

Eisermann, Merlind; Moritz, Michael; Stockinger, Bastian

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Multinational resilience or dispensable jobs? German FDI and employment in the Czech Republic around the Great Recession

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Articles on labour market issues

Multinational resilience or dispensable jobs?

German FDI and employment in the Czech Republic
around the Great Recession

Merlind Eisermann
Michael Moritz
Bastian Stockinger

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Merlind Eisermann (IAB)

Michael Moritz (IAB)

Bastian Stockinger (IAB)

Mit der Reihe „IAB-Discussion Paper“ will das Forschungsinstitut der Bundesagentur für Arbeit den Dialog mit der externen Wissenschaft intensivieren. Durch die rasche Verbreitung von Forschungsergebnissen über das Internet soll noch vor Drucklegung Kritik angeregt und Qualität gesichert werden.

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Contents

Abstract	4
Zusammenfassung	4
1 Introduction	5
2 Theoretical and empirical background	8
3 Data and descriptive analysis	11
4 Analysis of employment development	18
5 Conclusions	20
References	26

Abstract

This article investigates the employment development of Czech-based firms in German ownership in the years around the Great Recession of 2008/2009. The intense involvement of German firms in the economy of the neighboring country via foreign direct investment (FDI) raises the question whether under the conditions of a historically deep global downturn, Czech employees in multinational companies were confronted with an increased volatility of their jobs. Using a unique firm-level dataset, we contrast the affiliates of German investors with purely Czech-owned enterprises. Our findings indicate that in the years before the crisis, firms with German capital exhibited a noticeably more positive employment development. The results from the year 2008 onwards give reason to the conclusion that German-owned firms played a stabilizing role for the Czech labor market during the recession.

Zusammenfassung

Dieser Artikel untersucht die Beschäftigungsentwicklung tschechischer Unternehmen in deutschem Eigentum in den Jahren rund um die Große Rezession von 2008/2009. Die intensive Einbindung deutscher Firmen in die Ökonomie des Nachbarlandes über ausländische Direktinvestitionen (ADI) wirft die Frage auf, ob unter den Bedingungen einer historisch tiefen globalen Rezession tschechische Arbeitnehmer in multinationalen Unternehmen mit einer erhöhten Volatilität ihrer Arbeitsplätze konfrontiert waren. Basierend auf einem einzigartigen Firmendatensatz stellen wir die Tochtergesellschaften deutscher Investoren rein tschechischen Unternehmen gegenüber. Unsere Ergebnisse zeigen, dass in den Jahren vor der Krise Firmen mit deutschem Kapital eine deutlich positivere Beschäftigungsentwicklung aufwiesen. Die Resultate ab dem Jahr 2008 lassen den Rückschluss zu, dass Unternehmen in deutschem Eigentum während der Rezession eine stabilisierende Rolle für den tschechischen Arbeitsmarkt einnahmen.

JEL classification: F23, J21, G01

Keywords: employment; volatility; Great Recession; multinational firms; Germany; Czech Republic

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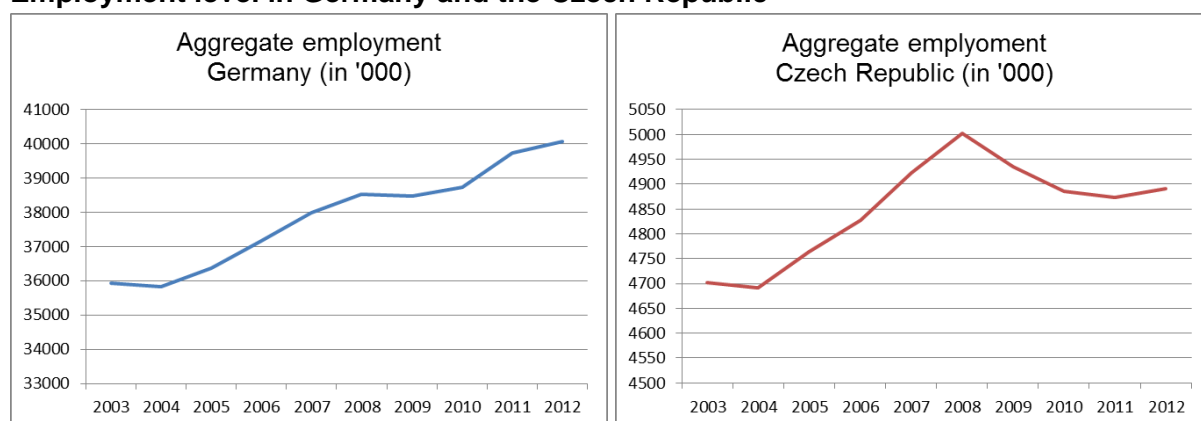
1 Introduction

Not only since the accession to the EU the Central and Eastern European Countries (CEECs) have gradually integrated into European product, capital and labor markets. In the course of this process no classical low-wage countries have evolved, but market economies that increasingly produce goods and services of similar quality and sophistication as their Western neighbors. From the early 1990s onwards the liberalization of capital flows resulted in a tremendous increase in foreign direct investment (FDI), as the CEECs constitute attractive destinations both for reasons of cost saving and expanding market access (e. g. Miskinis/Mikneviciute 2011). With regard to FDI flows from old to new EU member states, Germany and the Czech Republic act as front-runners of economic integration (see Pflüger et al. 2013, for example). According to the MiDi database of the Deutsche Bundesbank that comprises German affiliates which have a balance sheet total of at least €3 million, the overall capital participation of German firms in the Czech Republic in the form of direct and indirect German ownership, i. e. including ownership via holding companies, adds up to more than €26 billion. By 2012, 282,000 workers were employed by German-owned firms covered by the MiDi database (Deutsche Bundesbank 2014). Thus, the Czech Republic hosts a higher stock of German FDI than many other transition economies that are attractive destinations for investors such as, with the exception of China, the BRICS countries Brazil, Russia, India and South Africa. Conversely, Germany is also one of the major players providing FDI to the Czech Republic, second only to the Netherlands, whose leading position is due to a large-scale joint greenfield investment and probably also to a number of German investments that are performed indirectly via third parties registered in the Netherlands primarily for tax reasons (Czech National Bank 2013; Geršl/Hlaváček 2007; Morrison 2011).

A central question arising against this background is how secure jobs in German-owned firms are in tougher times, i. e. whether German multinationals improve, worsen, or are neutral to the development of Czech employment during recessions. Two contradictory hypotheses can be stated: first, assuming a generally higher productivity and competitiveness, multinationals may be less vulnerable towards demand shocks and as a consequence are able to hoard labor in anticipation of recovery. Provided that German firms manage to secure employment during the crisis years at home, German ownership may also shield employees in their Czech-based affiliates from lay-offs. Second, to the contrary, firms that do not exclusively serve the domestic market but also foreign markets should be more exposed to the effects of the global recession. Under the assumption that multinational enterprises (MNEs) depend to a higher degree on foreign demand compared to domestic firms, they are supposedly more affected by the international downturn. Thus, German MNEs may have exploited their opportunity to adjust labor demand across borders and secured jobs in Germany at the cost of jobs abroad, including jobs in the Czech Republic.

In this context, the global economic crisis of 2008/2009 can be regarded as an exogenous shock to the labor market, and therefore is a suitable basis for the comparative analysis of employment effects of domestic and foreign ownership. Given the high importance of German FDI, the aim of our study is to assess the role of German firm ownership on employment development in the Czech Republic by considering the period around the Great Recession. In addition to its spatial proximity, the Czech Republic is culturally close to Germany, so industrial and labor relations require relatively little adjustment vis-à-vis their organization in Germany (Bluhm 2000, 2001). Hence, to the extent that employment development during the crisis differs between German headquarters and Czech daughters, this is unlikely to be driven by institutional or cultural frictions. Therefore, it is worth to compare the employment figures of the past years for both countries, which are interestingly fairly different in the crisis period: while Germany saw steady employment growth during the past decade, which merely slowed down in 2008 and 2009, Czech employment, which had grown until 2008, had not yet returned to its pre-crisis level by 2012 (Figure 1).

Figure 1
Employment level in Germany and the Czech Republic



Source: Eurostat, European Labour Force Survey (2013, online).

