Determinants of Job Creation in Eleven New EU Member States

Evidence from Firm Level Data

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July 2013

Abstract

This paper builds on the analysis of job creation developed in World Bank (2013) to provide an empirical investigation of the industry and firm-specific determinants of the job creation process in eleven new European Union (EU11) economies. It relies on the Amadeus dataset of firms during 2002–2009. The main results indicate that during the years prior to the global financial crisis, traditional industries were crucial for the net creation of jobs in EU11. However, traditional industries were the ones most severely affected by the financial crisis. By contrast, services firms were less vulnerable to the economic downturn. At the firm level,

small and young firms registered the highest employment growth rates. The empirical results also indicate that more productive firms tended to be less vulnerable to economic downturns. Moreover, the results demonstrate that the perceived quality of the business climate by the EU11 enterprises is correlated with not only the firms' employment growth, but also their productivity. In the post-crisis period, poor business restrictions were negatively associated with the creation of jobs. All these findings hold for the group of high-growth firms that disproportionately accounted for the creation of new jobs in the EU11 economies.

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DETERMINANTS OF JOB CREATION IN ELEVEN NEW EU MEMBER STATES: EVIDENCE FROM FIRM LEVEL DATA

by Harald Oberhofer* and Gallina A Vincelette**

JEL: D00; D2; L1; L5

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Introduction¹

The EU11 countries made notable gains in economic and productivity growth in the years prior to the global financial crisis (2000-2007), with some of this growth translating into job creation.² However, the increase in jobs that took place was reversed by the crisis. Which firms created the most jobs prior to the crisis and how these jobs were affected by the crisis are highly topical questions among economists and policy makers trying to mitigate the effects of the crisis.³

In the EU11 countries, the structural change in economic activities over the last two decades involved two different developments. First, after the break-up of the former communist bloc, economic activities were reorganized into market-based economic systems. Second, as in other middle income economies, economic activity shifted away from agriculture and manufacturing to services, where the average firm size was relatively small but the number of firms large (see, e.g., Pilat et al. 2009). These structural changes had an impact on how, where and what type of jobs were created.

After the vast majority of the EU11 countries successfully reorganized their centrally planned economies, they experienced varying degrees of success in creating productive jobs. Different levels of market regulations and entry barriers were crucial determinants explaining the differences in the economic structures across the EU11 countries. In general, countries that most successfully liberalized their economies, maintained macroeconomic stability, and improved the quality of their business environment and institutions were able to create the conditions for firms to flourish and to attract the largest amounts of FDI. This, in turn, contributed not only to the structural changes in these economies, but also to the job-creation process (see, e.g., Bevan and Estrin 2004, Pournarakis and Varsakelis 2004, Fabry and Zeghni 2006 Harding and Javorcik 2011, Jimenez et al. 2011, Crespo Cuaresma et al. 2012 and Tintin 2013).

The economic downturn induced by the financial crisis may have triggered yet another structural change in EU11 and, therefore, a clear understanding of the key industry- and firm-specific determinants of job creation is important for both policy makers and entrepreneurs. A focus on the institutional framework that supports the creation of new jobs should be especially informative for informing tailored and effective policy measures to counterbalance the process of job destruction.

¹ The team is grateful for comments from Omar Arias, Jesus Crespo Cuaresma, Xavier Devictor, Doerte Doemeland, Hongjoo J. Hahn, Satu Kahkonen, Ismail Radwan, Carolina Sanchez-Paramo, Erwin H. R. Tiongson, and Charles Udomsaph. The paper was prepared for the EU11 Regular Economic Report (Issue 27) of June 2013 (http://www-wds.worldbank.org/external/default/WDSPContentServer/WDSP/IB/2013/06/13/000350881_20130613080133/Rendered/PDF/783410REVISED0Box377338B00PUBLIC0.pdf).

² The EU11 countries comprise Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic, and Slovenia.

³ The issue of job creation and the broader constraints that affect the Europe and Central Asia region are analyzed in a forthcoming World Bank (2013) report on jobs. The analysis on this report builds on this work for the subset of EU11 countries.

Accordingly, this paper builds on the work of the forthcoming World Bank report on jobs and zooms into the patterns of job creation across surviving firms in the EU11 economies. The analysis utilizes the Amadeus database (provided by Bureau van Dijk) which contains comparable and comprehensive balance sheet and profit and loss account data for the EU11 countries for a time period spanning from 2002 to 2009.⁴ This data set is augmented with data from the World Bank's Business Environment and Enterprise Performance Survey (BEEPS) which collects information on the business environment in which the firms operate. In the EU11 economies, these surveys have been conducted in the years 2002, 2005, 2007 and 2009, allowing the analysis of dynamics of job creation at the firm level in the boom years prior to the global financial crisis as well as during the “bust”. The next section presents stylized facts on job creation in the EU11 economies, while Section 3 offers a structural analysis of job creation patterns across and within-industries. The comparison of employment growth dynamics across industries allows for examining whether the EU11 economies have been successful in shifting employment to more productive sectors, while the within-industry analysis provides evidence on which firms have been most crucial for overall job creation. Section 4 re-examines this latter issue by investigating the key-industry and firm-specific characteristics of high-growth firms. Section 5 offers policy conclusions.

Stylized Facts

Many jobs created in EU11 during 2002-2008 were lost during the 2008 global financial crisis. Among the surveyed firms, the number of employees in firms that were active in 2002 increased by approximately 76 percent (Figure 1). For all countries the minimum increase in the number of workers amounted to approximately 50 percent. Lithuania, Poland, Bulgaria, Slovenia and Slovakia were able to more than double the number of employed workers. However, the global financial crisis induced an overall job loss in 2009, nearly halving the cumulative gains of the previous period (2002-2008) among the surveyed firms. In the EU11 countries, half the jobs created during 2002-2008 were lost in 2009.

While jobs were lost throughout the EU11 region, the magnitude of job destruction varied among the countries (Figure 1). In Lithuania and Poland, the number of workers employed in firms that already existed in 2002 was about threefold in 2008. The crisis, however, reversed these dynamics in 2009 to 174 percent in Lithuania and 131 in Poland of the respective 2002 level. In Slovakia and Latvia, despite notable gains in employment prior to 2008, the overall number of employees in established firms was at or below the 2002 level among the surveyed firms.

⁴ A detailed data description for the Amadeus database is provided in Udomsaph (2013). One should note the large variation in the coverage and representativeness across the EU11 countries in the Amadeus data base, and hence the quality of data across the EU11 countries. The results presented here pertain solely to the surveyed firms in the data base.

