

# Transforming Central Europe and the Impact of Globalization

---

Ivan T. Berend

*Professor and Director Center of European and Eurasian Studies, UCLA  
Former President of Hungarian Academy of Sciences*

## **Resumo**

Após o colapso do comunismo, a Europa Central e a Europa Oriental copiaram o modelo econômico do Ocidente. A entrada de capital estrangeiro de \$15-30 bilhões por ano, em sua maior parte da Europa Ocidental, teve um papel importante nas transformações econômicas. Ela serviu aos interesses da Europa Ocidental em criar um “quintal” com mão-de-obra barata e qualificada. Os investimentos estrangeiros buscavam mercados e mão-de-obra, mas também ocasionavam uma especialização complementar e geraram dramáticas transformações estruturais e tecnológicas nesses países. A região obteve um dos crescimentos centrados na indústria automobilística mais acelerados do mundo. Indústrias de alta e média tecnologia firmaram raízes e inclusive centros de pesquisa e desenvolvimento estabeleceram-se, embora uma grande porcentagem de mão-de-obra não qualificada tenha sido empregada nessas indústrias. O nível baixo dos salários teve um importante papel na transformação e no rápido crescimento. Alguns países, como Hungria e Estônia, cresceram espetacularmente, enquanto países menos desenvolvidos da região estão se prestando ao papel de subfornecedores em ramos de trabalho intensivo. É preciso um maior tempo para que se fortaleça e se consolide a modernização econômica.

## **Abstract**

After the collapse of communism, Central and Eastern Europe copied the Western economic model. Foreign, mostly West European capital inflow, \$15-30 billion per annum, played an important role in economic transformation. It served the interests of Western Europe to create a ‘backyard’ with cheap and well-trained labor force. Foreign investments were market and labor seeking, but also served complementary specialization and generated a dramatic structural and technological change in the transforming countries. The region became one of the fastest growing auto-making centers of the world.

High- and medium-tech industries took roots and even R&D centers established, although a high percentage of unskilled workers are employed in these industries. Low wage level played an important role in transformation and rapid growth. Some countries such as Hungary and Estonia spectacularly elevated, while less developed countries of the region are mostly subcontracting in labor intensive branches. It needs a longer time to strengthen and consolidate economic modernization.

## Foreign direct investments and total capital inflow

**A**fter the collapse of East European socialism, the region, previously isolated from Europe, became gradually integrated, and institutionally included into Europe. The international financial organizations and the European Union played an important role in the region's transformation. The Western model was closely copied and Western capital inflow gained momentum. During the first one-and-half decades of transformation Central Europe and the Baltic countries received roughly \$162 billion, the Balkans another \$42 billion foreign direct investments. On per capita bases it surpassed \$2,300 and \$830 in the two above mentioned regions

respectively. In 2005, FDI inflow reached 2.6 and 4.8 percent of the GDP of Central Europe and the Baltics respectively. Behind the average amount, however, huge disparities characterized these investments. The main winners were the

Czech Republic, Hungary, and Poland. These three countries received more than \$135 billion from the total \$204 billion (together with the countries of the former Soviet Union \$258 billion) investments in the entire Central and Eastern Europe, or the former Soviet Bloc.<sup>1</sup> Between 1989 and 2005, according to the Report of the Ministry of Economy and Transportation, Hungary alone received roughly \$60 billion investments. From 1997 on, reinvestments of successful foreign founded companies began playing an important role: between

1998 and 2000, its share reached the half, and then, between 2001 and 2004, two-thirds of total FDI in the countries.<sup>2</sup> On per capita basis, the cumulative inflow of FDI was the highest in the Czech Republic, Hungary, and Estonia. Poland, Latvia, Lithuania, Slovenia, and Bulgaria, on the other hand, received only about one-quarter to one-half of the per capita Czech and Hungarian FDI inflow. Albania, Bosnia, and Serbia and Montenegro received only about one-tenth.