In general, Germany fared relatively well during the recession years in terms of employment figures, though Germany's export-oriented manufacturers were hit particularly hard, exemplified by a decline of output by 11.6 percent in 2009, whereas output in service industries dropped only by 1.7 percent (Statistisches Bundesamt 2013). Evidently, firms responded to the demand shock by hoarding labor in Germany (see Bohachova/Boockmann/Buch 2011, for example). It must not be neglected that the favorable employment development in Germany is largely due to government-supported measures such as the extended use of short-time work (STW) subsidies and so-called "alliances for jobs" at the firm or industry level. As economic sectors were not equally affected by the downturn, STW has been used primarily by German manufacturers and by firms under strong product market competition, whereas service firms and those facing less tough competition, inter alia due to less international market pressure, also hoarded labor although largely without STW subsidies. Some studies find evidence that especially in export-intensive and

FDI-intensive manufacturing industries, a large amount of jobs were secured by the use of STW and the reduction of surpluses on working time accounts (see Boeri/Brücker 2011; Brenke/Rinne/Zimmermann 2013; Rinne/Zimmermann 2012, for example).

In the CEECs, the employment reduction in the course of the global recession did not fully correspond to the decline in GDP, which is consistent with the possibility of labor hoarding (Leitner/Stehrer 2012). According to Eurostat, both Germany and the Czech Republic belonged to the countries among the EU27 member states with the largest relative increase in short-time workers from 2008 to 2009 (Eurofound 2010). Like in Germany, STW schemes in the Czech Republic were implemented in a “traditional” way, meaning that similar groups of workers, i. e. on permanent contracts¹, in medium- to large-sized firms, and in manufacturing industries were subject to these measures specifically. While Germany applied a wider variety of political measures, the Czech government intervened by introducing a STW scheme combined with compulsory training (Hijzen/Venn 2011). The introduction of the Czech STW scheme in February 2009 was followed by some 80,000 entrants into STW within six months (European Commission 2010). In addition, non-wage labor costs were temporarily reduced for low-wage workers (Council of the European Union 2010; Stehrer/Ward 2012). Though we do not have information on the role of STW in the Czech Republic for the cross-border employment reaction of German multinationals to the crisis, it is obvious that, as in Germany, the manufacturing sector was more exposed to the global demand slump than the service sector, which can be traced back to the greater involvement in international trade structures. According to the ReLOC survey, an investigation on the activities of German multinationals and their affiliates in the Czech Republic, the share of exporters, the share of exports in overall sales and the share of intra-firm trade is on average higher for manufacturing firms than for service firms (Hecht et al. 2013; Hecht/Litzel/Schäffler 2013). Consequently, it seems worthwhile to separate sectors when looking at the employment development in the years around the Great Recession.

While most studies in the literature on the behavior of multinationals during recessions aim at the extensive margin in terms of firm survival, we investigate the intensive margin of FDI, i. e. the employment development of firms that exist in the whole period of observation before and during the crisis. By taking a host-country focus rather than a home-country focus of FDI, our study tackles three research issues: first, does employment growth in German-owned firms in the Czech Republic differ from the development in purely domestic firms before the economic slowdown in 2008? Second, do German-owned firms show a deviating reaction concerning employment adjustment in response to the Great Recession (2008-2009 and 2009-

¹ By estimating labor demand of firms in the Czech Republic, Babecký/Galuščák/Lízal (2012) find, however, no significant difference between adjustment via permanent employment and adjustment via temporary employment, i. e. workers hired through temporary work agencies, during the global crisis.

2010) compared to the firms without foreign capital? And finally, regarding the above-mentioned unequal exposure to foreign demand and the ensuing use of STW, can we identify differences between the manufacturing sector and the service sector before and during the crisis years?

We provide detailed evidence based on a unique sample of Czech firms that covers information on foreign capital participation. Our findings indicate that, in comparison to purely Czech-owned firms, German affiliates exhibit an overall positive employment development in the years before the crisis. The results from the year 2008 onwards give reason to the conclusion that while Czech-owned firms in the manufacturing sector were most heavily affected by the crisis, German-owned firms stabilized the economic situation during the recession. The remainder of the paper is organized as follows: section 2 highlights the background of multinational firm theory and the related empirical evidence. In section 3 we portray the composition of the dataset and present descriptive statistics on firm characteristics that are in the focus of our study. Section 4 contains the empirical analyses on employment development in the years around the crisis. Section 5 discusses the results and concludes the article by setting our findings in a broader context.

2 Theoretical and empirical background

By their very nature, MNEs can be regarded as a distinct category of firms. An important issue in this context is firm heterogeneity with respect to size and productivity of MNEs compared to other firms. According to the model by Helpman/Melitz/Yeaple (2004), firms which are actively operating in foreign countries are the most effective type of firms in terms of production and sales, as opposed to exporters, purely domestic firms, and, obviously, firms which try but fail even to operate domestically. Given imperfect markets, MNEs possess greater market power than domestic firms. Recent models of firm heterogeneity introduce labor market frictions, implying that workers employed by MNEs are affected differently by trade liberalization and the internationalization of production (Davis/Harrigan 2011; Eckel/Egger 2009; Egger/Kreickemeier 2008, 2009; Felbermayr/Prat 2011; Helpman/Itskhoki 2010). The central implication of these models is that labor is reallocated towards internationally operating firms through a selection effect.

Looking beyond the supposed advantages of international connectedness, however, jobs in MNEs are generally expected to be more volatile than jobs in domestic firms. Rodrik (1997) stressed early on that the broader range of production opportunities available to firms under trade liberalization may raise the volatility of employment. The resulting higher job insecurity of workers reflects, in particular, the stronger exposition of multinationals to the global business cycle and technological change. MNEs are more immediately concerned with such international forces and need to adapt to these circumstances more urgently, where production stages in foreign firm units are more strongly affected by labor demand fluctuations than the activities at the headquarters at home (Bergin/Feenstra/Hanson 2009). Though MNEs react more quickly to labor market shocks than purely domestic firms, empirical evidence

on the relative employment volatility of MNEs is rather ambiguous. An increase in offshoring activities tends to go hand in hand with a higher elasticity of labor demand in some specific cases (e. g. Görg et al. 2009 for Ireland; Hijzen/Swaim 2010 for countries with weak labor market institutions; Nilsson Hakkala/Heyman/Sjöholm 2010 for Sweden). The bulk of studies on that issue, however, comes to the conclusion that foreign ownership does not lead to a lower job security of workers in the offshore firm units (e. g. Andrews et al. 2012; Barba Navaretti/Checchi/Turrini 2003; Buch/Lipponer 2010; Fabbri/Haskel/Slaughter 2003).

With regard to the empirical research on ownership effects in the CEECs most studies covering the early transition period following the collapse of Eastern Europe's communist regimes, i. e. the years from 1989 until the mid-1990s, focused on the effect of privatization on the performance of firms in general. The obvious question was how the formerly state-run economies would adapt to competition and private ownership of production capital (see Gupta/Ham/Švejnar 2008, for example). In an early study explicitly addressing the distinction between domestic and foreign ownership in three CEECs, Konings (2001) finds that only in the relatively advanced economy of Poland MNEs are more productive than domestic firms, as against less economically advanced Bulgaria and Romania. In an extensive review, Estrin et al. (2009) indicate that privatization and FDI in the CEECs have been mostly associated with neutral or positive productivity, profitability, and employment effects, where foreign private ownership tends to have a stronger effect than domestic private ownership. Several studies conclude that foreign-owned firms in the Czech Republic perform better than Czech firms, in several respects (e. g. Djankov/Hoekman 2000; Hanousek/Kočenda/Švejnar 2007; Jarolím 2000; Sabirianova Peter/Švejnar/Terrell 2012). Later studies mostly refer to the years around the EU Eastern enlargement of 2004. Jurajda/Stančík (2012) find positive effects of foreign takeovers of Czech firms only for manufacturing firms that are less exposed to international competition. Using a survey of managers and an analysis of investment data from the Czech Republic, Hungary and Slovakia, Hardy/Sass/Pollakova Fifekova (2011) conclude that FDI is associated with the creation and retaining of jobs. Though higher earnings of employees in multinational affiliates are confirmed for Poland (Jensen 2009) and the Czech Republic (Eriksson/Pytlikova 2011), there is no empirical support for tracing back the wage premium to a compensation for a higher volatility of employment. Jurajda/Stančík (2013) ascribe the higher productivity of foreign-owned firms in the Czech Republic to the occupational composition, i. e. multinationals invest to a higher extent in 'organizational' intangibles in terms of managing and marketing personnel.

