionnaire includes questions (questions 40-42) on the diffusion of R&D and innovation. Taking the foreign owned enterprise's position in the global value chain into consideration, the eighth part (questions 43-47) covers questions about the relationship with suppliers while part nine (questions 48-52) deal with the relationship with customers and external shocks (question 52).

4.3 The basic population 2013

The population for East Germany is drawn from the MARKUS database provided by Verband der Vereine Creditreform e.V.[4] The information in the MARKUS database is drawn from public indexes, balance sheets, annual reports, the daily press and surveys. MARKUS contains about 1.1 million German enterprises. According to Verband der Vereine Creditreform e.V., 97% of all commercially registered and economically active German companies are listed in the database. For Germany, these figures seem to be reliable, since any commercial entity is obligated to register with its local chamber of commerce. The MARKUS database contains enterprise-level information such as name, legal form, date of registration, sector, address, ownership, balance sheet and financial information. The MARKUS database also forms the basis for the population underlying other established

[3] The questionnaire for East German enterprises has 3 additional questions. Since the principal content is the same for both questionnaires, a differentiation is omitted in the following description.

[4] Until 2009 in case of East Germany data from the MARKUS database was supplemented by information from the European Investment Monitor, the EU-R&D Scoreboard and a list generated by the former Industrial Investment Council. In order to assure a uniform information format between the East German and the CEE firms this addition was given up in 2010.

micro datasets such as the Mannheimer Innovation Panel (see Harhoff and Licht 1993) or the KFW/ZEW Start-up Panel (Fryges et al. 2010) are both operated by Centre of European Economic Research (ZEW).

For the CEE countries the firm population is drawn from the AMADEUS database provided by Bureau von Dijk (BvD). In total AMADEUS contains data on 14 million European enterprises and covers 10 transition economies. Of those, we selected the data for Hungary, Czech Republic, Poland, Romania and Slovakia. This data is fully compatible with the information drawn from the MARKUS database. In fact the latter forms the basis (in a slightly reduced form) for the German part of the AMADEUS database. BvD describes its AMADEUS data set as robust against a coverage bias since '35 expert and local information providers assure' the quality of the data (ibid.). Given the compatibility of the MARKUS and AMADEUS databases, we are able to draw upon the population underlying the IWH FDI Micro Database using the following uniform selection criteria for inward and outward FDI in all countries:

A) Enterprises with one or more foreign investor – INWARD FDI

The population of enterprises with one or more foreign investor is defined as all enterprises belonging to the selected sectors and countries in 2012, in which at least one foreign investor holds either a minimum of 10% direct shares/voting rights or a minimum of 25% indirect shares/voting rights. These enterprises are independent affiliates with their own legal or they are branches without a legal entity but with their own commercial register entry. Shareholders or ultimate owners are not limited to foreign enterprises headquartered abroad but also include natural persons, donors, foundations and financial investors with headquarters outside their respective country.

In the case of East Germany, the basic population of enterprises with foreign participation has been supplemented by enterprises belonging to the selected sectors and countries in 2012, in which at least one West German multinational investor holds either a minimum of 10% direct shares or voting rights or a minimum of 25% indirect shares or voting rights. A West German multinational investor is defined as an entity that is headquartered in West Germany and has either a minimum of 10% direct shares/voting rights or at least 25% indirect shares/voting rights in one or more entities located abroad. The federal state of Berlin is considered a part of East Germany in line with other established micro datasets and official statistics.

B) Enterprises investing in an enterprise abroad – OUTWARD FDI

The population of enterprises holding shares in an entity abroad is defined as enterprises belonging to the selected sectors and countries in 2010, which hold either a minimum of 10% direct shares/voting rights or a minimum of 25% indirect shares/voting rights in one enterprise located abroad. The enterprises could be independent affiliates (de jure independent person) or an independent branch (no de jure independent person) with their own commercial register entry.

4.4 Survey sampling and implementation 2013

The sample stratification for the survey in East Germany was proportionally differentiated for ownership (FDI inward, WG MNE inward[5], FDI outward). For FDI Inward and WG MNE Inward the sample was further stratified by differentiating between producing industries (NACE REV.2: 05 to 39) and the selected services (NACE Rev.2: 46, 49-53, 58-64, 66, 68-74, 78 and 82). Furthermore, both Inward segments were further stratified according to enterprise size in terms of number of employees (up to 9, 10-49, 50-249, more than 250). FDI outward was only segmented by the sectoral classification.