Direct foreign investments are certainly the most important form of capital inflow. Next to FDI, portfolio investments played the second biggest role in capital inflow to the region. The main forms of portfolio investments were international bond issues and portfolio equity investment in the region's stock markets. From the mid-1990s, Eurobond issues played an increasing role. The Czech Republic had its first Eurobond issue in November 1994, Poland joined in April 1996, Latvia and Lithuania in 1997, Estonia in February 1999. In 1998 and 1999, overall Eurobond issues by Central European and Baltic countries reached \$5-6 billion, and this level stabilized after 2000. International bank lending, partly long-term, started to play a role in the mid-1990s, mostly for private companies, and reached, as an average, from \$5 to \$15 billion annually. The main receivers were the Central European countries, but the Balkans also received bank loans.<sup>3</sup> Between 1993 and 2002, 55 percent of capital inflow was foreign direct investments, 26 percent loans, and 19 percent portfolio investments. In the very same years nearly 54 percent of inflowing capital used for financing current account deficits and a further 31 percent served the creation of internal currency reserves.<sup>4</sup>

The main winners were the Czech Republic, Hungary, and Poland

<sup>1</sup> European Bank for Reconstruction and Development, 2005.

<sup>2</sup> Ministry of Economy and Transport, 2006.

<sup>3</sup> European Bank for Reconstruction and Development, 2000, p. 84-86.

<sup>4</sup> Teodorović et al., 2005, p. 84, 86.

Capital inflow to Central and Eastern Europe in all forms reached \$15-30 billion annually from the mid-1990s, although very unevenly distributed, these funds decisively assisted transformation in the countries of the region. Foreign sources finance fiscal deficits, the private banking and industrial sectors, and account for a lion's share of investments in infrastructure and industry of the region. In the Czech Republic, Estonia, and Hungary this contribution reaches between 10 to 15 percent of the GDP, while in others, this share is about 5 percent.

### **The role of Central and Eastern Europe in the structural adjustment of the West**

During the transformation, Central and Eastern Europe became a part of the globalized world economy. The global system is characterized by three major regional international economic centers, North America, Asia, and Europe. They built up huge international production and supply networks and represent three-quarters of the world economy. These regional groupings compete on the world market. When the Berlin Wall collapsed, in some cases even before, multinational companies from Asia, the United States, and most of all from Europe turned towards the new hunting ground in Central and Eastern Europe. The incorporation of the huge market with its natural and human resources offered several advantages for them. They could increase economies of scale. They could exploit a low-wage and relatively well-educated labor force, and rearrange their production networks with a new kind of division of labor.

In the period around the turn of the century two processes coincided: the "twin process of transformation in the East and structural adaptation in the West."<sup>5</sup> The Asian and North American regional centers enjoyed "organic access" to a large and cheap labor force and industrial capacities in their immediate neighborhood, the Latin American 'backyard' of the USA, and the populous Asian countries for Japan. The European center lacked this possibility before 1989. Transformation in the East opened the window of opportunity for a regional network in a nearby geographical area, in many cases within 150-400 kilometers. The main investors in Central and Eastern Europe were the member countries of the European Union: in the case of Hungary they had an 80 percent share of foreign investments, while the United States had only a 5 percent share.<sup>6</sup>

### **Market seeking investments**

The main motivation of the multinational companies might be categorized into three, although often overlapping major areas. The first is *market seeking* investments, which target the new market to buy important raw materials and sell the products or services of the multinational company, without investment into processing branches, or production.

Some of the huge multinational companies were seeking to extract and export raw materials, mostly without processing. The danger of this kind of investment is that the extracting industry remains an enclave in the host country without generating important spin-off. This kind of capital inflow characterized the multinational investments in some of the oil-rich former Soviet republics such as Kazakhstan, but was rare in Central and Eastern Europe.

<sup>5</sup> Kurz and Wittke, 1998, p. 64.

<sup>6</sup> Ministry of Economy and Transport, 2006.

The major European retail chains, the Belgian Delhaize, the German Metro, the British Tesco, and the French Carrefour, actually nine of the world top fifteen retail giants, launched shopping malls and supermarkets in the Czech Republic. They built nearly 1,000 hypermarkets and cornered 55 percent of the retail sales in the country by 2002.<sup>7</sup> Other multinationals such as Pepsi Cola, Phillip Morris, MacDonald's, the Norwegian Statoil AS, the Danish supermarket chain of the Moller Group, and the Swedish IKEA established dense networks throughout the region. Trading companies sometimes also contracted local companies, or established producing factories in the same countries to secure supplies for its shops on the spot. MacDonald's has domestic beef suppliers, and

IKEA founded a dozen factories in the region.<sup>8</sup>

Market seeking investments, although serving the monopolization of parts of the domestic markets of the region, also revolutionized the backward retail trade sectors of these countries

and contributed to a belated service revolution. All of these companies made "crucial contributions to the creation of a modern business technology" in countries, which strongly lacked this technology.<sup>9</sup>