The literature on the behavior of multinational firms in the host countries during recessions is rather scarce. As illustratively depicted by Amendola et al. (2012), the existing analyses can be classified into three groups with respect to their findings. Some studies conclude that MNEs act as stabilizers in economic downturns (e. g. Alfaro/Chen 2012; Desai/Foley/Forbes 2008; Tong/Wei 2011). In this group of investigations the employment development of multinational firms is found to be more

robust in times of economic crisis compared to domestic firms, which is attributed to cross-border input-output relationships between headquarters in the home country of FDI and affiliates in the host countries and to greater financial independence through intra-firm financial linkages. In contrast, other studies assign a destabilizing role to MNEs (e. g. Álvarez/Görg 2009; Görg/Strobl 2003; Lipsey 2001), i. e. foreign-owned firms turn out to be less resilient to a recession by showing a higher share of exits or higher employment losses than domestically-owned firms. Finally, a third group of examinations does not find evidence for differences between multinationals and domestic firms regarding their employment reaction to a slowdown (e. g. Álvarez/Görg 2012; Godart/Görg/Hanley 2012; Varum/Rocha 2011).

Few studies deal with the performance of foreign-owned firms over the recent global economic crisis. Covering 24 emerging countries, Tong/Wei (2011) find that the relatively strong financial position of MNEs alleviates the financial constraints of their foreign affiliates. Using a worldwide dataset, Alfaro/Chen (2012) investigate the response of foreign subsidiaries to the crisis compared to domestic establishments. While they do not observe a significant effect of foreign ownership in non-crisis years, the multinational affiliates exhibited on average a better performance during the global recession. Godart/Görg/Hanley (2012) for Ireland, Amendola et al. (2012) for Italy and Wagner/Weche Gelübcke (2014) for Germany conclude that foreign-owned firms were not more likely to exit during the recession than purely national firms. Peters/Weigert (2013) analyze the employment development of German multinationals at home and abroad before and during the Great Recession. They suggest that manufacturing MNEs secured jobs in Germany through disproportionate employment adjustment in their foreign subsidiaries during the crisis, but do not investigate domestically-owned firms in the target countries of German FDI. Using a large panel of Czech manufacturing firms with 50 or more employees, Babecký/Galuščák/Lízal (2012) study employment development during the Great Recession. They find evidence of a higher sales elasticity, particularly for very large firms, indicating that this group of firms was most negatively affected by the downturn, while ownership issues are not considered in the analysis. To our knowledge, no previous study has investigated the effect of foreign ownership on employment development in the Czech Republic in the course of the 2008/2009 crisis.

The literature on MNEs with respect to their performance during recession times and the employment development in European transition economies such as the Czech Republic can thus be summarized as follows. Theoretical expectations and empirical findings are ambiguous: on the one hand, it appears that a strong presence of MNEs is good news for Czech workers, as MNEs, due to their cross-border linkages and a higher resilience against financial constraints, are less vulnerable to macroeconomic shocks. Moreover, considering our specific case, the more favorable aggregate employment trend in Germany compared to the Czech Republic suggests that German-owned firms may have lost fewer jobs than domestic firms. On the other hand, considering the findings of Peters/Weigert (2013), one might suppose that German multinationals regard jobs in their Czech affiliates as “dispensable” and jobs

in Germany are secured at the cost of their Czech-based employees. In this sense, an increased volatility in employment decisions due to the broader opportunities of multinationals would imply that employees of German-owned firms in the Czech Republic felt the shock more strongly than workers in domestic firms, possibly also in the form of lay-offs. Our paper contributes to filling a research gap by examining the employment development of German-owned firms in comparison to purely Czech-owned firms before and during the Great Recession of 2008/2009. As it is the case for all studies on FDI, facing the problem of selectivity – MNEs are positively selected with regard to productivity and competitiveness – makes it hard to isolate the effect of foreign ownership itself. However, by focusing on employment in the years around the global economic crisis, we exploit an exogenous source of employment effects, and are primarily interested in the role of foreign-owned firms in mitigating or exacerbating this shock rather than detecting a causal effect of FDI on employment growth. Our analysis is based on a firm-level dataset which is presented in the following section.

3 Data and descriptive analysis

We use a database made available by the Czech Capital Information Agency, ČEKIA (recently renamed Bisnode), which collects information on firms from the register of shareholders, annual reports and further firm-issued sources, surveys, and public media coverage (for detailed information on the dataset, see Lízal 2002, for example). The ČEKIA database includes companies of all sizes and sectors. Our sample comprises among others information on employment, industry affiliation, and a selection of balance sheet data. Information on the ownership structure of the firms is merged from the Czech Commercial Register. After only keeping those observations with non-missing values in employment and the industry affiliation, the basis of our dataset is an unbalanced panel of 53,000 firms covering the years from 2004 to 2010. 1,900 firms are partly or entirely German-owned, all others are purely Czech-owned. We restrict our sample to the manufacturing and service sectors, thereby dropping a negligible number of observations. We verify whether a firm really has no foreign owners at all, up to four levels above the actual firm, so we can rule out that not only the Czech firms themselves, but also their owners and their owners' owners, and so forth, up to the 4th property level above the actual firm are owned by non-Czech firms or private persons. For our analysis we exclude firms whose ownership status switches between purely Czech and (at least partly) German during the period of observation, whereby we lose another negligible number of observations.

As our interest is in changes across the years, and to rule out bias from unobserved heterogeneity within the Czech and German groups, we draw four balanced panels starting from different years, 2004 to 2007, all lasting until the year 2010.² The sample structure does not differ significantly across these four panels with respect to principal firm characteristics, e. g. in that 75 to 80 percent of German-owned firms are 100 percent daughters of their German owners. In each balanced panel, in more than 90 % of the cases the German shareholders are majority owners (with a capital share above 50 %).³ Two issues particularly raise our attention and require closer consideration. First, not surprisingly, the shorter the panel, the smaller is the average firm size, as for a longer time span particularly larger firms that are obliged to publish balance sheets are tracked without interruption. In all four panels, the average firm size in the total sample varies distinctively between German-owned and domestically-owned firms. This outcome is not astonishing, as the on average larger size of foreign-owned firms reflects the predictions of multinational firm theory and the findings of the empirical literature. Second, regarding the sectoral structure, the share of manufacturers is much higher in the sample of German-owned firms (vice versa, the share of service firms is higher among the domestic firms). Therefore, and due to the above-mentioned differing exposure to international competition, we consider the manufacturing and service sectors separately. Furthermore, we account for structural differences between firms of different sizes by splitting each panel sample. On the basis of the number of employees in the initial year we assign each firm to one of the three firm size classes of 10-49, 50-249, and 250+ employees, where firms stay in their allocated size class for the entire period of observation. In order to reduce bias by outliers in terms of employment growth, we discard observations below the first and above the 99th percentiles within each year.

In the following, we present descriptive statistics for all four balanced panels. Table 1 (manufacturing) and Table 2 (services) show the coverage of the firm size classes for the different periods of observation and report mean values and the standard deviation of the number of employees, total assets and the wage bill per employee in the respective starting years of the panels. While the panel 2007-2010 is the largest and supposedly least selective in terms of firm size, the longer panels

² Due to improvements in recording balance sheet data the number of firms in the ČEKIA database increased from year to year. In this study we focus on the intensive margin of employment, i. e. we track the development of firms that still exist in 2010, the end of the observation period. In this manner we exploit the panel character of the data. In the context of firms' reactions to the global recession, the adjustment along the extensive margin, i. e. firm survival or exit during crisis is an important topic too. Unfortunately, we are not able to distinguish real firm exits, i. e. leaving the market due to the closure of the firm, from other attrition causes, e. g. failure of data collection. As far as possible, we do not find indications for systematic differences between the exit rates of Czech- and German-owned firms in our analysis.

³ The distribution of ownership shares in our database is fairly close to the figures that are found for Czech companies with a German investor in the MiDi database of the Deutsche Bundesbank. Geršl/Hlaváček (2007) identify almost 70 % of Czech affiliates to be fully controlled by their German mother firm and another 20 % with an ownership share above 50 %.

describe a clearer picture of the changes over time that are investigated later on in the study. The figures give evidence that mean and median values do not differ to a large extent between the two ownership groups. With the exception of large service firms in the longest panel, German-owned firms are on average slightly larger in all subsamples. Not surprisingly, in the majority of the subsamples German-owned firms exhibit on average higher total assets and a higher wage bill per employee.

