



# The impact of territorially concentrated FDI on local labor markets: Evidence from the Czech Republic<sup>☆</sup>

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## ABSTRACT

This paper investigates the impact of a large and territorially concentrated foreign direct investment (FDI) inflow on local labor market outcomes in the Czech Republic. A conditional difference-in-differences technique is employed for an estimation of the impact and block bootstrapping is used for computing consistent standard errors. The results indicate a positive and statistically as well as economically significant effect of a large investment project on the local unemployment outflow rate, which is driven mainly by increases in the aggregate unemployment exit hazard rates for unemployment durations smaller than nine months. Subsequent to the investment, the unemployment rate decreased by 1.7 percentage points and the employment rate increased by 3.7 percentage points in the host district. However, the impact on long-term unemployed was negligible as the exit hazard rates for durations longer than nine months remain unchanged. Moreover, a simple cost–benefit analysis suggests that investment incentives paid from a state budget would pay off only in a horizon of twelve years.

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## 1. Introduction

Improving labor market outcomes is a key goal for most policy-makers, and for many economies attracting foreign direct investment (FDI) is viewed as an important tool to improve local labor market conditions. After the collapse of communism, the Central and Eastern European countries (CEECs) have experienced a transition towards a market economy. This process involved a huge inflow of foreign investment,<sup>2</sup> either due to a comparative advantage in low-skill and physical capital-intensive sectors or as a result of the privatization of banks and state-owned enterprises.

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<sup>1</sup> CERGE-EI is a joint workplace of the Center for Economic Research and Graduate Education, Charles University, and the Economics Institute of the Academy of Sciences of the Czech Republic.

<sup>2</sup> The majority of investors have come from Western Europe, although the FDI inflow from Asia has become more prominent especially after 2000 (Woon, 2003). FDI in CEECs has contributed to steady economic growth in this region since 1995 (see Table 1).

The main goal of this paper is to assess the impact of a large, territorially concentrated FDI inflow on local labor market outcomes, using the largest investment project in the Czech Republic during 1993–2006, the Toyota-Peugeot-Citroën joint investment into the automobile sector in Kolín, the Czech Republic. This project is used to quantify the effect of FDI on district unemployment outflow and inflow rates, aggregate unemployment exit hazard rates, and, consequently, both the unemployment and employment rates. Central and Eastern Europe is especially appropriate for such an analysis as there was a lack of FDI under the centrally-planned system up to 1989, and since 1989 it has experienced several huge greenfield investment projects. For policymaking purposes, it is crucial that the impact of such large projects is analyzed rigorously and this study focuses on one of the largest realized projects in the CEEC region. The most appropriate econometric techniques are used, ensuring that estimates are consistent and standard errors are not underestimated.

The motivation for this study is threefold. First, countries promote FDI inflow using various policy incentives – either direct (financial subsidies) or indirect (such as building infrastructure). These incentives require significant government spending,<sup>3</sup> raising questions about the efficiency of such schemes. A rigorous analysis of FDI effects is necessary for a correct assessment of the efficiency of governmental investment

<sup>3</sup> Complementary and more general strategies focus on adopting quality legislation, eliminating trade barriers and improving the business environment, law enforcement, labor force skills and infrastructure (Oman, 2000).

**Table 1**  
Yearly GDP growth in real prices (percent).

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Czech Republic	6.4	4.0	-0.7	-0.8	1.3	3.6	2.5	1.9	3.6	6.1
Hungary	1.5	1.3	4.6	5.1	4.2	5.2	3.8	3.5	2.8	3.8
Poland	7.0	6.2	7.1	5.0	4.5	4.2	1.1	1.4	3.8	5.3
Slovakia	6.9	6.6	5.7	3.7	0.3	0.7	3.2	4.1	4.2	5.4

Source: World Bank, Czech Statistical Office, Slovak Statistical Office.

policies.<sup>4</sup> In other words, it remains an open question whether the real benefits arising from an investment project in a particular region outweigh the cost of the subsidies for the state budget.<sup>5</sup> FDI subsidies are usually scaled according to the target region. Governments assume the effect of FDI inflow on the local economy is economically significant and thus, firms that invest in regions with higher unemployment rates are preferred and receive more favorable treatment (a higher level of financial incentives). From a social standpoint, this regional differentiation is justified only if concentrated FDI inflow substantially improves local labor market outcomes.

Second, while there seems to be a great deal of literature concerning the effects of FDI on firm performance, there are few studies analyzing the impact of large FDI inflows on local labor markets. Studies have focused on the implication of FDI on the productivity of domestic firms (Aitken and Harrison, 1999; Javorcik, 2004) and on regional development (Harris and Taylor, 2005) but there is limited research evaluating the impact of investment on local labor market outcomes (Mickiewicz et al., 2000). Third, the automobile investment project in Kolín was quite unique in its scale and therefore it provides a good opportunity to accurately evaluate the impact of a large one-off project.