Several other service possibilities also attracted foreign investments. One of the most important penetrations characterized the telecommunications market. One of the first and biggest investments in the area was made by the American-German Ameritech-

Deutsche Bundespost consortium, which, at the end of 1993, bought 30.2 percent of Matáv, the Hungarian state telephone company. In 1995, this share was increased to 67.2 percent. Similar investment was channeled into the telecommunications industry in the entire region. In June 1995, five leading telecom companies participated in the bidding to buy 27 percent (with the possibility to increase this share to 34 percent) of the Czech telecommunications monopoly. The state decided to keep 51 percent of the shares. The \$1 billion deal became one of the biggest transactions in the region.<sup>10</sup> A consortium led by SPT Telecom bought the stake in the Czech telephone system gaining a 20 year monopoly in long-distance and international telephony. A huge part of the Polish telecommunications systems was sold to Ameritech-France Telecom; 35 percent of the Croatian and 51 percent of the Slovak telecom system was sold to Deutsche Telecom. In 1998, Ameritech Corporation announced it would invest between \$1-3 billion in Central and Eastern Europe in 1999-2000.<sup>11</sup> The Baltic countries privatized their telecom systems with leading participation of the Swedish Telia and Finnish Sonera companies, which merged in 2002. The Nordic company owns 49 percent of the Estonian Eesti Telecom, also 49 percent of the Latvian Lattelecom, and 60 percent of Lithuania's Lietuvos Telecomas, but also 55 percent of the country's mobile operator Omnitel.<sup>12</sup>

Seeking for market strongly characterized financial services. The banking and insurance industries, backward and poor in the region, were almost entirely bought up by Western companies. Privredna Banka

The banking and insurance industries, backward and poor in the region, were almost entirely bought up by Western companies

<sup>7</sup> Economist Intelligence Unit, 2005, p. 48.

<sup>8</sup> Wall Street Journal, Nov. 7 1995.

<sup>9</sup> Dyker, 2004, p. 159.

<sup>10</sup> Wall Street Journal, June 2 1995.

<sup>11</sup> Wall Street Journal, Apr. 23 1998.

<sup>12</sup> Jeffries, 2004, p. 171, 211, 246.

Zagreb was sold to the Italian Banca Commerciale, Česká Spořitelna to the Austrian Erste Bank, Československá Obchodní Banka to KBC of Belgium. At the end of the century the state controlled only Komeční Banka. Poland's leading insurance company, PZU was bought by the Eureko group. The Bulgarian Express Bank, Hebros Bank, and Bulbank were sold to Société Générale, and the Regent Pacific group, and the consortium led by UniCredito and Allianz respectively. Erste Bank of Austria bought and merged three Croat banks. Slovenia resisted privatizing the financial sector, and the first important step was taken only in 2001-2, due to pressure by the European Union: 34 percent of the shares of the largest banking institution of the country, Nova Ljubljanska Banka were sold to KBC Belgium. Consolidation of the financial market, which began around the mid-1990s, was effected mostly by large foreign investments. This kind of market seeking foreign penetration monopolized the region's banking system, but also became responsible for the bulk of modernizing financial services and supplying the transforming economies with credits and loans. In the Czech Republic, where at the beginning roughly 70 percent of foreign investment targeted labor-intensive sectors, by 2002 more than half of the new investments was channeled into the financial, communication, and hotel-restaurant sectors, and altogether 88 percent was invested into services.<sup>13</sup>

### Labor seeking investments

The second type of investments is the *labor seeking*, or least cost approach investments, which sought to exploit the huge wage differential mostly in labor intensive production branches, often by contracting and sub-contracting certain phases, frequently in the assembly phase

of production. At the beginning of the transformation, Central European wages – counting at exchange rate parity – reached only 7 percent of the German-Austrian wage level. After more than a decade, wages increased to 15 percent of that. The slow rate of increase of the wage gap will last for decades. Even in 2004, an autoworker in Slovakia got \$5.40 per hour, compared with more than \$40 for a similar worker in the German Volkswagen factory. An advantage to wage competitiveness in transition countries is that at purchasing power parity, wages are roughly twice as high as at exchange rate parity.