Figure 2 (manufacturing) and Figure 3 (services) depict the total number of employees calculated for each firm size class and ownership group over the period of observation. By indexing the value in the starting year of the respective panel as 100, we are able to compare the relative development of employment across the different subsamples of firms. The figures for the manufacturing sector show the larger employment growth of small and medium-sized enterprises. The downturn in the recession years is particularly visible for large firms where the aggregate number of employees decreases below the value of the initial year. Overall, the picture looks more favorable for German-owned firms. When turning to the service sector we can observe the partly tremendous employment gains in the pre-crisis years, especially for the German-owned firms. From 2008 onwards the total level of employment stagnates for all observed classes of service firms.

Table 1**Balanced panels of Czech-owned and German-owned firms, manufacturing**

Observation period	Firm size: 10-49		Firm size: 50-249		Firm size: 250+	
2004 – 2010	Czech	German	Czech	German	Czech	German
No. of employees (mean) 2004	28	29	113	118	606	685
No. of employees (median) 2004	26	28	100	103	427	422
No. of employees (sd) 2004	11	13	52	56	568	710
Total assets (mean) 2004	36	75	120	233	909	1,382
Total assets (sd) 2004	35	51	131	264	1,346	2,636
Wage bill per empl. (mean) 2004	214	278	199	231	198	232
Wage bill per empl. (sd) 2004	86	116	64	68	49	62
No. of firms*	225	45	453	125	99	95

Observation period	Firm size: 10-49		Firm size: 50-249		Firm size: 250+	
2005 – 2010	Czech	German	Czech	German	Czech	German
No. of employees (mean) 2005	27	29	112	124	595	722
No. of employees (median) 2005	25	29	100	110	450	465
No. of employees (sd) 2005	11	12	50	57	546	784
Total assets (mean) 2005	42	80	130	263	905	1,495
Total assets (sd) 2005	120	84	150	367	1,341	3,057
Wage bill per empl. (mean) 2005	226	281	206	241	205	235
Wage bill per empl. (sd) 2005	81	100	62	82	53	52
No. of firms*	320	58	492	149	107	99

Observation period	Firm size: 10-49		Firm size: 50-249		Firm size: 250+	
2006 – 2010	Czech	German	Czech	German	Czech	German
No. of employees (mean) 2006	26	28	111	124	593	701
No. of employees (median) 2006	25	28	100	110	437	448
No. of employees (sd) 2006	11	12	49	60	471	758
Total assets (mean) 2006	38	54	133	241	1,015	1,568
Total assets (sd) 2006	108	43	147	326	1,529	3,318
Wage bill per empl. (mean) 2006	226	294	217	243	217	249
Wage bill per empl. (sd) 2006	90	137	65	76	54	60
No. of firms*	488	66	584	175	115	110

Observation period	Firm size: 10-49		Firm size: 50-249		Firm size: 250+	
2007 – 2010	Czech	German	Czech	German	Czech	German
No. of employees (mean) 2007	26	29	111	119	633	681
No. of employees (median) 2007	25	29	97	105	464	450
No. of employees (sd) 2007	11	12	50	55	561	739
Total assets (mean) 2007	34	60	141	229	1,506	1,581
Total assets (sd) 2007	85	67	162	360	3,852	3,538
Wage bill per empl. (mean) 2007	236	291	228	257	241	259
Wage bill per empl. (sd) 2007	83	114	68	79	59	68
No. of firms*	822	94	747	221	126	130

Note: Czech: Czech-owned firms; German: German-owned firms; sd: standard deviation; Total assets: in millions of Czech crowns; Wage bill per employee: in thousands of Czech crowns.

* The number of firms in the balanced panel refers to the firms for which data on the number of employees are available in each observed year. Due to missing values the number of firms is lower for the variables Total assets and Wage bill per employee.

Source: Authors' own calculations from ČEKIA data.

Table 2
Balanced panels of Czech-owned and German-owned firms, services

Observation period	Firm size: 10-49		Firm size: 50-249		Firm size: 250+	
2004 – 2010	Czech	German	Czech	German	Czech	German
No. of employees (mean) 2004	23	25	101	103	943	823
No. of employees (median) 2004	21	25	83	81	420	399
No. of employees (sd) 2004	10	9	50	58	2,125	1,038
Total assets (mean) 2004	97	362	283	1,119	3,548	2,087
Total assets (sd) 2004	397	1,174	1,060	3,813	14,824	3,287
Wage bill per empl. (mean) 2004	285	501	257	456	195	263
Wage bill per empl. (sd) 2004	148	234	126	297	71	153
No. of firms*	512	93	217	62	35	19

Observation period	Firm size: 10-49		Firm size: 50-249		Firm size: 250+	
2005 – 2010	Czech	German	Czech	German	Czech	German
No. of employees (mean) 2005	23	25	101	107	800	903
No. of employees (median) 2005	21	25	84	87	415	378
No. of employees (sd) 2005	10	10	49	57	1,811	1,169
Total assets (mean) 2005	78	334	251	1,054	2,911	2,463
Total assets (sd) 2005	235	1,195	694	3,695	13,048	4,149
Wage bill per empl. (mean) 2005	284	532	261	419	205	289
Wage bill per empl. (sd) 2005	154	290	120	300	62	198
No. of firms*	663	99	252	67	49	21

Observation period	Firm size: 10-49		Firm size: 50-249		Firm size: 250+	
2006 – 2010	Czech	German	Czech	German	Czech	German
No. of employees (mean) 2006	22	24	99	107	733	928
No. of employees (median) 2006	20	23	82	89	381	407
No. of employees (sd) 2006	10	10	49	55	1,614	1,371
Total assets (mean) 2006	83	308	233	1,011	2,385	5,030
Total assets (sd) 2006	365	1,077	706	3,551	11,937	13,387
Wage bill per empl. (mean) 2006	290	512	270	419	219	330
Wage bill per empl. (sd) 2006	150	208	124	241	85	205
No. of firms*	942	133	319	81	61	25