The average effect of the investment project on the local labor market is estimated using matching techniques. The idea is to match a treated district with otherwise similar districts that did not undergo a large FDI inflow so that labor market dynamics can be compared to a counterfactual state for the treated district. We employ the method of propensity score matching as introduced by Rosenbaum and Rubin (1983) and the identification strategy is based on a conditional difference-in-differences estimation, following Heckman et al. (1997). The findings suggest that the one-off investment project has a statistically significant and economically sizeable impact on the unemployment rate and the employment rate, driven by an increase in short-term unemployed exit hazard rates.

## 2. Survey of the literature

Most literature analyzing FDI effects on a host country concentrates on technology spillovers to domestic firms. This paper focuses instead on the channels through which FDI affects employment. These channels work directly through creating jobs in new firms or indirectly through spillover effects (transferring technology and improving the efficiency of complementary or competing firms, leading to changes in labor force demand), crowding-out effects and distributional effects.

The direct effect on the employment rate is straightforward – the new investment project requires a labor force and new hirings positively

<sup>4</sup> Governments view these subsidies as a crucial instrument in boosting employment, creating new job opportunities, accelerating economic growth and enhancing competitiveness (Rondinelli and Burpitt, 2000). Indeed, many multinational companies have made their allocation decisions not only based on the high potential of CEECs but also based on policy-driven factors such as the investment subsidies provided by host countries (Demekas et al., 2005).

<sup>5</sup> Especially in the case of huge greenfield investments, firms have been so aggressive in seeking subsidies that countries have engaged in a “race to the bottom”, where foreign firms end up with such generous financial subsidies that it seems unprofitable for countries to host the investment. Government may end up suffering from the “winner’s curse”, as that term is used in auction theory.

affect local employment and unemployment rates. The effect of technology spillovers occurs in two forms: horizontal and vertical. Horizontal spillovers occur when domestic firms improve their efficiency due to the presence of the foreign company through linkages such as spreading knowledge and sharing trained personnel. Vertical spillovers result from the influences of the foreign company on domestic customers and suppliers (e.g. Dunning, 1993a). These linkages can lead to improved efficiency in production processes and subsequently to changes in the demand for labor. Moreover, the labor market can be affected by a crowding-out effect. This occurs when inward FDI leads to a displacement of regular workers (some workers quit their previous job in order to start a new one) and new employment opportunities arise at the cost of an employment decrease in established enterprises. This process affects the wage distribution. Wage inequality may increase if skilled workers are especially valuable to foreign companies (Tomohara and Yokota, 2007).

In addition, concentrated FDI inflow creates a potential danger of excessive dependence and vulnerability of the local labor market to one source of employment, which can result in massive layoffs of the labor force in the case of industry-specific adverse demand shocks. Other negative effects occur in the form of the opportunity costs of FDI incentives: instead of providing foreign investors with a subsidy, financial resources might have been used for other projects (e.g. active labor market policies, retraining courses, etc.). The total indirect employment effect can, therefore, be either positive or negative and, in some cases, outweigh the positive direct effect, giving an unclear ex-ante total net effect. Overall, the relationship between FDI and employment is influenced by different macro and micro factors, making a comprehensive assessment difficult.

Studies focusing on the recent automobile industry boom in Central Europe are mostly descriptive. Sadler and Swain (1994) analyze the state of the automotive industry in CEECs after 1989 and describe changes in the structure and allocation of investments resulting from the quest of foreign investors for new markets and low-cost production. Before the investors' influx into this region, the automotive industry in CEECs was under-developed and technologically outdated (Havas, 2000). Countries in Central and Eastern Europe, however, possessed great potential for growth and development due to the skilled but cheap labor force and a substantial and steady rise in car demand (Van Tulder and Ruigrok, 1998). None of these studies, however, concentrates on the consequences of FDI and its impact on regional development or labor market dynamics.

Considering the literature assessing the effects of FDI, there are numerous studies on FDI's impact on poverty levels and inequality. This literature can be divided into two strands: cross-country studies and within-country studies. Cross-country studies analyze the effect of FDI on growth rates or inequality, while country case studies typically examine the impact of FDI on regional or district-level outcomes. Cross-country studies take advantage of a comparison among several countries and, thus, allow a generalization beyond one specific case study. However, obtaining sufficient data may be difficult for more countries and a lack of observations may yield inconclusive results. Moreover, it can be problematic to measure factors affecting country trade policy, or to approximate other changes occurring in individual countries. Overall, there is no unequivocal evidence that globalization and increased FDI inflow is beneficial for the poor as empirical literature yields ambiguous results.<sup>6</sup> Within-country studies analyze the effectiveness of a government's regional strategies and their impact on the local labor market. In a US study, Greenstone et al. (2008) identify the agglomeration spillovers of a large new manufacturing plant opening and estimate that the plant opening increases the total factor productivity of incumbent plants in the same county by 12%. Runner-up counties are used as counterfactuals and difference-in-differences estimation is adopted.

<sup>6</sup> For a summary of FDI's impact on poverty and income inequality, see Harrison (2006).

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