Outward processing trade was mostly concentrated in low-value-added activities. During the 1980s in Hungary and in the first years of transformation in the entire region most investments targeted either contracting or sub-contracting labor intensive works in textile, leather, wood, and other light industries. In Poland clothing and furniture represented less than 7 percent of exports in 1989, but because of subcontracting, they increased to 21 percent of exports by 1995. In Hungary the share of these branches in exports increased from 11 to 18 percent and in Czechoslovakia from 6 to 15 percent during the first half of the 1990s. Every other piece of furniture sold in Germany in the mid-1990s was produced by German-Polish factories. In Steinhoff's Polish plant 4,000 workers were employed. The German clothing industry sought to cut production costs by outward processing trade: 60 percent of their output originated from outside the country in 1995. A great share of the capacity of the Central and Eastern European clothing

---

*An autoworker in Slovakia got \$5.40 per hour, compared with more than \$40 for a similar worker in the German Volkswagen factory*

---

<sup>13</sup> Kippenberg, 2005, p. 257-259.

industry, 70 and 50 percent in the case of Romania and Hungary respectively, worked for Western companies. Between 1988 and 1996, outward processing exports from the East to the European Union increased by 24 percent annually. At the beginning two-thirds of outward processing exports was clothing, but footwear and furniture also represented low-skill, labor intensive sectors.<sup>14</sup> In 1993, nearly 70 percent of foreign investment targeted labor-intensive industries in the Czech Republic. This share, however, dramatically declined in the coming decade. In 2002, investments in labor-intensive sectors represented only 16 percent of total foreign investments.<sup>15</sup> In less developed countries of the region, however, labor seeking cost reduction investments re-

mained dominant. In Romania, textile, clothing, and leather industries, which worked on processing agreements for Western companies in the earlier years, increased their capacities through foreign investment and retained their share of exports even in 2000-

2001. Romania became part of the German, French and Italian clothing and leather good industries production networks.<sup>16</sup>

### Investments in complementary specialization

The third type of foreign direct investment is *complementary specialization* investment. Although transferring production of labor-intensive branches from highly developed to less developed countries does not directly assist technological-structural modernization in the latter, complementary

specialization may open the door for structural-technological advance. True, at the beginning, the less developed countries are home to bottom of the product range, but in time, in some of the countries, a more sophisticated division of labor emerges by producing key components and advanced products in the less developed countries. In certain cases, the whole value chain and even research and development (R&D) capacities are planted in the newly integrated countries.

In reality, the above-mentioned three categories of foreign investment - market seeking, labor cost decreasing, and complementary specialization investments - are often combined.

Targeting complementary specialization in Central and Eastern Europe was an important goal of European (and other) multinational companies in their effort to restructure and adapt to globalized world competition. Several of them made 'greenfield' investments and established new, previously non-existent modern sectors of the economy. Others bought existing, mostly obsolete companies and modernized them, mostly in the Czech Republic, Hungary, Poland, Slovakia and Estonia. The first multinational investments were initiated by General Motors in reforming Hungary before the collapse of the regime. GM 'greenfield' investment in Szentgotthard introduced car production to Hungary, although at the beginning it was an assembly factory and most of the parts arrived from other European firms of GM. Soon, however, 15,000 Opel Astras rolled off the assembly line annually. Major multinationals invested in modern export-oriented car production in Hungary. The Japanese Suzuki built its new firm in Esztergom and gradually produced 60,000 cars per annum.

In less developed countries of the region, however, labor seeking cost reduction investments remained dominant

<sup>14</sup> Kurz and Wittke, 1998, p. 80; Eichengreen and Kohl, 1998, p. 178.

<sup>15</sup> Kippenberg, 2005, p. 259.

<sup>16</sup> Hunya, 2002.

Volkswagen established an engine factory and producing all the engines for its entire Audi production in Győr.

One of the largest investments in the region was the privatization of the Czech Skoda Company by Volkswagen. As a first step in 1991, Volkswagen bought 31 percent of the shares, but according to the agreement over seven years Volkswagen planned investing more than \$6 billion to modernize Skoda. By the early 2000s, Skoda sold 500,000 cars in a year. Volkswagen's Bratislava factory produces 300,000 cars in a year and became the most profitable plant of the company. Besides its new "Touareg" SUV and Polo small hatchback, VW produces bodies for its Porsche Cayenne SUV in this factory. Labor costs in Slovakia are under \$6 per hour, in contrast to the \$40/hour labor cost in Germany. The company saves \$1.8 billion annually in personnel costs. Slovakia attracted other carmakers as well. South Korean Kia built a plant in Žilina, and French Peugeot employed 3,000 workers in its car factory, and created another 6,000 indirect jobs. On a per capita basis, Slovakia became the world number one car producer with 800,000 cars per year by 2006.<sup>17</sup>

