Attracting R&D of Multinational Companies in the Czech Republic

Since the 1990s, promotion of foreign direct investment (FDI) and investment in research and development (R&D) have been pillars of the Czech government’s economic strategy. Many multinational companies (MNCs) have broadened the scope of their operations in the country to include R&D. This case study illustrates how the government implemented a coordinated approach to industrial and innovation policies to attract FDI in R&D and, in tandem, develop local capabilities in response to the technological needs of MNCs.

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Introduction
Since the 1990s, the Czech Republic has been among the most successful of the Central and Eastern European countries in attracting foreign direct investment (FDI) and using it as a lever of economic growth. The privatization-driven FDI of the early years of the country’s transition to a market economy, the introduction of investment incentives in 1998, the country’s admission to the European Union (EU) in 2004, and the overall improvement of the business environment prompted massive inflows of FDI from 1990 to 2011. According to the United Nations Conference on Trade and Development (UNCTAD), the country’s inward stock of FDI increased from just 3.1 percent of gross domestic product (GDP) in 1990 to 58.2 percent in 2011.

Reliance on FDI for economic development was a key ingredient of the transition, with the Czech Republic’s large industrial base profoundly restructured through FDI and privatization. In many cases the outcome was positive; for example, the acquisition of the automotive manufacturer Skoda by the German group Volkswagen led to an expansion and internationalization of local clusters of car part suppliers (Kaminsky and Ng 2005). In other instances, however, domestic operations were downsized following foreign takeovers, local linkages were lost, and the developmental effects on local firms were questionable (Pavlinek 2004).

Based on the results of a World Bank survey, Javorcik and Kaminski (2008) suggested that horizontal linkages (that is, linkages between multinational and Czech firms in the same sector)
were weak or negative, while vertical linkages (between multinational firms and Czech suppliers) were largely positive. The study provided some evidence of negative horizontal linkages leading to a crowding out of local firms: 48 percent of the surveyed firms believed the presence of multinationals increased the level of competition in their sectors, about 29 percent reported losing market share as a result of FDI inflow, and 6 to 10 percent lost employees to multinationals. The study also found strong evidence of positive vertical spillovers and linkages - for example, multinationals indicated sourcing 48.3 percent of inputs from Czech enterprises on average, and 99 percent reported purchasing inputs from at least one Czech company. Javorcik and Kaminski also found that although multinationals have high requirements for their suppliers, 20 percent offered some type of support to the Czech companies they sourced from. The most popular modes of assistance were advance payment, financing, employee training, and help with quality control; other types included supplying inputs, leasing or purchasing machinery, providing production technology, financial planning, organization of production lines, helping with business strategy, and finding export markets.

Initially, FDI comprised mainly market-seeking and export-oriented manufacturing projects (especially in the automotive, electronics, and precision engineering industries), taking advantage of the country’s cost advantages, industrial capabilities, and central geographic position in Europe. But over time MNC subsidiaries diversified the scope of their activities toward other sectors, such as information technologies, software development, and shared-servics centers, and toward higher value-added functions other than manufacturing, including R&D.

In 2012, following the sharp decline of FDI into the Czech Republic during 2007–11, a strong recovery took place, with FDI inflows reaching pre-crisis levels. According to CzechInvest (2013), “Though the automotive industry traditionally dominates in terms of the volume of investments and the number of newly created jobs, statistics indicate continual growth in the number of services projects (information technologies and shared-services centres) and projects involving technology centers.”

**Rationale for policies**

During the 1990s transition to a market economy, the Czech national innovation system underwent a radical reform to alleviate some of the weaknesses inherited from the previous regime, such as a lack of entrepreneurial spirit, a focus on basic research, inefficient university–industry linkages, and insufficient international linkages (Radošević 1999). Attracting R&D activity of multinationals was seen as a mechanism to address those systemic failures, in particular by making R&D more commercial and by better integrating local industries in global innovation networks (Narula and Guimón 2009).

Given that foreign-owned firms can be catalysts for the development of local high-technology clusters, policy makers can attempt to facilitate their linkages with local firms through proactive intermediation policies. But without high-quality human capital, research institutions, and innovative local firms, knowledge-intensive linkages with MNCs will be weak. This makes
policies to upgrade reliability, quality, and technological capabilities of local firms of utmost importance. Indeed, the government’s role is to provide the public goods required to build the firms’ capacity to absorb and apply new technology in an appropriate sequence, developing the necessary infrastructure, public investments in R&D, and public universities.