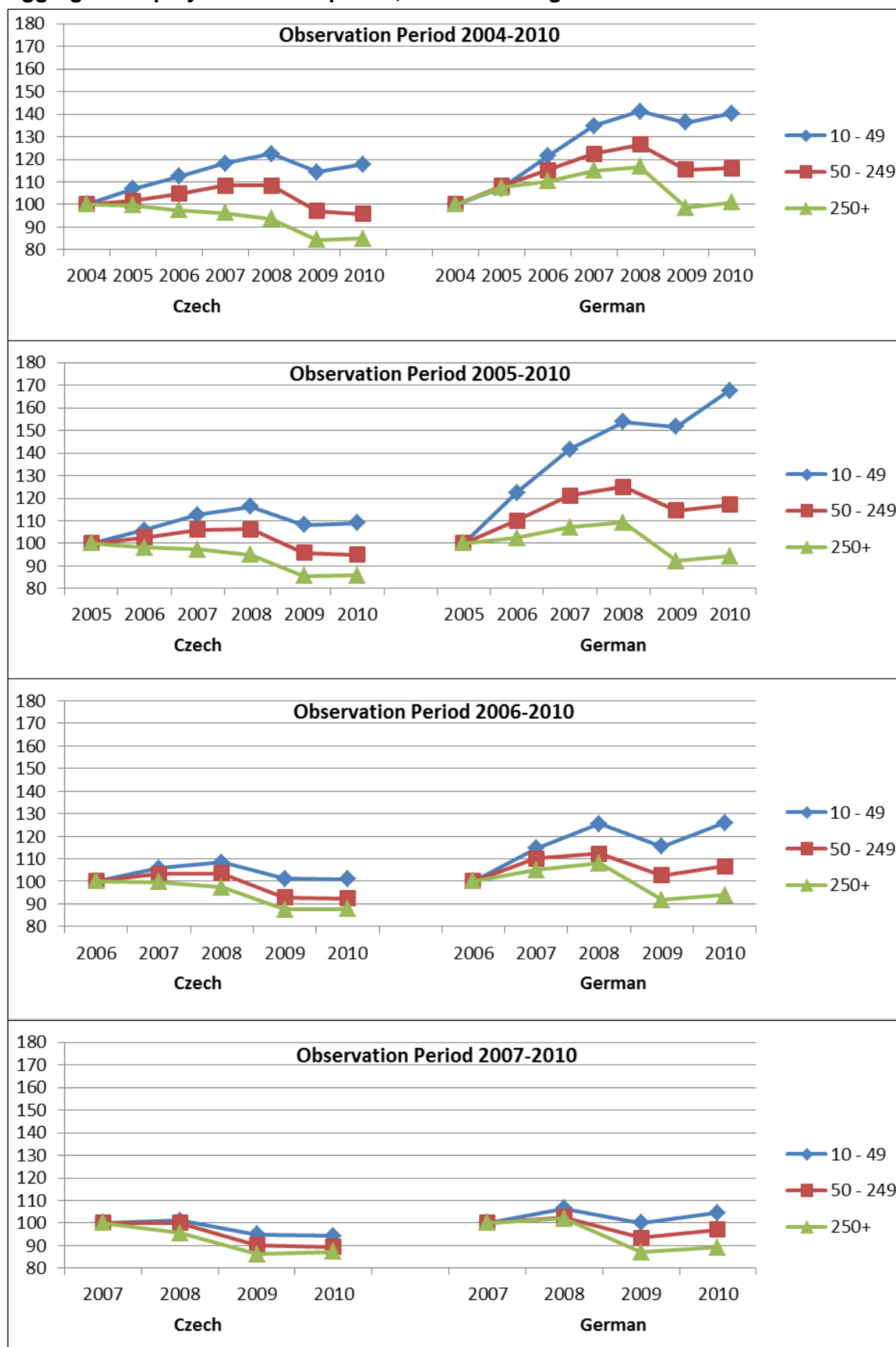
Observation period	Firm size: 10-49		Firm size: 50-249		Firm size: 250+	
2007 – 2010	Czech	German	Czech	German	Czech	German
No. of employees (mean) 2007	21	23	98	108	840	918
No. of employees (median) 2007	18	21	81	92	383	425
No. of employees (sd) 2007	10	10	48	55	1,930	1,372
Total assets (mean) 2007	72	232	237	1,035	2,062	4,520
Total assets (sd) 2007	342	925	813	3,650	10,507	12,389
Wage bill per empl. (mean) 2007	294	524	277	433	239	341
Wage bill per empl. (sd) 2007	166	220	136	229	87	189
No. of firms*	1,646	185	437	101	74	33

Note: Czech: Czech-owned firms; German: German-owned firms; sd: standard deviation; Total assets: in millions of Czech crowns; Wage bill per employee: in thousands of Czech crowns.

* The number of firms in the balanced panel refers to the firms for which data on the number of employees are available in each observed year. Due to missing values the number of firms is lower for the variables Total assets and Wage bill per employee.

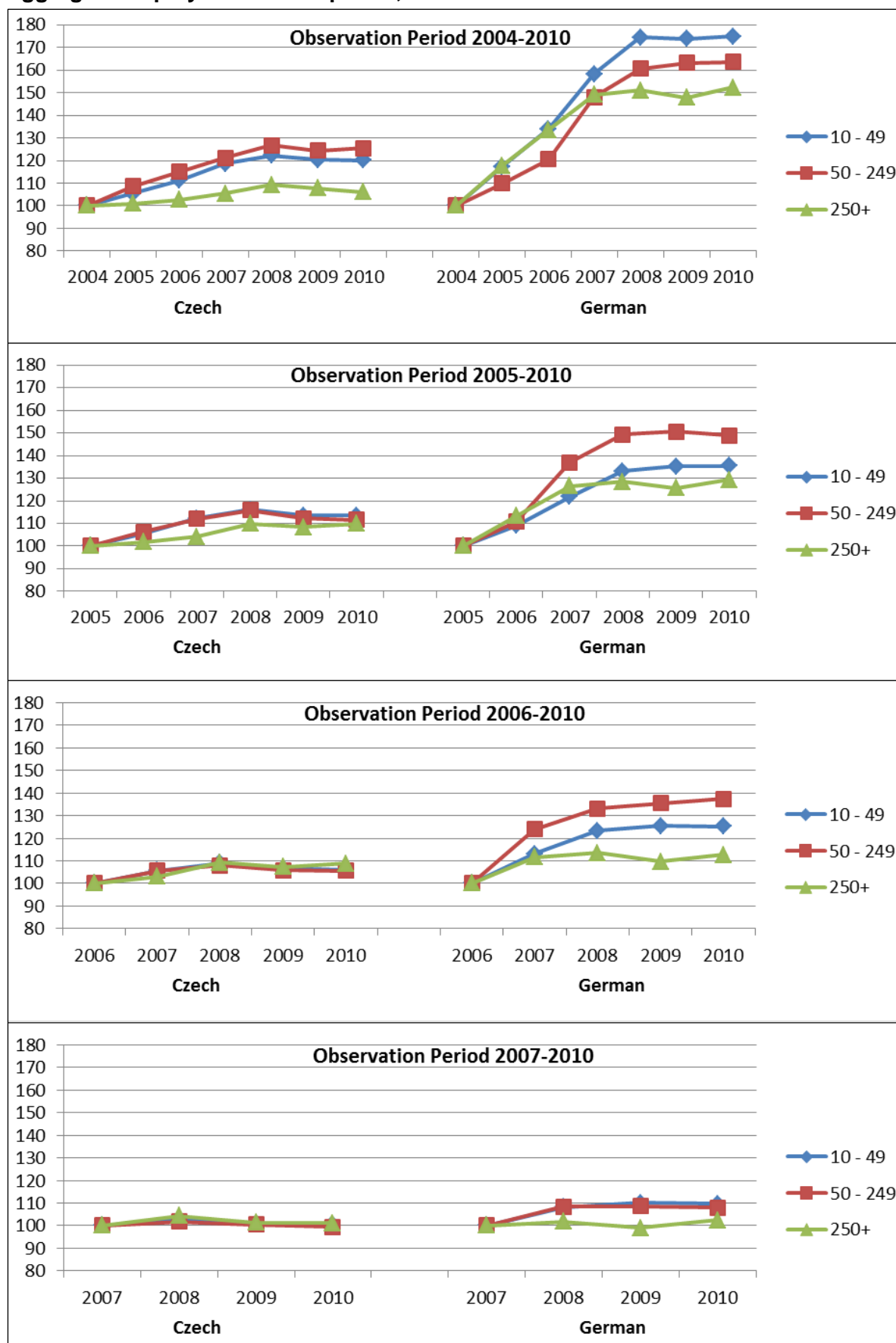
Source: Authors' own calculations from ČEKIA data.

Figure 2
Aggregate employment development, manufacturing



Source: Authors' own calculations from ČEKIA data.

Figure 3
Aggregate employment development, services



Source: Authors' own calculations from ČEKIA data.

4 Analysis of employment development

In order to get a more detailed impression of potential differences between employment growth of Czech-owned and German-owned firms, we perform mean-comparison tests of average percent employment changes in both firm groups for different firm size classes and different observation periods. Table 3 (manufacturing) and Table 4 (services) show the outcome of t-tests for employment growth with “p-value” denoting whether the average growth rate for the respective group of firms in a certain time span differs significantly from zero and “p-value (diff)” indicating whether the growth rates for German-owned firms significantly deviate from the growth rates of Czech-owned firms. For each panel we distinguish between three periods: first, the time between the initial year of the panel and 2008; second, the change between 2008 and 2009 that we regard as the time when the Great Recession was at its peak; third, employment growth between 2009 and 2010, when the economy began to stabilize.