Small wonder that next to China, the world's fastest growing auto-making center emerged in Central and Eastern Europe, mostly in the Czech and Slovak republics, Poland, Hungary and Romania. Since 1995, the leading car-making multinationals invested \$24 billion in the region. In 2006, the Czech and Slovak republics, instead of their 170,000 unit production in 1990, produced 2 million cars per year. In 2010, these companies are planning to produce 3.8 million cars in the region, 20 percent of the West European output, mostly for Western markets. All the leading companies are present. GM Opel built a factory in Gliwice, Poland. PSA

Peugeot-Citroen and Toyota decided to build joint venture factories with a \$1.8 billion investment to produce 300,000 cars a year with 3,000 workers in Kolin, near Prague. PSA Peugeot opened a small car factory in Trnava, Slovakia and produces 300,000 cars; Hyundai invested \$1.3 billion in its Žilina, Slovakia plant, which began producing in 2006. Fiat made big investments in Poland, and Volvo Bus shifted its Austrian and German production to Wrocław, Poland to produce 1,000 buses in a year. Further enlargement is already planned with the shift of Volvo's bus production from Scotland and Finland to Poland. Renault bought the Romanian Dacia factory and produced roughly 150,000 cars per year. In 2000, the ten leading multinationals had 82 percent share in Central and Eastern European car production, led by - Volkswagen and Fiat, 22 and 10 percent respectively. These new or greatly enlarged automotive industries are playing a leading role in economic transformation of these countries. The foreign owned car industry produces 20 percent of the industrial output of the Czech Republic, and Volkswagen is the largest exporter of Slovakia, while its Hungarian engine plant's deliveries represent 7 percent of total Hungarian exports.

The auto-supply industry is also shifting towards the East. Visteon built a plant in Hluk and produces lighting and climate control units in the Czech Republic with 4,000 workers. Delphi and Visteon are closing five factories in Western Europe and open 15 in the East. One of them was opened in Sibiu, Romania in 2004, with a \$24 million investment producing automotive electronics and conducting research in its engineering laboratory.<sup>18</sup> Volkswagen

---

*In 2006, the Czech and Slovak republics, instead of their 170,000 unit production in 1990, produced 2 million cars per year*

---

<sup>17</sup> Automotive News Europe, 2004.

<sup>18</sup> BusinessWeek Online, Sept. 5 2005.

built a 31-hectare supplier park 5 kilometers from its Poznan factory in Poland and attracted 16 international suppliers, including Visteon, Kromberg & Schubert, Magnetto, Plastal and others. One of the leading French supplier companies, Faurencia, built seven plants in Poland, some are only 45 kilometers away from the German border, and produces instrument panels and door panels for the Volkswagen Golf<sup>19</sup>. Car suppliers in the Czech Republic produce parts valued annually at \$2 billion (in Hungary \$1.5 billion) and supply more than two dozen carmakers. Central Europe, as a consequence of resettling by suppliers, offers the densest supply network for car factories in Europe.<sup>20</sup>

The development of other modern high-tech or medium high-tech industries, also gained momentum. High-technology sectors such as pharmaceuticals, medical chemicals, computer, TV, communication equipments, medical precision and optical instruments, aircrafts, etc., and high-tech services, especially in telecommunication and research and development

were either missing, or non-competitive, technologically backward in state socialist countries. The same can be said about the medium-high-tech industries, among others, motor vehicles, locomotives, electrical and other machinery and equipments, ships and transport equipments. After the regime change, foreign investors, important multinational companies, created competitive export sectors in some of the countries of the region, mostly in Hungary, the Czech Republic, and Estonia. These countries exhibited some similarities to the Asian development trend when Japan out-

sourced labor intensive production to Thailand and Malaysia, but high value-added sectors to Singapore and later even China. The development is also reminiscent of the Irish economic restructuring from multinational investments during the 1970s-1990s.