**Policy actions**

In 1992, the government created the national agency CzechInvest to promote FDI more proactively. During the early years, its focus was on attracting FDI to manufacturing operations that would create many jobs, but over time it shifted toward high technology, advanced manufacturing, and R&D activities, along with strategic services, such as logistics operations, software development, and customer support centers. The range of CzechInvest’s activities and support services also evolved over time to include provision of tax incentives, subsidies for training of local employees, development and management of industrial zones, and policies to develop linkages between FDI and local suppliers. Upgrading the quality of domestic supplier networks soon emerged as a priority to attract more FDI in manufacturing and ensure that FDI built domestic linkages and brought broader developmental benefits (see Box 1). In addition to CzechInvest, regional agencies and intermediary organizations, such as chambers of commerce and business associations, played an important role in fostering linkages with foreign firms.

**Box 1. The Supplier Development Program**

The Czech government realized the importance of policies to help local firms meet the quality and reliability requirements of MNCs. In this spirit, CzechInvest launched the Supplier Development Program with funding from the EU. In its initial phase (1999–2002), the program focused on electronics, the Czech Republic’s fastest growing sector and its second largest FDI sector after automotive. The first step was to create a database of Czech manufacturers and make it available through the web to provide information to foreign investors, and to target specific local companies to participate in training and technical assistance programs. This database of suppliers remains in use ([http://suppliers.czechinvest.org](http://suppliers.czechinvest.org)) and has expanded to provide detailed information about selected suppliers in nine sectors, among them automotive, aerospace, electronics and electrical engineering, information and communication technology (ICT), and health care and pharmaceuticals.

After identifying key suppliers, the program closely connected policies to promote linkages by matching foreign MNCs to local firms, with efforts to upgrade reliability and quality in local suppliers. Selected based on their potential to become suppliers of MNC subsidiaries and on their interest in the program, a group of around 45 Czech companies was provided with technical assistance and training support in areas such as technology management, quality control, and organizational change. The aim was to provide the firms with the information and skills needed to meet MNCs’ requirements and establish more and higher value-added contracts. A key priority, for example, was to support suppliers in the process of obtaining ISO-9000 quality certifications.
The Supplier Development Program raised the overall standard of domestic suppliers and helped selected companies engage in commercial and collaborative relationships with MNC subsidiaries (Chobanova 2009) while making it easier to attract FDI and retain it in the country. In light of its success, CzechInvest subsequently launched other linkage programs with similar objectives, extending the scheme to the aeronautics, automotive, pharmaceutical, and engineering sectors.

Sources: www.czechinvest.org; Chobanova 2009.

In recent years, CzechInvest has become increasingly involved in promoting R&D as well as FDI. While fostering linkages between Czech firms and MNC subsidiaries remains a core activity, the work of the organization has been extended to include not only backward linkages with industrial suppliers, but also R&D collaboration with universities and local firms (the R&D Cooperation program) and cluster development (the Czech Clusters program). CzechInvest's new strategy, launched in September 2011, includes new instruments such as the CzechEcosystem program, which provides support services to startups and small and medium enterprises (SMEs). Another priority is to promote internationalization through new programs, such as Foreign Cooperation (providing funding and support services for Czech SMEs to expand in foreign markets), the Gesher/Most program (a funding scheme for applied R&D cooperation between Czech and Israeli companies), and the Czech Technology Days initiative (international promotion and networking events).

More broadly, annual expenditure on R&D has expanded substantially, from 0.92 percent of GDP in 1996 to 1.56 percent in 2010. This ratio is much higher than in other Eastern European countries but still below the average for the EU-27 (around 2 percent in 2010). A key focus of innovation policy in the Czech Republic (and other Eastern European countries) has been to bring the science and technology system closer to the market (Goldberg et al. 2009). The national Research, Development, and Innovation Policy for 2009–15 is considered the main pillar for achieving the ambitious government objective of placing the Czech Republic among the 20 most competitive countries of the world by 2020.

Since 2000, the Czech government has also initiated several projects to stimulate R&D in SMEs, as well as programs to encourage collaboration in R&D among firms, MNC subsidiaries, and public universities and research centers. Both the national and regional governments have established a myriad of technology centers, science and technology parks, cluster initiatives, and business incubators (Hebakova et al. 2013). All of these initiatives support the process of attracting and embedding R&D-intensive FDI.

Since the Czech Republic’s admission to the EU in 2004, national innovation policies have been strongly influenced by broader European policies and the availability of European funding. The Czech Republic has used a large share of the structural funds received from the EU to provide incentives and support to foreign investors in R&D, as well as to develop and acquire the necessary scientific infrastructure and equipment. In recent years the notion of “smart specialization” has become the cornerstone of industrial and innovation policies in the EU - the
objective is to support the emergence of world-class clusters in Europe by exploiting current or emerging national and regional strengths. To be able to specialize in the higher value-added segments of corporate value chains in specific sectors and technologies, the Czech Republic should continue attracting R&D-intensive FDI and upgrading its technological capabilities.