The average job creation rates among surviving firms also substantially differed across industries (Figure 2).⁵ Prior to the financial crisis, the EU11 average employment growth among the surveyed firms was smallest in agricultural and fishing and largest in construction and in the transport, storage and communications industries. Interestingly, in 2009 only two sectors registered positive employment growth rates –agricultural and fishing and other services industries. The average job destruction rate in 2009 amounted to 4.4 percent in the construction industry alone. While the manufacturing sector experienced decent job creation rates from 2002 to 2008, it was most severely affected by the 2008 global financial crisis, with an average job destruction rate of around 6 percent in 2009.

Figure 1. Job creation from 2002 to 2008 and Job destruction in 2009

Source: World Bank Staff calculations, based on Bureau van Dijk data.

Note: Covers all EU11 countries, except for Hungary, where the number of active firms in 2002 is too low to make reasonable comparisons. The gray 100 percent-line indicates the 2002 employment benchmark.

Figure 2. Average employment growth rate by sector and year, 2002- 2009

Source: World Bank Staff calculations, based on Bureau van Dijk data.

⁵ The industry categorization is based on the NACE Rev. 2 classification. Accordingly, the farming and fishing industry is based on sector A while mining and utilities aggregate the sectors B, D and E. Construction and manufacturing firms operate in the sectors F and C, respectively. The production sector, including wholesale, retail trade, restaurants and hotels, is made of sectors G and I, while transport, storage and communications includes firms from the sectors H and J. The remaining sectors from K to U are subsumed in a sector labeled other, which primarily includes services firms operating in financial and real estate industries, professional and public services. Further details on the NACE Rev 2 classification can be obtained from Eurostat (2008).

One potential reason for the differing job creation performance among the EU11 economies prior and during the global financial crises relates to the quality of the business environment in which firms operate. Among the surveyed firms, Romania was perceived to be the country most unfriendly to business (Figure 3). Romania, the Czech Republic, and Poland were all perceived to have had institutional obstacles to doing business and experienced below average employment rates in the observed period. Latvia, on the other side, was perceived as a relatively business friendly economy, that showed the highest average employment growth rates among the EU11 economies. Interestingly, however, jobs in Latvia were strongly affected by the financial crisis, while employment in Romania remained relatively stable. Yet, Estonia--

the most business amicable country between 2002 and 2009--saw its employment growth lag behind the other EU11 economies. Some countries such as Lithuania and Bulgaria were perceived to have relatively unfriendly business environment, but the average job creation rates of firms located in these economies were above the EU11 average.

Overall, looking at the simple relationship between the average employment growth and the perceived barriers to business at the country level does not reveal strong regularities. The question of whether firm-level employment performance differs across EU11 countries with different quality of business institutions becomes warranted. However, the impact on employment growth of the key elements underpinning the environment for doing business, while important, may not be sufficient for sustained job creation. With this hypothesis in hand, the rest of the paper investigates econometrically the effect of industry- and firm-specific determinants of the job creation process in the EU11 countries.

Figure 3. Employment growth and perceived business barriers, 2002-2009

Source: World Bank Staff calculations, based on Bureau van Dijk data and Business Environment and Enterprise Performance Survey (BEEPS).

Note: Employment growth is measured in percent. The average business barriers index is based on questions regarding perceived barriers for doing business in the categories institutional regulations, access to finance, crime, corruption, taxation, and labor regulations. The answers to each question range from 0 (no obstacle) to 4 (very severe obstacle).

Job Creation before and after the 2008 Crisis

Firm and industry characteristics as well as the perceived business environment features are likely to account for some of the differences in the job creation rates across the EU11 region.

A structural analysis of the relationship between the business environment and job creation is warranted. A sample of 180,986 firms of different sizes, vintages, and sectors across the EU11 countries is used. The sample captures only surviving firms, making it impossible to examine exit dynamics. Hence, the results presented here are attributable solely to the sample of surviving firms in EU11. The data is made available by Bureau van Dijk and have been standardized for the analysis forthcoming in World Bank (2013). To unveil the firm and industry level characteristics as well as the business environment determinants of employment creation in the EU11, empirical firm growth equations are estimated for the annual average employment growth rate for surviving firms (Box 1). The main advantage of the regression framework presented in Box 1 is that it allows controlling for differences in firm-characteristics such as size when examining the impacts of industry and institutional characteristics on job creation. Given the large effect of the global financial crisis on countries, the period under investigation is divided into two: the “boom” years capturing the strong economic growth and job creation in the EU11 countries between 2002 and 2008; and a “bust” year representing 2009, the first year following the global financial crisis.

Box 1. Estimating Empirical Employment Growth Equations at the Firm Level

The regression analysis is based on empirical firm growth equations (for surviving firms) in the spirit of the *Gibrat's law* (see, e.g., Hart 2000 and Coad 2009, for surveys). A cross-sectional *Gibrat-law* type of regression can be written as (see, e.g., Geroski 2005 and Oberhofer and Pfaffermayr 2013):

$$g_{ij} = \alpha + \pi_{ij}S_{0ij} + \mathbf{x}_{ij}\boldsymbol{\gamma} + \mathbf{z}_j\boldsymbol{\delta} + \varepsilon_i, \text{ where} \\ \pi_{ij} = \beta_0 + \beta_1 A_{ij}.$$

This equation states that the average employment growth rate g_{ij} of firm i in industry j is a function of (log) initial firm size S_{0i} ⁶ (i.e., the number of employees in the first observed period) and other firm- and industry-specific control variables collected in $\mathbf{x}_{ij}$ and $\mathbf{z}_j$, respectively. $\boldsymbol{\gamma}$ and $\boldsymbol{\delta}$ are column vectors to be estimated. π_{ij} captures the (conditional) speed of convergence/divergence and is modeled to depend on firm age A_{ij} .

One standard result in the empirical firm growth literature states that the observed speed of convergence declines with age. This finding would be confirmed in this application if the estimated parameters $\beta_0 < 0$ and $\beta_1 > 0$. Economically, such a result would suggest that younger and smaller firms grow faster, while old small firms would not exhibit increased employment growth dynamics.⁷

The estimation covers the time period 2002 to 2008. $\mathbf{x}_{ij}$ and $\mathbf{z}_j$ contain firm- and industry-specific variables that may affect job creation in firms located in the EU11 economies. Among the latter, industry dummy variables (based on the classification mentioned in footnote 5) and business environment indicators are included. Based on the BEEPS data, an indicator that measures the average institutional barriers within 2-digit industries and countries is constructed. The overall industry-country specific measure for institutional barriers is based on several questions on perceived obstacles for conducting business that are included in the BEEPS data. In particular, the constructed indicator comprises information on the degree of institutional regulations, access to finance, crime, corruption, taxation and labor regulations. The country averages of this measure are reported as red bars in Figure 2. In the second step, the job creation effects of these specific business barriers are separately investigated.