The sample stratification for the survey in the CEE countries based on the AMADEUS data was broken down by ownership (FDI inward, FDI outward) for each country. Only the FDI inward group was further broken down by enterprise size in terms of number of employees (10-49, 50-249, more than 250) and by the sectoral classification according to NaceRev. 2 (see above). Thus, each country sample has a total of 7 segments for stratification.

The contact addresses and the sample stratification were transferred to *infas Institute for Applied Social Sciences* (infas). The survey was implemented by means of computer assisted telephone interviews (CATI). CATI was chosen as the appropriate method because the survey of the IWH FDI Micro Database requires a special design for highly standardised surveys, involves complex target groups, and has substantial filtering in the questionnaire. CATI are fast, relatively inexpensive and generate high response rates. In order to further increase the response rate, the enterprise received information about the IWH, the IWH FDI Micro Database, survey and data confidentiality per fax and/or e-mail in advance upon request. The questionnaire was first programmed and internally tested for coherency before being submitted to at least four pre-tests per country between in October 2013. The pre-test necessitated minor changes and resulted in a questionnaire which required 30 minutes on average for completion. The interviewers received intensive training by researchers from the IWH. The interviews only were conducted by native speakers from each country under observation. Between 6 November 2013 and 17 March 2014 *infas Institute for Applied Social Sciences* completed the required interviews in line with the respective sample stratification.

In 2013, the total population (inward and outward FDI) of the IWH FDI Micro Database for East Germany and the CEE countries included 3,862 and 12,065 enterprises respectively. Altogether 2,338 East German and 5,008 CEE companies could be contacted during the survey. Around 18.5% of East German enterprises and 43.7% of CEE enterprises could not be contacted due to reasons such as wrong contact numbers, insolvency or incorrect information (see Annex Table 1 for a complete list). For East Germany, a total sample of 366 interviews could be conducted, which corresponds to a response rate of 15.7% (see Annex Table 2). In the case of CEE countries, 836 interviews could be realised, which corresponds to a response rate of 18.7% in average (PL: 16.5%, CZ: 13.4%, SK: 18.6%, HU: 26.3%, RO: 18.5%). Thus, a total of 1,202 enterprises participated in the 2013 survey for the IWH FDI Micro Database. This generates an overall response rate of 16.4%. In Table 2 and 3 the response rates in relation to the total population – without excluding deficiencies – are displayed.

[5] WG MNE inward stands for East German affiliates that have a participation of West German multinational investors

4.5 Survey representativeness 2013

The following section summarises the results of various tests on the representativeness of the samples for East Germany and the CEE countries in comparison with the respective basic population. For a more detailed description, please see the corresponding methodological note (IWH 2013). For the sample of multinational investors in East Germany (FDI inward and WG MNE inward), we find a distribution that differs significantly from the underlying population with regard to the employment size, the ownership structure (full, majority or minority multinational-owned), the sectoral classification measured by NaceRev.2 2-digit codes and the regional distribution at the level of the federal states as well as at the level of 'Raumordnungsregionen' (see Table 2).

Table 2: Significant differences in the distribution between the basic population and sample in East Germany

	Response Rate*	Federal States	Regional Level ROR	Sectors	NACE (Industries)	Size of Employment	Ownership structure**
East German enterprises with a multinational investor							
Total	9.7%	yes	yes	yes	yes	yes	yes
Foreign	9.3%	yes	yes	yes	yes	no	yes
West German	10.7%	no	no	no	no	no	yes
East German enterprises investing abroad							
	9.6%	yes	yes	yes	no	no	no

*Ratio between the number of enterprises in the population and sample; **Ownership structure in the case of inward FDI refers to full, majority, or minority. In the case of outward FDI it refers to a differentiation between East German ownership or Foreign/West German ownership of the enterprise.

By dividing the population into a group of foreign-owned firms and one of firms owned by West German investors, the sample is representative for both sub-group with respect to the employment size. The sample of West German investors is also representative with respect to regional and sectoral distribution.

The sample of East German firms with outward FDI does not show significant differences in its industrial distribution (NACE), employment size or ownership structure in comparison to the underlying population. With respect to the regional distribution and the distinction between industry and services, the FDI Outward sample differs significantly from the distribution of the corresponding population.