Concerning the first-mentioned period, our results are clear-cut: with the exception of large service firms, for which we have the fewest observations, German-owned firms show a significantly higher employment growth rate than Czech-owned firms, regardless of the starting year of the panel, the firm size, and the sector. Though the growth rates drop to one-digit levels for German-owned firms, this finding holds true even when we start in 2007 and accordingly observe only the one-year change in average employment until 2008. For the core period of the crisis (2008-2009) the share of significant differences between the subsamples of German-owned and Czech-owned firms is lower. In both ownership groups, the proportional employment loss between 2008 and 2009 is on average more pronounced in the manufacturing industries, where larger firms show the most negative values, reducing their workforce by more than 10 percent on average. In contrast, service firms with German shareholders exhibit, with one exception (again, the relatively few large service firms), no significant decline in employment. Small and medium-sized service firms in Czech ownership show on average slight employment losses at a significant level. Likewise, the picture is rather mixed with regard to the development in the last period observed (2009-2010), a time that can be seen as phase of stabilization or recovery. An upswing is visible for the German-owned manufacturing firms, while the development in all other observed subsamples rather suggests a stagnation of employment. Generally, in the years around the crisis (2008-2010) employment was noticeably more volatile in the manufacturing industries, while the effects on the service sector were relatively modest. Significant differences between the two ownership groups are less frequent compared to the time until 2008. If deviations between the two groups are significant, however, it is always the German-owned firms that perform better, which in some cases means less severe employment reductions on average. As a preliminary summary, we can state that so far there are no indications that jobs in firms with German shareholders were less secure during the crisis. To the contrary, these firms had on average a more favorable employment development over the whole observation period in all panels.

The question arises whether our data allow a plausible explanation for the more thriving development of the German-owned firms. The descriptive figures on total assets and the wage bill per employee suggest that a systematically superior endowment with physical and human capital in firms with FDI could drive employment growth. Average total assets are markedly higher in firms with German capital participation during our period of observation. Higher average wages can be motivated on diverse grounds, but – given that we are not able to investigate this topic with our data – might also just indicate a higher-qualified workforce. Therefore, in our final step we condition on total assets and the wage bill per employee, regressing the logarithmized number of employees on these two control variables (in logarithmized form, too). Both total assets and the wage bill per employee are deflated by the consumer price index (CPI) and given in prices of the respective starting year of the panel. A set of time dummies captures the yearly changes in employment compared to the respective initial year. We include only firms where information on total assets and the wage bill per employee is available for every year of observation and use fixed effects in order to control for time-constant unobservable firm characteristics.

Again the results differ between the manufacturing sector (Table 5) and the service sector (Table 6). Independently of the sector and the observation period, we obtain the stable result of positive coefficient values for total assets and negative coefficient signs for the wage bill per employee. Though not significant in all cases, the results are plausible and show a robust pattern across the different groups and subsamples. The coefficients for both variables can be interpreted as elasticities, e. g. in the case of small Czech-owned manufacturers that are observed since 2004, a rise in total assets by one percent is correlated with 0.26 percent higher employment, whereas a rise in the wage bill per employee by one percent is correlated with 0.21 percent lower employment. Across the board, we observe a significantly positive employment development since the starting year until 2008 for the group of German-owned affiliates. For Czech-owned firms this is only the case in the service sector, where the absolute coefficient values are frequently far below the values for the corresponding coefficient for firms with German capital. Looking at the manufacturing sector in the following years 2009 and 2010, irrespective of the observation period, the number of employees in medium-sized and large firms in the domestic group decreases significantly below the level in the reference year. For the group of German-owned firms, the results are more diverse with significantly negative coefficients only when the panel starts in 2007. Regarding the service sector we do not find a single significantly negative result in both observed groups. The significantly positive coefficients for the years 2009 and 2010 are more widespread for the subsamples of German-owned firms, once more exhibiting higher absolute values.

To sum up, when comparing Czech-owned firms to German-owned firms we can unambiguously state that, even when controlling for total assets and the wage bill per employee, employment generally develops more favorably for the latter group. This finding is corroborated either in the cases where German-owned firms have had significantly positive growth rates since the initial year and Czech-owned firms

have not, or where the domestically-owned firms have experienced a significant downturn whereas the result for the German-owned firms, if at all negative, is not at a significant level. Of course, we have to keep in mind that all time dummies refer to the respective reference year (2004-2007), so that the more positive results for the firms with German capital obviously are driven by the overall prosperous development since the base year. However, even if we consider the shorter panels covering fewer pre-crisis years, we find this pattern of results mainly confirmed. Therefore, we can conclude that German-owned firms managed the years of the Great Recession relatively well.

5 Conclusions

The aim of this paper was to show differences in employment growth between purely Czech-owned firms and Czech-based firms in German ownership before and during the Great Recession. For this reason we use the ČEKIA database which tracks information on firm employment over the years from 2004 to 2010. After preparing four samples of balanced firm panels starting from 2004 to 2007, we are able to monitor the development of firm employment in the subsequent years. It becomes clear that the groups of Czech-owned and German-owned firms fundamentally differ in two central aspects: first, German-owned firms are on average much larger than Czech-owned firms. Second, the share of manufacturing firms is tremendously higher in the German-owned group. Therefore, we split the dataset into subsamples according to three firm size classes and the affiliation to the manufacturing or the service sector.

Considerable differences in employment development appear between the manufacturing and the service sector. Large firms in the manufacturing sector were most severely affected by the recession, a result that corroborates the findings by Babecký/Galuščák/Lízal (2012). While a sharp downturn can be observed in 2009 on average for manufacturing firms followed by a recovery or at least stabilization in 2010, the setback in the service sector was moderate with slightly slumping or zero growth rates in the years 2009 and 2010. Regarding the ownership status we find stable results for a significantly higher employment growth in German-owned firms for the pre-crisis years until 2008, irrespective of the observation period, the firm size and the sector affiliation. Though differences between the two ownership groups are partly insignificant for the years 2009 and 2010, the overall picture strongly suggests that on average German-owned firms overcome the economic crisis better than purely Czech firms. As measured by the employment development since the initial year of observation and controlling for physical capital endowment and labor costs, the bulk of results indicate a more positive trend for German-owned firms. Thus, in summary it can be stated that our findings for the German-Czech case rather support the view of MNEs as stabilizers for the economy during a downturn (Alfaro/Chen 2012; Desai/Foley/Forbes 2008; Tong/Wei 2011). This may be due to a generally higher resilience of multinationals to global demand shocks. Albeit not having data on the employment development in the German firm units, there

are no indications for a higher volatility of employment in the foreign-owned subsidiaries which should have been the case if the Czech-based production was disproportionately concentrated on particular steps that are more exposed to labor demand fluctuations (Bergin/Feenstra/Hanson 2009; Peters/Weigert 2013). During the Great Recession jobs have not been less secure in affiliates of German multinationals compared to domestic firms. In contrast, considering the whole observation period before and during the crisis, our results provide evidence that German-owned firms fared relatively well by not curbing the number of employees below the pre-crisis level. This outcome is corroborated by using balanced panel samples with different starting years.

Of course, there are some matters setting limits to the interpretation of our findings. Purely Czech-owned firms can be hit by a decreasing labor demand if they supply German firms with their goods and services without being part of a multinational firm. In this way, our study does not provide an answer whether German-owned or Czech-owned firms were more deeply affected by a slowdown in the demand of German customers, as we do not have data on the trade relations of the firms. Furthermore, we lack information on job protection arrangements, so that the impact of potentially systematic differences in dismissal regulations in the two groups observed cannot be evaluated. Finally, we restrict our investigation to the analysis of firms that exist at least until 2010, when the incisive years of the Great Recession were already over. Thus, we do not deal with firms that left the market during the crisis. Taking into account these limitations, however, we can conclude that Czech affiliates of German multinationals definitely cannot be seen as extended workbenches where jobs are cut at an above-average rate in tough economic times. In fact, German-owned firms are obviously well-established in the Czech economy, as reflected in their relatively favorable employment development.

Though our study is limited to foreign firms with German shareholders, the prominent position of German-owned firms in the total population of foreign-owned firms in the Czech Republic allows us to derive some policy implications that should apply to foreign-owned multinationals in the country in general. The attraction of foreign capital by fostering a good investment climate including transparency in the awarding of public contracts (see the survey by AHK 2014) might help to absorb the effects of labor demand shocks like global recessions on domestic employment. Small firms, provided that they do not exit during crisis years, perform better in terms of employment development than medium-sized and large firms. Therefore, creating more convenient business conditions for small firms might contribute to making the employment situation more resilient against crisis-driven fluctuations. Finally, measures to improve the capital endowment of domestic firms, particularly in the manufacturing sector, may serve to mitigate the effects of coming economic slowdowns.