With regard to additional firm-specific controls, (log) firm age and (log) firm's total factor productivity (TFP) are included. TFP is estimated via the approach suggested by Levinsohn and Petrin (2003), which uses a firm's demand for intermediate inputs (such as materials) in order to overcome the problem of simultaneity when estimating firm level production functions. For more details on the calculation of TFP and corresponding data restrictions see footnote 16. The interaction effect of firm size with firm age is already incorporated in π .

For the crisis year 2009, the model is re-estimated. Job creation is defined as the employment growth rate from 2008 to 2009. The firm- and industry-specific characteristics are, consequently, taken from 2008. The only exception refers to the BEEPS data which are not available for 2008. The institutional barriers variable, therefore, is based on the within-industry survey averages from 2009. Tables 2 and 3 report the corresponding estimation results for both the pre-crisis period and the year 2009.

⁶ The firm size is a particularly interesting (and debated) characteristic of job creation in the literature. Davidsson et al. 1998 and Neumark et al. 2011 demonstrate that small and medium-sized enterprises (SMEs) are the most important contributors to net job creation. By contrast, Haltiwanger et al. (2013) highlight the important role of business startups and young firms for job creation in the USA. Huber et al. (2012) document that in Austria large firms irrespective of their firm age positively contribute to (net) job creation, while in small firms more jobs are destroyed than created.

⁷ However, as stressed by Haltiwanger et al (2013), disentangling the role of firm size vis-à-vis age requires more comprehensive data than available for this paper. In particular, census data would allow for the proper estimation of employment shares and hazard rates of non-surviving firms.

Employment Growth at the Firm Level: The Boom Years (2002-2008)⁸

Most countries in the EU11 region enjoyed both positive economic and employment growth in the pre-2008 crisis period.⁹ The “boom” years in EU11 were characterized by the transformation of domestic productive structures, accompanied by deepening of international trade and financial development.¹⁰ To a large extent, economic growth did translate into job creation in EU11 at the macroeconomic level.¹¹

At the firm level, traditional industries were the key creators of new jobs prior to the crisis. Employment growth was greatest in the construction and manufacturing industries and lowest in the service industries among the surveyed firms. When controlling for differences in firm-characteristics, employment growth was lowest in the group of other industries, which mainly consisted of services firms.¹² Across different specifications of the firm growth model, an average construction firm was estimated to grow by 3.8 (column 1 of Table 1) to 6.1 (column 6) percentage points more annually in comparison to a firm of the same size, age, and productivity in the “other sector.” The comparable numbers for manufacturing firms varied between 3.2 and 4.1 percentage points. In half of specifications, agricultural and fishing firms were estimated to grow by approximately 3 percentage points faster than other service firms.

In contrast, while firms operating in the service sector were important in terms of overall value added, they did not contribute much to job creation.¹³ The number of firms that operate in the EU11 services sector was very large (around 72 percent of all sampled firms were service providers), but these firms were very small and not willing to grow in terms of employment. In more traditional sectors, the average firm size was larger and, therefore, they strongly contributed to overall job creation in 2002-2008. Controlling for differences in firm-specific productivity, service industries were estimated to create jobs at a slower pace than firms in the rest of the economy.

The smallest surviving firms exhibited the highest rates of job creation prior to the crisis. In line with typical estimation results from empirical firm growth equations à la *Gibrat's law* (see, e.g., Coad 2009), the average employment growth rate was largest in the initially smallest firms. More precisely, the empirical results showed that a one percent increase in the initial firm size (i.e., the firm size at the first observed year) correlates with a decrease in average annual job creation rate of 5.3 to

⁸ The presented results here are based on the above described econometric model which allows to (at least) identify partial correlations between employment growth and the included covariates. This implies that the findings might not necessarily reflect a causal relationship, but are suggestive for the modeled relationships.

⁹ The link between economic and employment growth for the pre- and post-crisis period is explored in detail in World Bank (2013, forthcoming). One should note, however, that employment creation rates vary significantly across countries—even countries with similar growth experiences.

¹⁰ See Raiser and Gill (2012)

¹¹ See World Bank (2013, forthcoming)

¹² The reported industry effects from the regression analysis have to be interpreted relative to the omitted group of firms, which consists of service firms.

¹³ It is worth noting that this finding applies to strictly to the surveyed surviving firms. If entry and exit dynamics systematically differ between traditional industries and services providers, this result might be reversed. For this reason, it would be crucial to reexamine the job creation analysis using census data that allow for accounting for firm entry and exit. The data used in the analysis here do not allow for accounting for firm exit.

7.8 percentage points. Hence, in the EU11 economies, small surviving firms tended to rapidly adjust their size to favorable market conditions.

At the same time, start-ups and (very) young surviving firms grew at the fastest pace. In quantitative terms, one percentage point younger firms exhibited employment growth rates that are 4.6 to 7.7 percentage points higher than the rest of the surveyed firms. This finding holds true for both - initially small and large firms. However, it is important to note that our data do not allow for ascertaining whether the size or age of the firm is the prevailing characteristic of fast-growing firms (see Box 2). Recent findings in the literature with more adequate data for the USA (e.g., Haltiwanger et al. 2013) conclude that it is age rather than firm size that matters so that the job creation in surviving start-ups and young firms outperformed the employment growth rates of older firms.¹⁴

The employment growth performance of small-old surviving firms was substantially worse. The positive parameter estimates for the interaction effect of firm size and firm age indicates that the speed of adjustment was slower for small-old firms. Small firms contributed to job creation when they were young. In later periods, the number of their employees stabilized, indicating that they were less willing to increase their scale of production in terms of hiring new workers.

While notable improvements in the EU11 business and regulatory environment were made prior to the crisis, an inhibitive business environment affected negatively the efficient allocation of labor across industries. In industries with heavy business restrictions and regulations, employment growth prior to the crisis was lower (Table 2). In quantitative terms, a one unit decrease in the overall level of business barriers, or put differently, a unit improvement in firms' perception of their business environment (for example from major to moderate obstacle to business) was associated positively with job creation by approximately 1.1 percentage points (Table 2, see column 2). Had the EU11 completely removed all perceived business restrictions, these surveyed firms would have increased their average annual employment growth by as much as 4.4 percentage points.

