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The impact of the recent economic crisis on the food industry in the Czech and Slovak Republic

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Abstract

The paper analyzes the food industry in the Czech and Slovak economy. It utilizes two methods (Cobb-Douglas total factor productivity and Data envelopment analysis) and two data samples (the Czech statistical office firm database and Bisnode Inc. firm database) to test the hypotheses related to the development in the food sector after and during the years of the recent economic crisis. The results suggest that the labor productivity only decreased in the first years, 2007 and 2008. After that there is no statistically significant evidence about any negative effects in the years 2009 and 2010. We believe that this sector in both countries is capable to react to changes relatively quickly. We believe that this sector is fairly stable, not only thanks to the medium to large companies, which are more experienced with public support and utilize increasing returns to scale, but also thanks to the entrant firms that had higher productivity in Slovakia in 2014 and firms with internationally recognizable certificates in both countries in 2014.

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Keywords: Food industry; economic crisis; cost efficiency; labor productivity; certificates

1. Introduction

The following paper deals with an important industry sector, which is considered to be a key component of the national economy. It is an essential connection between the agricultural sector and the manufacturing industry and it also plays a significant role as a traditional industry (Vančura, 2002). The aim of this paper is to analyze the impact

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of the recent economic crisis on the food industry in the Czech and Slovak Republic. We will analyze the supply side by looking at the labor productivity of firms in the period of 2004-2014.

Table 1. GDP shares of the food industry (NACE 10-12) in the Czech Republic and Slovakia 2004-2013.

Country	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Czech Rep.	3.04%	2.77%	2.51%	2.29%	2.23%	2.48%	2.33%	2.31%	2.26%	2.23%
Slovakia	2.25%	2.16%	2.18%	1.88%	1.82%	1.68%	1.61%	1.56%	1.56%	1.34%

Source: Eurostat - National Accounts aggregates by industry

Both countries are small, export oriented open economies. Food products represent only a fraction of exported goods. The GDP share of the food industry decreased in both countries between 2004 and 2013 (Table 1). There is no significant drastic change in the GDP shares in the beginning of the economic crisis in 2008. This gradual decrease can be partially explained by new market opportunities and new competitors in the EU markets that both countries joined in 2004.

The current research that focuses on Czech and Slovak food sector is more oriented on the effectiveness of public support of firms in the food industry (Mezera & Spicka, 2013), which is closely related to competitiveness (Putičova & Mezera, 2011) and international trade (Ubrežiová, Bujňáková, Kapsdorferová, & Majorová, 2009). Researchers also analyze the advantages and disadvantages given the skills of the labor force (Putičova & Mezera, 2008).

An important finding about the food industry competitiveness is that a monetary autonomy and the possibility to depreciate national currency is a significant factor that can increase competitiveness and the balance of trade in the times of economic crisis (Bandasz, 2013). The Czech Republic depreciated its national currency between 2008 and 2014. On the other hand, Slovakia is a member of the Euro currency country club. Regardless of the economic crisis, Mattas and Tsakiridou (2010) point out the fact that the food industry is a relatively stable industry in comparison to other manufacturing industries, which suffer bankruptcy and insolvency in much higher intensity between 2008 and 2009.

There are regional disparities in the productivity of small and medium enterprises (SMEs) in the Czech Republic, which depends on the level of wages (Novotná, Pavelka, & Alina, 2014). This is an important factor and SMEs can be major economic players in the times of economic crisis. The demand side of the market is studied by Cupák, Pokrivcák and Rizov (2015). Contra intuitively they suggest that demands for dairy products, fruits and vegetables are perceived as luxuries and price elastic. Cereals and meat are considered normal price inelastic goods.

This paper will fill the necessary empirical gap in the current research and analyze the productivity issues in the food sector closely. There are several important factors and we are going to test following hypotheses with respect to the current research in the area of Czech and Slovak food industry:

(1) Public companies in the Czech food sector were ineffective between 1997 and 2010 in comparison to domestic private companies.
(2) The labor productivity follows decreasing returns to scale between 1997 and 2010 in the Czech Republic.
(3) The impact of the years of economic crisis (2008-2010) on the productivity of firms was not statistically significant in the Czech Republic between 1997 and 2010.
(4) The labor productivity follows constant returns to scale in 2014 in Czech and Slovak Republic.
(5) The entrants in the food sector have significantly higher labor productivity in 2014 in the Czech and Slovak Republic.
(6) Small firms (<50 employees) in the food industry are less cost efficient than large firms in 2014 in the Czech and Slovak Republic.
(7) Firms with internationally recognizable certificates are more cost efficient in 2014 in the Czech and Slovak Republic.

2. Material and methods

Our analysis enters only food manufacturing companies. We identified them as companies with main activity in the Statistical classification of economic activities in the European Community (NACE) sectors 10, 11, and 12 (food products, beverages, and tobacco products). We only analyze food-manufacturing companies with one and more