A landmark first step was taken before the collapse of the regime in Hungary. General Electric bought Egysült Izzó (Tungsram), at the end of 1989. The company had a 5 to 6 percent market share in Western Europe, and 2-3 percent share on the world light-source markets. Tungsram, the crown jewel of Hungarian industry, however, remained behind the modern technological advancement of the industry. GE invested \$600 million by 1995 and restructured the company, upgraded infrastructure, and machinery. It cut the work force by half from 20,000 to less than 10,000, and embarked on a five-year, \$30 million retraining program. Production was shifted towards high-margin products. It began producing Genura, the world first and most efficient compact reflector lamps, using induction technology. GE closed down several West European plants to concentrate production in Hungary. The company's Nagykanizsa factory became the world largest light-source producer. Its modern and high quality products were sold worldwide: 10 percent in Central and Eastern Europe, 15-20 percent in the United States, 30 percent in Western Europe, while the rest in the Middle East and Asia.

In a pioneering and promising way, GE rebuilt and modernized the once famous research and development capacity of Tungsram. Four of the GE's eight worldwide R&D programs were located in the company's Nela Park headquarters, but the other four, including all of the former West European R&D facilities, were shifted and consolidated in Budapest with 750 employees.<sup>21</sup>

Central Europe, as a consequence of resettling by suppliers, offers the densest supply network for car factories in Europe

<sup>19</sup> *Automotive News Europe*, 2004.

<sup>20</sup> *Business Eastern Europe*, Jan. 27 2003.

<sup>21</sup> Marer and Mabert, 1996.

Besides GE Tungsram, other high-tech multinationals also penetrated into Hungary. The Dutch Philips and the German Siemens built up production networks for consumer electronics. In 1996, Philips established its monitor factory with 1,000 workers and produced one million units per year. The company also founded assembly plants for VCRs and audio equipments. Twelve Phillips plants with 5,200 employees produced for exports. Nokia also invested in this field. Nokia's 1995 takeover of the Italian Hantarex's joint venture led to the production of 300,000 monitors per year. Hungary received the most important investments to produce PC systems, hard drives and monitors. IBM began subcontracting hard drive head assemblies from 1994. It purchased Videoton, a leading but technologically obsolete domestic company and invested \$110 million, raising the total production capacity to 3 million hard drives per year by 1997. In its Székesfehérvár plant, IBM increased production capacities threefold and established its worldwide center for notebook hard disk drive manufacturing. The company became one of the best among IBM's ten plants worldwide. Sony took its first cautious steps in Central Europe by subcontracting in Hungary, Poland and Slovakia. It then invested \$20.4 million in Gödöllő, near Budapest and established its consumer audiovisual production lines. In the first year, 40,000 compact disk players were produced monthly. Later the company moved its videocassette recorder and color TV set production from France. "This investment," stated the chief executive of Sony's European operations, "points to a coming of age for Central Europe as a manufacturing base."<sup>22</sup>

The range of investments was broad. Samsung began in 1989 with a 40 percent stake in Hungary's main radio and TV factory, Orion, and then bought the entire company to produce 500,000 color TV sets

per year. Electrolux privatized Hungary's refrigerator producer, Lehel in 1991, doubled its output and cut employment in half by 1997. Four multinational giants, IBM, GM Opel, Philips and VW Audi produced nearly one-third of Hungarian exports at the turn of the century. These foreign companies generated spin-off effects as well: hundreds of small and middle-sized supply companies mushroomed around them. Samsung's color TV assembly, for example, was made up of 25 percent locally produced components. Nevertheless, instead of an emerging network of first-tier suppliers, local companies played only a subordinated role and became players in the second- and third-tier supplier chains even one-and-a-half decades after the regime change.

Equally important, several other companies besides GE established R&D centers in the country. Electrolux transferred its product development headquarters from Denmark to Hungary in 1996; Ericsson started a software support group in Budapest, one of its 25 worldwide development centers; and Nokia opened two research centers in the country to develop switching software and applications. Volkswagen's Audi Hungária Motor Kft., to develop the capability to produce each of the new generations of Audi engines, established an engine development center in 2001. The German supply company of KnorrBremse Kft., which opened a production facility in Kecskemét, soon added a research and development center at the Budapest Technical University and run successful research on a drive stability control system for heavy commercial vehicles. Therefrom resulted a Hungarian roll over prevention world patent.<sup>23</sup>

---

*Electrolux privatized Hungary's refrigerator producer, Lehel in 1991, doubled its output and cut employment in half by 1997*

---

<sup>22</sup> Wall Street Journal, March 1 1996.

<sup>23</sup> Szalavetz, 2006, p. 195.