Removing obstacles to access to financial resources, simplifying tax systems and fighting corruption positively correlate with job creation by already established firms. The econometric analysis reveals that, a one unit decrease in the perceived difficulties to obtain sufficient financial resources correlated positively (by 2.5 percentage points, on average) with job creation among the EU11 surveyed firms (Table 2, see column 4).¹⁵ In a similar vein, restrictive business taxation rules correlate with substantial job creation. In industries with complex tax systems, employment growth rates were reduced by 1.9 percentage points (Table 2, column 7). Corruption reduced job creation among the surveyed firms (Table 2, see column 6). Interestingly, however, institutional regulations (such as customs and trade regulations and business licensing proceedings) were estimated to have increased firm's average job creation by 1.8 percentage points (Table 2, see

¹⁴ However, Haltiwanger et al. 2013 and Huber et al. 2012 also document that young firms exhibit an increased exit hazard. Accordingly, an overall assessment of young firms' contribution to overall job creation would require census data that also contain information on market entry and exit. The data used in the analysis here do not account for firm exit.

¹⁵ This finding is in line with the previous work on the impact of institutional barriers on firm growth which identified financial constraints as the most crucial obstacle to growth (see, e.g., Ayyagari et al. 2008).

column 3). These results were probably be driven by surveyed firms observing other firms enjoying preferences and protection on the local market from competition. While such practices seemed to have positively affected job creation in the short run, they have likely deferred the necessary structural changes for the long-run competitiveness of the EU11 economies.

Productive firms contributed positively to overall job creation.¹⁶ In quantitative terms, a one percent increase in firm-specific total factor productivity (TFP) increases firm's average employment growth rate by approximately 1.5 percentage points (Table 2).¹⁷ This finding is robust across all different specifications, driven by differences in the initial level of productivity. A simple explanation might be that more productive firms competed more successfully than less productive firms on the domestic and the world markets enabling them to expand their level of production. This expansion may have also increased the firms' labor demand and, therefore, accelerated job creation rates.

Prior to the crisis, labor resources seemed to have efficiently reached firms with growing productivity. The positive effect of productivity on employment growth also indicates that within-industries efficient firms were able to grow more rapidly than the rest. Moreover, the quantitative dimension of the effect points to the usefulness of creating an economic environment that stimulates productivity growth. A firm that, for example, successfully increased its level of total factor productivity by 10 percentage points (through innovation, learning-by-doing, technology adoption) expanded its employment by 15 percentage points between 2002 and 2008 (Table 2).

Figure 4. Average TFP growth versus average employment growth, 2002-2008

Source: Amadeus data base; own calculations.

Note: Average TFP growth and employment growth plotted along with the fitted values from a bivariate regression for the seven industries and eight countries where TFP measures were constructed for the period 2002-2008. Approximately size of the sample 71,000 firms operating in eight of the EU11 countries.

In addition to directly reducing job growth rate, an unfriendly business environment was negatively associated with firm productivity. In the period 2002-2008, the overall level of within-industry productivity was negatively correlated with perceived business restrictions and regulations. The partial correlation from a bivariate regression of TFP on the overall measure of institutional barriers amounts to -0.2,

¹⁶ The results refereeing to productivity (TFP) are based on eight out of the EU11 economies. TFP is calculated by applying the Levinsohn and Petrin (2003) approach to data on value added (or sales), inputs (i.e., labor and capital) and intermediate inputs (such as material costs). Unfortunately, the Amadeus data at hand do not contain such information for Croatia, Estonia and Lithuania.

¹⁷ In fact, replacing average firm-specific TFP by its initial value, the corresponding marginal effect amounts to 1.4 percentage points.

implying that each unit of reduction in institutional barriers was associated with a 0.2 percentage points increase in productivity levels. In terms of growth rates, the relationship between the employment growth and the TFP growth among the sampled firms was positive prior to 2008, but statistically insignificant (Figure 4).¹⁸ Nonetheless, the positive association between the job growth rate and the TFP growth rate implied that the EU11 exploited the cost advantages and were increased the number of jobs without a substantial change in overall productivity.

Employment growth during the financial crisis

The global financial crisis affected asymmetrically firms operating in different industries, with the construction and manufacturing industries showing the largest job losses. The global economic crisis put a transitory stop to the 2000s' growth spurt in the EU11 countries. Financial flows dried up, commodity prices collapsed, external demand plummeted, and unemployment rates rose.¹⁹ The effects of the crisis were felt not only at the macroeconomic, but also at the firm level. When controlling for other factors and in comparison to firms operating in other industries, surveyed construction and manufacturing firms reduced their employment by 1.8 to 7.4 percentage points more than the rest of the firms (see Table 3). Accordingly, these two sectors drove the large drop in employment in 2008-2009 (Figure 2).

In contrast, surveyed firms operating in the services sector were least affected by the global recession. Overall, surveyed firms that operated in agriculture, fishing, mining and utilities industries tended to be least affected by the financial crisis. When controlling for productivity, interestingly, farms became severely affected by the financial crisis. A similar result can be inferred for the transport and storage industries as well as communications providers.

During the global financial crisis, the firms' size and vintage were negatively correlated with job creation, while the more productive firms exhibited higher employment growth rates. More precisely, (one percent) larger and older firms showed job creation rates that were approximately 7.4 and 5.5 percentage points lower than for the rest of the surveyed firms. A one percent increase in TFP, by contrast, enabled on average about 4 percentage points faster employment growth. Moreover, productivity differentials were more crucial for job creation among the surveyed firms during the economic crisis than during the "boom" years.

Institutional barriers and regulations negatively correlate with job creation in the EU11 economies during the financial crisis. In 2009, industries with more severe barriers in terms of taxation, labor restrictions, financial resources as well as institutional regulations exhibited lower job

¹⁸ This result is in contrast to recent empirical studies that find a negative relationship between TFP growth and employment growth over time (see, e.g., De Michelis et al. 2013). There are several reasons for this finding. First, results presented here are based on firm-level econometric TFP estimates, whereas industry and country studies typically rely on TFP measures based on growth accounting (see, e.g., De Michelis et al. 2013). Accordingly, one avenue for future research could include a systematic comparison of micro- and macro-based TFP measures. Second, in contrast to De Michelis et al. (2013), the sample in this analysis covers only less developed countries. When comparing Figure 4 below with Figure 2 in De Michelis et al. (2013), it turns out that (with the exception of New Zealand) all countries exhibit positive TFP growth. By contrast, the majority of industries in the current analysis are characterized by a decrease in TFP over time.