In the CEE survey, we find significant differences in the distribution across the five countries for the FDI Inward as well as for the FDI Outward sample due to underrepresentation of Romanian and Czech firms and corresponding overrepresentation of Hungarian, Slovakian and Polish firms (see Table 3). These differences result from the sample stratification, which aims to achieve a minimum size for each country sample. The FDI Inward and the FDI outward sample are both representative with respect to the NaceRev.2 distribution as well as for the company size measured by employment figures.

The Slovakian and the Hungarian sample do not significantly differ from the underlying population with regard to the regional distribution within the countries. Furthermore, all other national FDI Inward samples show significant differences from their corresponding

populations. Except for the regional distribution, the national FDI Outward samples are predominantly representative for the corresponding populations. Only the Czech sample with a distinction between industries and services differs significantly from its population's distribution.

Table 3: Significant differences in the distribution between the basic population and sample in CEE countries.

	Response Rate	Regional Distribution	Sectors	NACE (Industries)	Size of Employment
CEE enterprises with a foreign investor					
Poland	7.3%	yes	no	no	no
Romania	5.0%	yes	yes	no	no
Slovakia	8.5%	no	yes	no	no
Czech Republic	6.6%	yes	yes	no	no
Hungary	15.4%	no	yes	no	no
Total	**6.9%**	**yes**	**yes**	**no**	**no**
CEE enterprises investing abroad					
	Response Rate	Regional Distribution	Sectors	NACE (Industries)	Size of Employment
Poland	5.9%	no	no	no	no
Romania	11.5%	yes	no	no	no
Slovakia	7.9%	no	no	no	no
Czech Republic	6.3%	yes	yes	no	no
Hungary	13.2%	yes	no	no	no
Total	7.6%	**no**	**no**	**no**	**no**

*Ratio between the number of enterprises in the population and sample; **Ownership structure refers only to FDI outward with a differentiation of whether the investing enterprise itself is (partly) owned by a foreign investor.

In general, the results suggest that the population and its corresponding samples generate a reliable micro database. The survey is representative of various indicators; therefore, it meets the relevant criteria for scientific research within this field. Deficiencies with regard to regional deviation need to be checked for when processing the data.

5. Data Access

5.1 External Data Access

Since 2011 the Halle Institute for Economic Research (IWH) has been providing external access to the IWH FDI Micro Database via the Data Archive at the Leibniz Institute for Social Sciences (GESIS). The annual surveys are usually provided with a two year lag to the time of the survey. Due to data protection regulations and in order to exclude the possibility of an identification of the participating enterprises, we can only offer external access to reduced versions of the original data (Scientific-Use-Files). In comparison to the original data this data includes only information on inward FDI and no information on enterprises with outward FDI. In addition, selected variables such as the year of entry, type of investor, 4-digit industry code, employment, exports and intermediate inputs are only available in modestly transformed catagories that still facilitates scientific analyses. The precise

differences between the original data and its Scientific-Use-File are fully explained in the questionnaire of the corresponding study description.

The Data Archive GESIS offers all available data sets for a little fee (e.g. the download of 5 studies is available for 20€). Please see the following link, where you can find a form to order a data set: http://www.gesis.org/en/services/data-analysis/.

5.2 Local access to the original survey

The IWH continues to offer costless on-site access to original survey data for scientists of public research institutes and universities based on research cooperation or in the framework of doctoral dissertations. Due to data protection regulations, the access is offered in a safe-room-environment. Upon request and subject to availability of the safe-room, we offer on-site access. Please note that due to capacity restrictions there might be some waiting time after application.

We kindly ask all external and on-site users to notify the IWH-staff of all of their publications resulting from the use of the Scientific-Use-Files or the original survey data. This allows us to track the scientific work based on the IWH FDI Micro Database.

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Annex

Annex Table 1: Distribution of the total population, IWH FDI Micro Database

	East German	In %	CEE	In %
Total population	**3,862**	100	**12,065**	100
Number not available	-229	5.9	-2,491	20.6
Contact person could not be contacted	-392	10.2	-2,126	17.6
Contact persons wanted to be contacted later	-56	1.5	-652	5.4
Other deficiencies (e.g. double in population)	-847	21.9	-1,788	14.8
Addresses used for the survey	**2,338**	60.8	**5,008**	41,6

Source: IWH 2009

Annex Table 2: Distribution of enterprises in the random sample, IWH FDI Micro Database

	East German	In %	CEE	In %
Addresses used for the survey	**2,338**	100	**5,008**	100
No response	-1,972	84.3	-4,172	83.3
Sample (realized interviews)	**366**	15.7	**836**	16.7