Table 3
Mean-comparison tests for employment growth (in %), manufacturing

	Czech-owned, manufacturing			German-owned, manufacturing			
	No. of firms	Mean	p-value	No. of firms	Mean	p-value	p-value (diff)
Balanced panel 2004-2010							
Pre-recession (2004-2008)							
Size: 10-49	225	24.3539	0.0000***	45	41.1023	0.0000***	0.0390**
Size: 50-249	453	10.2828	0.0000***	125	26.9524	0.0000***	0.0000***
Size: 250+	99	-2.9522	0.2555	95	17.8623	0.0000***	0.0000***
During recession (2008-2009)							
Size: 10-49	225	-6.0510	0.0000***	45	-1.9708	0.2751	0.0770*
Size: 50-249	453	-9.8115	0.0000***	125	-8.0618	0.0000***	0.2245
Size: 250+	99	-10.3320	0.0000***	95	-12.3876	0.0000***	0.3144
Post-recession (2009-2010)							
Size: 10-49	225	2.1392	0.0470**	45	2.0261	0.2139	0.9640
Size: 50-249	453	-1.2984	0.0592*	125	1.3597	0.2599	0.0675*
Size: 250+	99	0.7417	0.7100	95	3.0767	0.0208**	0.3321
Balanced panel 2005-2010							
Pre-recession (2005-2008)							
Size: 10-49	320	17.2551	0.0000***	58	50.0240	0.0002***	0.0000***
Size: 50-249	492	8.1268	0.0000***	149	23.4467	0.0000***	0.0000***
Size: 250+	107	-0.9331	0.6187	99	10.6566	0.0003***	0.0007***
During recession (2008-2009)							
Size: 10-49	320	-5.8126	0.0000***	58	-2.7425	0.2348	0.1557
Size: 50-249	492	-9.2695	0.0000***	149	-7.1891	0.0000***	0.1189
Size: 250+	107	-10.3894	0.0000***	99	-12.4545	0.0000***	0.2967
Post-recession (2009-2010)							
Size: 10-49	320	0.7326	0.4048	58	3.4754	0.1074	0.2241
Size: 50-249	492	-0.9462	0.1699	149	1.9969	0.0828*	0.0360**
Size: 250+	107	-0.1248	0.9372	99	2.7423	0.0299**	0.1600
Balanced panel 2006-2010							
Pre-recession (2006-2008)							
Size: 10-49	488	9.7356	0.0000***	66	28.6225	0.0001***	0.0000***
Size: 50-249	584	4.3103	0.0000***	175	13.7492	0.0000***	0.0000***
Size: 250+	115	-1.8787	0.1873	110	10.4030	0.0001***	0.0000***
During recession (2008-2009)							
Size: 10-49	488	-5.9732	0.0000***	66	-5.7859	0.0144**	0.9308
Size: 50-249	584	-9.5716	0.0000***	175	-7.6923	0.0000***	0.1613
Size: 250+	115	-10.3171	0.0000***	110	-11.7081	0.0000***	0.4535
Post-recession (2009-2010)							
Size: 10-49	488	-0.4026	0.5759	66	5.6497	0.0093***	0.0042***
Size: 50-249	584	-1.0544	0.1030	175	3.1506	0.0062***	0.0017***
Size: 250+	115	-0.4173	0.7997	110	2.8236	0.0297**	0.1231
Balanced panel 2007-2010							
Pre-recession (2007-2008)							
Size: 10-49	822	1.3162	0.0216**	94	6.5157	0.0020***	0.0045***
Size: 50-249	747	0.1739	0.7350	221	3.3919	0.0023***	0.0041***
Size: 250+	126	-2.1435	0.0307**	130	2.5975	0.0409**	0.0034***
During recession (2008-2009)							
Size: 10-49	822	-5.8212	0.0000***	94	-5.6777	0.0059***	0.9348
Size: 50-249	747	-9.5625	0.0000***	221	-7.9866	0.0000***	0.2029
Size: 250+	126	-11.1348	0.0000***	130	-11.4741	0.0000***	0.8552
Post-recession (2009-2010)							
Size: 10-49	822	-0.9716	0.0982*	94	3.9565	0.0449**	0.0081***
Size: 50-249	747	-0.9840	0.0966*	221	4.0910	0.0003***	0.0001***
Size: 250+	126	0.6052	0.7206	130	2.6938	0.0342**	0.3201

Source: Authors' own calculations from ČEKIA data; */**/** significant at the 10/5/1 percent level.

Table 4
Mean-comparison tests for employment growth (in %), services

	Czech-owned, services			German-owned, services			
	No. of firms	Mean	p-value	No. of firms	Mean	p-value	p-value (diff)
Balanced panel 2004-2010							
Pre-recession (2004-2008)							
Size: 10-49	512	22.5440	0.0000***	93	65.6300	0.0000***	0.0000***
Size: 50-249	217	24.3325	0.0000***	62	63.3082	0.0000***	0.0000***
Size: 250+	35	15.2620	0.0406**	19	44.7882	0.0001***	0.0153**
During recession (2008-2009)							
Size: 10-49	512	-1.5710	0.0134**	93	3.2174	0.0781*	0.0043***
Size: 50-249	217	-2.3141	0.0163**	62	1.7894	0.4066	0.0542*
Size: 250+	35	0.1175	0.9610	19	-2.9636	0.1040	0.3808
Post-recession (2009-2010)							
Size: 10-49	512	0.1931	0.7674	93	-0.1473	0.9111	0.8347
Size: 50-249	217	-0.4137	0.6578	62	-1.8743	0.3443	0.4739
Size: 250+	35	-1.2103	0.3847	19	1.1516	0.6452	0.3671
Balanced panel 2005-2010							
Pre-recession (2005-2008)							
Size: 10-49	663	15.6542	0.0000***	99	31.1487	0.0000***	0.0002***
Size: 50-249	252	14.7419	0.0000***	67	52.7459	0.0000***	0.0000***
Size: 250+	49	15.3919	0.0068***	21	30.3792	0.0003***	0.1178
During recession (2008-2009)							
Size: 10-49	663	-1.9328	0.0010***	99	2.5215	0.0945*	0.0061***
Size: 50-249	252	-2.8694	0.0017***	67	0.9836	0.5815	0.0519*
Size: 250+	49	-0.7507	0.7201	21	-2.7557	0.1022	0.5527
Post-recession (2009-2010)							
Size: 10-49	663	0.0960	0.8817	99	0.8936	0.4421	0.6444
Size: 50-249	252	-0.8536	0.3581	67	-1.9215	0.2699	0.5950
Size: 250+	49	2.6789	0.2535	21	1.1030	0.6459	0.6853
Balanced panel 2006-2010							
Pre-recession (2006-2008)							
Size: 10-49	942	9.1783	0.0000***	133	21.4858	0.0000***	0.0000***
Size: 50-249	319	7.9832	0.0000***	81	34.7851	0.0000***	0.0000***
Size: 250+	61	12.9639	0.0028***	25	19.6135	0.0001***	0.3436
During recession (2008-2009)							
Size: 10-49	942	-1.5878	0.0048***	133	2.2990	0.1177	0.0147**
Size: 50-249	319	-1.9020	0.0242**	81	0.8082	0.6656	0.1572
Size: 250+	61	-0.8853	0.6836	25	-4.8276	0.0168**	0.2756
Post-recession (2009-2010)							
Size: 10-49	942	-0.4090	0.4514	133	0.0976	0.9392	0.7394
Size: 50-249	319	-0.1119	0.8999	81	-0.8148	0.6524	0.7233
Size: 250+	61	2.4361	0.2194	25	0.8958	0.6903	0.6502
Balanced panel 2007-2010							
Pre-recession (2007-2008)							
Size: 10-49	1,646	3.1385	0.0000***	185	7.9238	0.0000***	0.0016***
Size: 50-249	437	1.8879	0.0128**	101	9.1508	0.0000***	0.0001***
Size: 250+	74	6.5831	0.0046***	33	8.4301	0.0103**	0.6411
During recession (2008-2009)							
Size: 10-49	1,646	-1.8316	0.0000***	185	1.4879	0.2657	0.0124**
Size: 50-249	437	-1.4402	0.0855*	101	-0.2794	0.8599	0.5407
Size: 250+	74	-0.9595	0.6643	33	-2.0646	0.2857	0.7554
Post-recession (2009-2010)							
Size: 10-49	1,646	-0.1474	0.7252	185	-1.1191	0.3604	0.4603
Size: 50-249	437	-0.1597	0.8497	101	-0.9152	0.6008	0.6974
Size: 250+	74	2.3484	0.1980	33	3.1134	0.2097	0.8091

Source: Authors' own calculations from ČEKIA data; */**/** significant at the 10/5/1 percent level.