¹⁹ Raiser and Gill (2012)

creation rates. A one-unit increase in institutional regulations decreased employment growth by approximately 1.8 percentage points. This result highlights, that (at least) during economic downturns institutional regulations can act as severe barriers to job creation. Moreover, the overall level of corruption also decreased employment growth by approximately 2.8 percentage points, on average. These findings suggest that EU11 economies, characterized by unfriendly business environments, were highly vulnerable to job losses in times of acute macroeconomic shocks. Finally, firms operating in sectors with perceived stringent labor regulations exhibited negative employment growth rates (Figure 2, column 8). Accordingly, in industries with a one-unit larger labor regulation, job creation was reduced by 2.7 percentage points.

The High-growth Firms in the EU11 Economies

As highlighted in World Bank (2013), the fastest growing firms (the *Gazelles*) were rare, but essential for providing new jobs in the EU11 economies.^{20, 21, 22} The share of high-growth firms relative to all surveyed firms with positive employment growth was around 3.5 percent in the years prior to the global financial crisis. It was by far largest in Bulgaria, where approximately 7.5 percent of all net job creating firms were high-growth ones. High-growth firms were most important in Romania and Bulgaria with corresponding net job creation shares exceeding 12.5 percent. In addition to Hungary and Slovakia, the role of high-growth firms for overall job creation was negligible in the Czech Republic and Poland.

To unveil the probability of being a *Gazelle*, simple probit regressions are estimated. The methodology is described in Box 2.

²⁰ The analysis presented here partially relies on the OECD (2009) definition of the so-called *Gazelles*. These are firms that are: (i) younger than 5 years; (ii) initially employ more than 10 workers; and (iii) experienced annual employment growth rates of (at least) 20 percent during 3 consecutive years. Given the focus of the current analysis on the distribution of high growth firms across different firm size and firm age cohorts, only the third part of the definition is applied (i.e. related to the 20 percent tri-annual growth performance). The measure of fast-growing firms, thus, is a dummy variable that takes on the value of 1 if a firm exhibits employment growth rates above 20 percent in each year from 2006 to 2008.

²¹ World Bank (2013) reveals evidence that net job creation in the region has typically been led by a handful of firms, many of them young firms. On average, in the Europe and Central Asia region, about 10–15 percent of all firms accounted for over two-thirds of net job creation in the years leading to the crisis. This pattern holds regardless of whether the entire enterprise sector is experiencing net job creation or net job destruction.

²² This finding is consistent with recent literature on the role of high growth firms for job creation. Henrikson and Johansson (2010), for example, provide a meta-study on the impact of *Gazelles* for overall job creation and confirm the fact that this group of firms accounts for the vast majority of newly created firms.

Figure 5. Share and net job creation of high-growth firms, 2006-2008

Source: Amedeus data base; own calculations.

Note: Shares of high-growth firms and their contribution to net job creation from 2006 to 2008 reported. Both shares are calculated relative to all net-job creating firms. Correspondingly, all firms that examine a negative average employment growth rate from 2006 to 2008 are not included. No firms from Hungary and Slovakia fulfill the criterion to be considered as high-growth firms.

Box 2. A probability model for high-growth firms

For the econometric analysis of firm- and industry-specific determinants of a firm's high-growth probability, a simple probit model is employed. Thereby, drawing on the analysis from Section 3, the probability to be a high-growth firm is modeled as a function of the same industry- and firm-specific characteristics. The only exception is that, in this exercise, an interaction effect of firm size with firm age is not included.²³ Formally, the model is given by:

$$Pr(HG_{ij} = 1 | \alpha, x_{ij}, z_j) = \Phi(\alpha + x_{ij}\beta + z_j\gamma), \text{ where}$$

$HG_{ij} = 1$, if a firm i in industry j is a high – growth firm and 0, else.

x_{ij} includes all firm-specific characteristics; z_j comprises industry-level information; β and γ are row vectors of parameters that are to be estimated; Φ denotes the cumulative distribution function (CDF) of the normal distribution which allows to apply maximum-likelihood estimation of the resulting model. This model is non-linear in the covariates and, therefore, the average marginal effects are calculated as suggested by Bartus (2005).

The probability to be a high-growth firm is captured by the dummy variable HG_{ij} , which takes on the value of 1 if firm growth exceeds 20 percent in each and every year from 2006 to 2008. The covariates of interest (collected in x_{ij} and z_j) include the initial firm size, firm age, TFP, business barriers and the industry dummy variables. They are all measured in 2005. Given the lack of observations of high-growth firms in Hungary and Slovakia in the EU11 sample, the specification for the boom years from 2006 to 2008 does not include country-fixed effects.

The model is re-run to examine a firm's probability of experiencing high-growth after the crisis, using the same model specifications and covariates. Therefore, the probability to grow with more than 20 percent in 2009 is explained by the same covariates as in the pre-crisis period, but measured in 2008. The perceived institutional barriers for doing business are taken from the 2009 survey. This specification controls for country-fixed effects.

²³ Given the non-linear functional form of the probit model, the marginal firm size and firm age effects are already firm-specific making an interaction effect unnecessary.

*Gazelles prior to the crisis*²⁴

The probability to be a high-growth firm was largest in the construction, manufacturing, transport and communications industries (Table 4). In comparison to the other services sector, construction firms were between 2 and 8.2 percentage points more likely to grow with more than 20 percent annually in each year from 2006 to 2008. Moreover, and again in comparison to the other services industries sector, agricultural and fishing industries as well as firms operating in the wholesale trade and retailing or providers of restaurant and hotel services were also around 2 percentage points more likely to be high-growth firms.

Prior to the crisis, smaller and younger firms were more likely to be high-growth firms. Among the surveyed firms, an increase in firm size or firm age by 1 percent affected negatively the average probability to grow by more than 20 percent annually from 2006 to 2008 by 0.1 to 0.5 and 0.8 to 1.4 percentage points, respectively (Table 4). The latter result is consistent with the documented crucial role of young firms for the overall job creation prior to the crisis.

Institutional barriers and regulations correlated with a lower probability of being a high-growth firm prior to the crisis. A one-unit increase in the perceived overall business friendliness by the surveyed EU11 firms increased the probability for high-growth by 2.4 percentage points. In this regard, regulations related to the labor markets and financial restrictions correlated most strongly with the occurrence of being a high-growth firm. In a similar vein, the tax system, crime and institutional regulations, also seemed to be crucial predictors of high-growth firms.²⁵

Productivity among the surveyed EU11 firms was associated with a higher probability of being a high-growth firm prior to the crisis. More precisely, an increase in a firm's TFP by 10 percent was associated with a higher probability to be a *Gazelle* by about 1 to 2 percentage points. While productivity remained one critical predictor of job creation among the surveyed firms, in quantitative terms, the firm size and the age were better predictors. Nevertheless, engaging in any productivity enhancing activities might still have resulted in a higher likelihood to become a high-growth firm. In line with the results on firm growth, more productive firms grew faster and, consequently, were more often high-growth firms.