**Results and lessons learned**

The R&D expenditure of foreign subsidiaries in the Czech Republic as a percentage of industrial R&D increased from 21 percent in 1995 to 37 percent in 2000 to 55 percent in 2007, reflecting the transition to a market economy, privatization, and massive inflows of FDI. MNC subsidiaries invest more in R&D than do nationally owned firms and account for the largest share of patents registered by Czech residents.

FDI in the Czech Republic has shown signs of evolving toward more knowledge-intensive activities, including R&D. Several MNCs established R&D centers in the country, initially in the automotive industry and subsequently in high-technology industries like information and communication technology (ICT) and biotechnology (see Box 2). Some were created as high-end R&D centers with a global scope at the second tier of a network (that is, large regional units directly subordinate to headquarters or the leading laboratory), while others evolved from marketing or manufacturing operations to local and global R&D centers.

**Box 2. Examples of FDI in R&D projects in the Czech Republic, 2003–13**

From 2003 to the present, several foreign firms have established new R&D centers in the Czech Republic across a wide range of industries. Centers opened by automotive component firms like Visteon, MB Tech, and Ricardo reflect the importance of the automotive industry in the country, while the software and information technology (IT), biotechnology and pharmaceutical, and aerospace industries have been represented as well.

**Honeywell**, which opened its first offshore R&D center in Prague in 1993, remains a significant foreign investor in R&D in the Czech Republic. In 2003 it established its European technology center and a new manufacturing plant in Brno. More recently, in 2007, Honeywell opened a new Aerospace Business Support Centre in Prague, which provides services to the corporation’s multiple business operations in Europe, the Middle East, and Africa. Since its origins, Honeywell has cooperated with Czech scientists and universities, a collaboration that has intensified in recent years as the company has become increasingly engaged in technology and product development.

In 2013, **Siemens**, another major MNC operating in the country, added a new development and prototype center with plans to employ 115 engineers in Prague and Brno. This center focuses on the development and testing of products and applications for industry, the energy industry, and public infrastructure.

Another significant accomplishment was the establishment of **Eaton**’s new Global Innovation Center in 2012, its first R&D center in Europe (the other Eaton Innovation Centers are located in the United States, India, and China). Located in a science and technology center north of
Prague, this R&D center focuses on cutting-edge research on energy-efficient power systems, the electrification of transportation, and vehicle and aircraft applications. Eaton has strong relationships with universities in the Czech Republic and is a key strategic partner of the Czech Technical University and the University of Technology in Brno.

In 2008, the Czech aerospace industry attracted investment by GE Aviation, which arrived in the country after acquiring certain assets of the local company Walter and focused on developing and manufacturing aircraft engines. Following this acquisition, domestic R&D activities in this field expanded, and the Czech engineering team doubled its size in just three years. The R&D covers activities in material engineering, strength testing, reliability engineering, system integration, and development, among other areas.

In the software sector, Red Hat, a leading provider of open source solutions, established a development center in the Czech Republic in 2006 to focus on software development, quality engineering, customer support, research, documentation, and program management. This center has over 500 highly skilled employees, representing the company’s largest global R&D entity. Other leading software firms that have opened new R&D centers in the country recently include Computer Associates, Sun Microsystems, Catalis, and Quadbase Systems.

Other fields attracting increasing interest from foreign investors are, as mentioned, biotechnology, pharmaceuticals, and medical devices, in which new R&D centers have been created by foreign MNCs like Lonsa, Yorkshire Bioscience, Czura, the Mayo Foundation for Medical Education and Research, Covance, and PRA International, among others.

Sources: www.czechinvest.org; fDi Markets database.

In addition to its direct effects in terms of more national R&D expenditure and employment, R&D-intensive FDI has contributed to the development of the national innovation system by facilitating its integration into international networks and making R&D more commercial. Moreover, foreign-owned firms have been a catalyst for the development of local clusters and have engaged in various forms of education and training.

Some evidence exists, however, of negative indirect effects of FDI on local firms. For example, as mentioned earlier, a World Bank survey found that about 29 percent reported losing market share as a result of FDI inflow, and 6 to 10 percent lost employees to multinationals (Javorcik and Kaminski 2008). This crowding-out effect on the Czech Republic’s economy, however relevant, has been less acute than the direct and indirect positive effects of inward FDI, as evidenced by the country’s fast pace of industrial upgrading and economic growth.

In any case, such accomplishments in attracting and embedding foreign investors in R&D did not occur in a vacuum. They were only possible thanks to strong public investments to upgrade the country’s technological capabilities and proactive intermediation policies to build linkages between MNCs and local firms. Indeed, the upward evolution of foreign companies in the country and the development of knowledge-intensive clusters around them would not have
occurred if local firms and research institutions had not managed to raise their technological capabilities and match the quality requirements of MNCs.

References


Agencies involved
CzechInvest [www.czechinvest.org](http://www.czechinvest.org)

Ministry of Industry and Trade, Czech Republic [www.mpo.cz](http://www.mpo.cz)