Table 5
Regression results for In employment, manufacturing

Balanced panel 2004–2010						
Firm size	10-49		50-249		250+	
Ownership	Czech	German	Czech	German	Czech	German
In Total assets	0.26***	0.22**	0.37***	0.25***	0.32***	0.27***
In Wage bill/emp.	-0.21***	-0.25	-0.32***	-0.25*	-0.25**	-0.13
Year: 2005	0.04**	0.05	-0.00	0.06***	-0.01	0.04*
Year: 2006	0.07**	0.14**	0.01	0.10***	-0.04	0.06**
Year: 2007	0.09***	0.19***	0.01	0.14***	-0.05	0.09**
Year: 2008	0.12***	0.22***	0.03*	0.18***	-0.05	0.12***
Year: 2009	0.08*	0.18**	-0.07***	0.10**	-0.13***	-0.00
Year: 2010	0.08*	0.20**	-0.09***	0.10*	-0.15***	0.02
Constant	1.63**	2.28	2.14***	3.01***	3.32***	3.35**
No. of obs.	728	217	2,317	637	602	588
No. of firms	104	31	331	91	86	84
Balanced panel 2005–2010						
Firm size	10-49		50-249		250+	
Ownership	Czech	German	Czech	German	Czech	German
In Total assets	0.29***	0.28**	0.38***	0.27***	0.31***	0.25**
In Wage bill/emp.	-0.20**	0.15	-0.31***	-0.26***	-0.25**	-0.10
Year: 2006	0.03**	0.12**	0.00	0.07***	-0.01	0.02*
Year: 2007	0.08***	0.20***	0.01	0.13***	-0.01	0.05**
Year: 2008	0.10***	0.24***	0.03*	0.17***	-0.01	0.09***
Year: 2009	0.06**	0.18**	-0.07***	0.08**	-0.10***	-0.03
Year: 2010	0.06*	0.20*	-0.09***	0.10**	-0.11***	-0.01
Constant	1.36**	-0.69	1.95***	2.86***	3.42***	3.42**
No. of obs.	1,026	228	2,376	726	570	522
No. of firms	171	38	396	121	95	87
Balanced panel 2006–2010						
Firm size	10-49		50-249		250+	
Ownership	Czech	German	Czech	German	Czech	German
In Total assets	0.26***	0.30***	0.37***	0.25***	0.33***	0.20**
In Wage bill/emp.	-0.22***	-0.20	-0.25***	-0.36**	-0.22**	-0.09
Year: 2007	0.05***	0.05	0.01	0.08***	-0.00	0.04**
Year: 2008	0.07***	0.12**	0.02**	0.11***	-0.01	0.09***
Year: 2009	0.02	0.06	-0.07***	0.02	-0.09***	-0.02
Year: 2010	0.00	0.08	-0.10***	0.04	-0.12***	-0.01
Constant	1.77***	1.26	1.75***	3.68***	3.02***	4.08***
No. of obs.	1,370	230	2,435	755	510	505
No. of firms	274	46	487	151	102	101
Balanced panel 2007–2010						
Firm size	10-49		50-249		250+	
Ownership	Czech	German	Czech	German	Czech	German
In Total assets	0.22***	0.11	0.35***	0.25***	0.37***	0.16**
In Wage bill/emp.	-0.19***	-0.50**	-0.27***	-0.36***	-0.39***	-0.11*
Year: 2008	0.02**	0.05*	0.01	0.04***	0.00	0.03*
Year: 2009	-0.04***	-0.01	-0.09***	-0.05**	-0.09***	-0.09***
Year: 2010	-0.06***	0.00	-0.12***	-0.02	-0.11***	-0.07**
Constant	1.99***	4.99***	2.14***	3.72***	3.41**	4.64***
No. of obs.	1,852	268	2,616	768	456	484
No. of firms	463	67	654	192	114	121

Notes: Regression with heteroskedasticity-robust standard errors; */**/** significant at the 10/5/1 percent level.

Source: Authors' own calculations from ČEKIA data.

Table 6
Regression results for In employment, services

Balanced panel 2004–2010						
Firm size	10-49		50-249		250+	
Ownership	Czech	German	Czech	German	Czech	German
In Total assets	0.29***	0.30***	0.38***	0.29***	0.26**	0.23*
In Wage bill/emp.	-0.20***	-0.34*	-0.29**	-0.44***	-0.16	-0.54*
Year: 2005	0.04***	0.09**	0.03*	0.04	0.02	0.09
Year: 2006	0.06***	0.17***	0.05**	0.10**	0.02	0.19**
Year: 2007	0.09***	0.25***	0.06**	0.19***	0.04	0.30***
Year: 2008	0.13***	0.35***	0.09***	0.27***	0.09**	0.37***
Year: 2009	0.11***	0.39***	0.05*	0.27***	0.07*	0.37***
Year: 2010	0.09***	0.37***	0.04	0.25***	0.06	0.39***
Constant	1.13**	1.74	1.70*	3.52**	3.63**	6.15**
No. of obs.	1,988	476	1,078	301	182	112
No. of firms	284	68	154	43	26	16
Balanced panel 2005–2010						
Firm size	10-49		50-249		250+	
Ownership	Czech	German	Czech	German	Czech	German
In Total assets	0.25***	0.21**	0.28***	0.38***	0.28**	0.21**
In Wage bill/emp.	-0.18***	-0.34***	-0.20***	-0.45***	-0.58***	-0.52**
Year: 2006	0.03**	0.07***	0.03**	0.08***	0.06**	0.09**
Year: 2007	0.05***	0.14***	0.05**	0.19***	0.07*	0.19***
Year: 2008	0.09***	0.23***	0.09***	0.29***	0.13**	0.27***
Year: 2009	0.05***	0.25***	0.06**	0.31***	0.12**	0.26***
Year: 2010	0.03*	0.24***	0.05*	0.30***	0.11*	0.28***
Constant	1.42***	2.84**	2.31***	2.55**	5.52***	6.34***
No. of obs.	2,406	462	1,140	294	210	108
No. of firms	401	77	190	49	35	18
Balanced panel 2006–2010						
Firm size	10-49		50-249		250+	
Ownership	Czech	German	Czech	German	Czech	German
In Total assets	0.22***	0.28***	0.23***	0.38***	0.30***	0.14
In Wage bill/emp.	-0.18***	-0.32**	-0.22***	-0.47***	-0.53***	-0.51***
Year: 2007	0.02**	0.09***	0.03**	0.13***	0.05**	0.12***
Year: 2008	0.06***	0.16***	0.06***	0.22***	0.10***	0.19***
Year: 2009	0.03*	0.18***	0.05**	0.24***	0.07*	0.15***
Year: 2010	0.01	0.17***	0.03	0.22***	0.07*	0.17***
Constant	1.73***	1.91	3.06***	2.71***	5.08***	7.30***
No. of obs.	2,885	540	1,260	335	240	105
No. of firms	577	108	252	67	48	21
Balanced panel 2007–2010						
Firm size	10-49		50-249		250+	
Ownership	Czech	German	Czech	German	Czech	German
In Total assets	0.19***	0.23***	0.24***	0.27***	0.43***	0.15
In Wage bill/emp.	-0.19***	-0.37**	-0.25***	-0.66***	-0.42**	-0.51***
Year: 2008	0.04***	0.07***	0.03***	0.09***	0.07***	0.06*
Year: 2009	0.01	0.07***	0.00	0.10***	0.03	0.05
Year: 2010	-0.00	0.06*	-0.02	0.08**	0.02	0.08*
Constant	2.06***	2.74**	3.11***	5.17***	2.79	7.29***
No. of obs.	4,024	616	1,416	352	240	108
No. of firms	1,006	154	354	88	60	27

Notes: Regression with heteroskedasticity-robust standard errors; */**/** significant at the 10/5/1 percent level.

Source: Authors' own calculations from ČEKIA data.

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Editorial staff

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For further inquiries contact the author:

Michael Moritz

Phone +49.911.179 2133

E-mail michael.moritz@iab.de