High-growth firms in the post-crisis period

In the post-crisis period, firm-specific determinants for high-growth firms were of crucial importance. In 2009, firm size, age and productivity were important restrictions to become a high growth firms. A one percent increase in size and age reduced a firm's probability of growing more

²⁴ It is worth noting again that the results presented in this section might reflect correlations rather than causal effects.

²⁵ Interestingly, in industries where corruption was identified as major obstacle for doing business the probability to observe high-growth firms was slightly increased (Table 3, column 6). There might be at least two potential reasons for this positive effect. First, corruption might allow a few very influential firms to attract an over-proportional share of business contracts allowing them to grow at a very fast pace. Second, since our measure reflects perceived corruption it might be the case that firms which, for example, did not succeed in public procurement procedures might attribute this to corruption in their sector regardless of where this was the case or not. This finding, however, was mainly driven by Romania and Bulgaria. In fact, when excluding these two countries the average marginal effect of corruption turns out to be significantly negative.

than 20 percent by approximately 2.3 to 4.3 and 2.9 to 3.6 percentage points, on average. A 10 percent increase in TFP, by contrast, increased the probability to be a *Gazelle* by 3 percentage points. These findings, once more, highlight the importance of small, young, productive firms for the creation of new jobs in the EU 11 economies.

Surveyed firms in manufacturing were most severely affected by the economic downturn and were the least likely to be high-growth firms in the years after the global financial crisis (Table 6). In contrast, the probability of becoming a *Gazelle* among the surveyed firms in farming and fishing was not significantly affected by the economic crisis. Fast-growing firms in these sectors, however, comprised a very small portion of the high-growth firms in the EU11, given the small size of the agricultural and fishing industries. Firms operating in the construction sector also exhibited a relatively high probability of being high-growth firms. Coupled with the firm-growth results from above (i.e. that on average, firms in this sector performed relatively poor during the financial crisis), the regression results suggest that only the top-performing firms in the construction sector were able to grow very fast. One driving force for this result might be an increase in public demand for construction activities induced by governmental investment and EU-supported programs that aimed to mitigate the negative employment effects of the financial crisis.

After 2008, barriers for doing business depressed the likelihood that a firm would grow fast. A one unit decrease in the overall institutional barriers perceived by the surveyed EU11 firms was associated with a 0.5 percentage point increase in the probability to be a high-growth firm (Table 6, column 2). Similar qualitative and quantitative effects were obtained for institutional regulations, access to finance, crime, corruption and labor regulations.²⁶

Conclusions

The analysis of the industry- and firm-specific determinants of the job creation process in the EU11 economies relied on a dataset of surviving firms during 2002-2009.²⁷ To unveil the structural drivers of employment growth in the sampled firms and to assess the role of an adverse macroeconomic shock, it examined the process in two periods—before and after the start of the global financial crisis.

The main results indicate that during the boom years prior to the global financial crisis, traditional industries such as agriculture and fishing, mining, construction and manufacturing were crucial for

²⁶ The impact of tax related barriers for doing business on the high-growth probability was positive. Accordingly, more severe perceived tax regulations were associated with an increase in the probability to grow very fast. This effect, however, turns out to be negative and significant, when excluding both Bulgaria and Romania.

²⁷ It is important to note that the data used in the analysis presented here relate only to surviving (small and young) firms. A proper understanding of business entry and business exit in the EU11 economies would be essential in order to tailor policies that most successfully contribute to overall job creation. The availability of firm census data for the EU11 economies should, for the future, allow for providing a comprehensive picture on job creation in these countries.

the net creation of jobs among surveyed firms. In contrast, while the number of firms in the services sector was large, their role in creating jobs was negligible. At the firm level, small and younger surviving (including start-ups) were the most important contributors to job creation in the EU11. In addition, the results demonstrated that firm productivity and the creation of new jobs among the surveyed firms went hand in hand. Moreover, a crucial correlate of employment growth among the EU11 surveyed firms was the business environment. The perceived quality of the business climate was associated not only the firms' employment growth, but also with their productivity. All these findings were also confirmed for the share of high-growth surveyed firms, which disproportionately accounted for the creation of new jobs in the EU11 economies prior to the crisis.

Construction and manufacturing industries most severely suffered from the economic downturn. The EU11 countries that still heavily relied on these industries faced a hefty decline in their overall number of jobs. The results demonstrated that surveyed firms in the services industries were less vulnerable to the economic downturn. Accordingly, in small service firms, a substantially smaller (proportionate) number of employees was lost among the surveyed firms than in the rest of the economy, and especially, in the traditional sectors. The empirical results also suggest that (total factor) productivity correlated positively with employment growth among surveyed firms. Business restrictions also adversely affected the creation of jobs in the post-crisis period.

Overall, the empirical results confirm that, in qualitative terms, the analyzed firm characteristics (such as size, age, TFP, sectoral affiliation) affect job creation both during recessions and economic recoveries. They indicate that the more productive firms tend to be less vulnerable to economic downturns. Accordingly, any type of activities that increase productivity can be expected to reduce the overall exposure of the EU11 economies to recessions and, therefore, should allow firms to compete more successfully with international competitors.

In addition, the empirical results point to the key role of improving the quality of the overall business environment for job creation in EU11. The empirical evidence suggests that improving the business climate, strengthening labor and regulatory practices, modernizing institutions, and deepening access to financial advances job creation. Put broadly, improving the institutions for doing business will lead to leveling the playing field for all firms, boost overall productivity and, thus, contribute to the creation of new jobs. Also, given the importance of the business environment for FDI inflows, reducing business restrictions would also increase the EU11 economies' medium- and long-run productivity and overall competitiveness and indirectly contribute to job creation. As highlighted in World Bank (2013, forthcoming), a sound business environment, however, seems to be a necessary but not sufficient condition for sustained job creation.²⁸

²⁸ See World Bank (2013) for specific policy recommendations.

Table 1. Estimation results for annual average firm growth, 2002-2008

Variables	No regulations (1)	Overall inst. (2)	Inst. Regulation (3)	Access to finance (4)	Crime (5)	Corruption (6)	Tax (7)	Labor regulation (8)
Firm characteristics								
Initial size	-0.053*** (0.001)	-0.077*** (0.001)	-0.078*** (0.003)	-0.077*** (0.003)	-0.077*** (0.003)	-0.077*** (0.003)	-0.077*** (0.003)	-0.077*** (0.003)
Age	-0.046*** (0.001)	-0.077*** (0.003)	-0.077*** (0.003)	-0.076*** (0.003)	-0.077*** (0.003)	-0.077*** (0.003)	-0.077*** (0.003)	-0.077*** (0.003)
Initial size $\times$ age	0.005*** (0.000)	0.013*** (0.001)	0.013*** (0.001)	0.013*** (0.001)	0.013*** (0.001)	0.013*** (0.001)	0.013*** (0.001)	0.013*** (0.001)
TFP	- -	0.015*** (0.001)	0.016*** (0.001)	0.015*** (0.001)	0.015*** (0.001)	0.015*** (0.001)	0.016*** (0.001)	0.015*** (0.001)
Industry characteristics								
Agriculture	0.004 (0.003)	0.031** (0.016)	0.021 (0.016)	0.015 (0.016)	0.032** (0.016)	0.031* (0.016)	0.025 (0.016)	0.032** (0.016)
Mining	0.043*** (0.004)	- -	- -	- -	- -	- -	- -	- -
Construction	0.038*** (0.002)	0.060*** (0.012)	0.050*** (0.012)	0.049*** (0.012)	0.060*** (0.012)	0.061*** (0.012)	0.054*** (0.012)	0.060*** (0.012)
Manufacturing	0.032*** (0.001)	0.041*** (0.012)	0.026** (0.012)	0.036*** (0.012)	0.039*** (0.012)	0.040*** (0.012)	0.034*** (0.012)	0.039*** (0.012)
Wholesale	0.006*** (0.001)	0.016 (0.012)	0.005 (0.012)	0.008 (0.012)	0.015 (0.012)	0.014 (0.011)	0.007 (0.012)	0.015 (0.012)
Transport	0.017*** (0.001)	0.019 (0.012)	0.010 (0.012)	0.015 (0.012)	0.018 (0.012)	0.017 (0.012)	0.016 (0.012)	0.019 (0.012)
Overall inst.	-	-0.011* (0.006)	-	-	-	-	-	-
Inst. Regulation	-	-	0.018*** (0.004)	-	-	-	-	-
Access to finance	-	-	-	-0.025*** (0.004)	-	-	-	-
Crime	-	-	-	-	-0.003 (0.004)	-	-	-
Corruption	-	-	-	-	-	-0.007* (0.004)	-	-
Taxation	-	-	-	-	-	-	-0.019*** (0.004)	-
Labor regulation	-	-	-	-	-	-	-	0.002 (0.004)
Fixed Effects								
Country	871.87***	136.99***	140.55***	130.21***	138.21***	127.37***	139.61***	137.50***
R^2	0.097	0.138	0.139	0.139	0.138	0.138	0.138	0.138
Observations	180,986	34,068	34,093	34,071	34,099	34,099	34,099	34,099

Notes: Constant not reported. Robust standard errors in parenthesis. *, ** and *** denote significance at 10 percent, 5 percent and 1 percent levels, respectively.

Table 2. Estimation results for annual average firm growth in 2009

Variables	No regulations (1)	Overall inst. (2)	Inst. Regulation (3)	Access to finance (4)	Crime (5)	Corruption (6)	Tax (7)	Labor regulation (8)
Firm characteristics								
Initial size	-0.073*** (0.001)	-0.074*** (0.003)	-0.074*** (0.003)	-0.074*** (0.003)	-0.074*** (0.003)	-0.074*** (0.003)	-0.074*** (0.003)	-0.074*** (0.003)
Age	-0.038*** (0.001)	-0.055*** (0.003)	-0.054*** (0.003)	-0.054*** (0.003)	-0.054*** (0.003)	-0.054*** (0.003)	-0.054*** (0.003)	-0.055*** (0.003)
Initial size × age	0.016*** (0.000)	0.016*** (0.001)	0.016*** (0.001)	0.016*** (0.001)	0.016*** (0.001)	0.016*** (0.001)	0.016*** (0.001)	0.016*** (0.001)
TFP		0.039*** (0.002)	0.039*** (0.002)	0.039*** (0.002)	0.039*** (0.002)	0.039*** (0.002)	0.038*** (0.002)	0.039*** (0.002)
Industry characteristics								
Agriculture	0.026*** (0.004)	-0.066*** (0.018)	-0.053*** (0.018)	-0.055*** (0.018)	-0.066*** (0.019)	-0.042** (0.018)	-0.052*** (0.018)	-0.050*** (0.018)
Mining	0.032*** (0.006)	-	-	-	-	-	-	-
Construction	-0.035*** (0.002)	-0.050*** (0.013)	-0.038*** (0.013)	-0.041*** (0.013)	-0.047*** (0.013)	-0.024* (0.013)	-0.039*** (0.013)	-0.032** (0.013)
Manufacturing	-0.018*** (0.002)	-0.073*** (0.014)	-0.062*** (0.013)	-0.065*** (0.013)	-0.074*** (0.014)	-0.062*** (0.013)	-0.059*** (0.014)	-0.060*** (0.013)
Wholesale	-0.004*** (0.002)	-0.016 (0.013)	-0.003 (0.013)	-0.008 (0.013)	-0.013 (0.013)	-0.001 (0.013)	-0.006 (0.013)	-0.006 (0.013)
Transport	-0.002 (0.002)	-0.042*** (0.013)	-0.030** (0.013)	-0.034*** (0.013)	-0.038*** (0.013)	-0.029** (0.013)	-0.033** (0.013)	-0.036*** (0.013)
Overall instit.	-	-0.010** (0.004)	-	-	-	-	-	-
Inst. regulation	-	-	-0.018*** (0.005)	-	-	-	-	-
Access to finance	-	-	-	-0.012** (0.005)	-	-	-	-
Crime	-	-	-	-	-0.009* (0.005)	-	-	-
Corruption	-	-	-	-	-	-0.028*** (0.004)	-	-
Taxation	-	-	-	-	-	-	-0.009* (0.005)	-
Labor regulations	-	-	-	-	-	-	-	-0.027*** (0.005)
Fixed Effects								
Country	477.95***	79.96***	67.51***	100.25***	131.48***	71.85***	97.22***	61.56***
R ²	0.040	0.049	0.049	0.049	0.049	0.049	0.049	0.049
Observations	300,347	71,227	71,297	71,297	71,297	71,297	71,297	71,278

Notes: Constant not reported. Robust standard errors in parenthesis. *, ** and *** denote significance at 10 percent, 5 percent and 1 percent levels, respectively.

Table 3. Estimation results for high-growth probability, 2006-2008

Variables	No Regulations (1)	Overall (2)	Institutions (3)	Finance (4)	Crime (5)	Corruption (6)	Tax (7)	Labor (8)
Firm characteristics								
Initial size	-0.001*** (0.000)	-0.005*** (0.000)	-0.005*** (0.000)	-0.005*** (0.000)	-0.005*** (0.000)	-0.004*** (0.000)	-0.005*** (0.000)	-0.005*** (0.000)
Age	-0.008*** (0.000)	-0.014*** (0.000)	-0.014*** (0.000)	-0.014*** (0.000)	-0.014*** (0.000)	-0.014*** (0.000)	-0.014*** (0.000)	-0.014*** (0.000)
TFP	- -	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)
Industry characteristics								
Agriculture	0.001 (0.002)	0.020*** (0.006)	0.033*** (0.008)	0.005 (0.004)	0.022*** (0.007)	0.024*** (0.007)	0.012** (0.005)	0.018*** (0.006)
Mining	0.010** (0.004)	- -	- -	- -	- -	- -	- -	- -
Construction	0.020*** (0.002)	0.063*** (0.009)	0.082*** (0.010)	0.041*** (0.007)	0.065*** (0.009)	0.067*** (0.009)	0.049*** (0.008)	0.062*** (0.009)
Manufacturing	0.006*** (0.001)	0.038*** (0.007)	0.046*** (0.007)	0.026*** (0.006)	0.030*** (0.006)	0.035*** (0.006)	0.023*** (0.005)	0.029*** (0.006)
Wholesale	0.005*** (0.001)	0.026*** (0.005)	0.030*** (0.005)	0.018*** (0.004)	0.026*** (0.005)	0.026*** (0.005)	0.016*** (0.004)	0.021*** (0.004)
Transport	0.012*** (0.002)	0.053*** (0.008)	0.061*** (0.008)	0.042*** (0.007)	0.044*** (0.007)	0.052*** (0.008)	0.043*** (0.007)	0.045*** (0.007)
Overall institutions	- -	-0.024*** (0.001)	- -	- -	- -	- -	- -	- -
Inst. regulation	- -	- -	-0.006*** (0.001)	- -	- -	- -	- -	- -
Access to finance	- -	- -	- -	-0.015*** (0.001)	- -	- -	- -	- -
Crime	- -	- -	- -	- -	-0.011*** (0.001)	- -	- -	- -
Corruption	- -	- -	- -	- -	- -	0.004*** (0.001)	- -	- -
Taxation	- -	- -	- -	- -	- -	- -	-0.012*** (0.001)	- -
Labor regulations	- -	- -	- -	- -	- -	- -	- -	-0.016*** (0.001)
Pseudo R^2	0.034	0.052	0.047	0.050	0.048	0.047	0.050	0.051
Observations	197,411	45,476	45,535	45,479	45,540	45,540	45,540	45,540

Notes: Constant not reported. Robust standard errors in parenthesis. Average marginal effects reported (see, e.g., Bartus 2005) *, ** and *** denote significance at 10 percent, 5 percent and 1 percent levels, respectively.

Table 4. Estimation results for high-growth probability, 2009

Variables	No Regulations (1)	Overall (2)	Institutions (3)	Finance (4)	Crime (5)	Corruption (6)	Tax (7)	Labor (8)
Firm characteristics								
Initial size	-0.023*** (0.000)	-0.043*** (0.000)	-0.043*** (0.000)	-0.043*** (0.000)	-0.043*** (0.000)	-0.043*** (0.000)	-0.043*** (0.000)	-0.043*** (0.000)
Age	-0.029*** (0.000)	-0.036*** (0.000)	-0.036*** (0.000)	-0.036*** (0.000)	-0.036*** (0.000)	-0.036*** (0.000)	-0.036*** (0.000)	-0.036*** (0.000)
TFP	- -	0.003*** (0.000)	0.003*** (0.000)	0.003*** (0.000)	0.003*** (0.000)	0.003*** (0.000)	0.003*** (0.000)	0.003*** (0.000)
Industry characteristics								
Agriculture	0.051*** (0.002)	0.041*** (0.003)	0.045*** (0.003)	0.046*** (0.003)	0.041*** (0.003)	0.055*** (0.003)	0.041*** (0.003)	0.047*** (0.003)
Mining	0.025*** (0.003)	- -	- -	- -	- -	- -	- -	- -
Construction	0.018*** (0.001)	0.009*** (0.002)	0.012*** (0.002)	0.012*** (0.002)	0.010*** (0.002)	0.022*** (0.002)	0.010*** (0.002)	0.014*** (0.002)
Manufacturing	-0.000 (0.001)	-0.012*** (0.002)	-0.009*** (0.002)	-0.009*** (0.002)	-0.012*** (0.002)	-0.008*** (0.002)	-0.011*** (0.002)	-0.008*** (0.002)
Wholesale	0.012*** (0.001)	-0.004** (0.002)	-0.001 (0.002)	-0.001 (0.002)	-0.003** (0.002)	0.003* (0.002)	-0.004** (0.002)	-0.001 (0.002)
Transport	0.015*** (0.001)	0.001 (0.002)	0.004** (0.002)	0.003** (0.002)	0.002 (0.002)	0.006*** (0.002)	0.003* (0.002)	0.003* (0.002)
Overall institutions	- -	-0.005*** (0.001)	- -	- -	- -	- -	- -	- -
Inst. Regulation	- -	- -	-0.002** (0.001)	- -	- -	- -	- -	- -
Access to finance	- -	- -	- -	-0.004*** (0.001)	- -	- -	- -	- -
Crime	- -	- -	- -	- -	-0.003*** (0.001)	- -	- -	- -
Corruption	- -	- -	- -	- -	- -	-0.015*** (0.001)	- -	- -
Taxation	- -	- -	- -	- -	- -	- -	0.004*** (0.001)	- -
Labor regulations	- -	- -	- -	- -	- -	- -	- -	-0.006*** (0.001)
Pseudo R^2	0.031	0.051	0.051	0.051	0.051	0.051	0.051	0.051
Observations	300,347	79,914	79,999	79,999	79,999	79,999	79,999	79,980

Notes: Constant not reported. Robust standard errors in parenthesis. Average marginal effects reported (see, e.g., Bartus 2005) *, ** and *** denote significance at 10 percent, 5 percent and 1 percent levels, respectively. Wald tests for country-fixed effects not reported.

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