Hungary developed into a supply base for regional electronics sectors and contract manufacturing services.<sup>24</sup>

Similar development characterized foreign investment strategies in the Czech Republic. Beside the central automotive industry development, investment in micro-electronics also expanded. Motorola bought a majority in Tesla Sezam in 1997, established integrated circuit production, and also opened a design center. First International Computer of Taiwan built a PC assembly plant which produced 10,000 units per month for export from 1998. The Japanese Matsushita (Panasonic) established its TV tuner and remote control production with a \$66 million investment in 1995.

Poland, although primarily a low-value-added producer in the multinational networks, also received investments in more sophisticated branches. Motorola opened a new software branch; the French Thomson bought Polkolor in 1991 and with a \$90 million investment produced 3 million color TV sets per year by 1995.

By 1997, 50 percent of Estonian exports were produced by foreign owned companies

Daewoo invested in washing machine production in 1995 and produced 100,000 units per year in Poland. Bosch and Siemens also opened washing machine plants in 1995 and produced 25,000 units per year, but output reached 200,000 units for export by 1998. Philips expanded its consumer electronics production to Poland and employed 6,000 workers in its plants.<sup>25</sup> Asea Brown Boveri, the Swiss multinational opened thirteen subsidiaries employing 7,000 workers in Poland to produce generators and railroad gears.<sup>26</sup>

Foreign investments in Poland were also concentrated in financial services (22 percent), trade (18 percent), and, within the manufacturing sector, food products, tobacco, beverages, wood, paper, and publishing (11 percent). Foreign investments, as a consequence, played only a secondary role in the country's technological upgrading, and other channels of technology transfer and domestic technological potential proved more important than those from capital inflow.<sup>27</sup>

Estonia's widespread privatization program attracted foreign investors. Between 1993 and 1996, thirty leading companies were sold, mostly to Swedish and Finnish investors. By 1997, 50 percent of Estonian exports were produced by foreign owned companies. While in the first half of the 1990s, 40 percent of investments arrived from abroad, during the late 1990s and in the first years of the new century, Estonia sold out its telecom system, single gas utility, half of its oil shale capacity, the entire banking system, and its railroads and local railway passenger carrier company. Estonia, more than any other Baltic country, became an integral part of the Nordic production networks.<sup>28</sup>

### Transformation: economic restructuring and technological adjustment

The most important consequence of economic transformation of Central and Eastern Europe was, after the sharp decline and crisis in the early 1990s, the modernization of the economy, the progress in technological adjustment, and improvement of long neglected infrastructure and services.

<sup>24</sup> Linden, 1998, p. 258, 260-263.

<sup>25</sup> *Ibid.*, p. 257, 262-263.

<sup>26</sup> *Wall Street Journal*, April 16 1996.

<sup>27</sup> Weresa, 2004, p. 423-424.

<sup>28</sup> Jeffries, 2004, p. 170-173, 175.

State socialist economic policy focused on industrialization and the development of strategic heavy industrial branches. Preserved, obsolete economic structures were thus the legacy of state socialism. Marketization, privatization, and the inflow of foreign direct investments marked a turning point and a crucial restructuring took place in the region.

Building up a modern infrastructure and service sector was one of the most urgent tasks and certainly the most positive economic outcome of transformation.

Financial infrastructure, previously non-existent private telecommunication services and several new infrastructural requirements had to be addressed. Of critical importance was the region's communication revolution. By the time the regime collapsed, only 14 percent of the population of Soviet Bloc countries had access to a telephone. Telephone line density was one-third that of OECD countries.

Hungary had 9 main telephone lines per 100 inhabitants, altogether 1 million main lines in 1990. By 2000, the number of fixed lines peaked of 4 million. By 2005 the number declined to 3.5 million, or 35 lines per 100 people, because of the explosion of mobile telephone use. By 2005, the number of mobile subscribers reached 8.7 million, a penetration rate of 87 percent. Mobile phones conquered the Central and Eastern European market in a few years; in Poland besides 32 fixed lines per 100 people in 2005, mobile phone subscriptions jumped from 80,000 in 1995 to 24.3 million. In the Czech Republic, the number of fixed lines, 15.7 per 100 inhabitants in 1990 increased to 37.7, but the number of mobile telephones rose from 49,000 in 1995 to 10.2 million in the country of 10 million

inhabitants by 2005. In Slovenia, the fixed lines reached 40 per 100 inhabitants by 2003, but nearly 90 percent of the population had mobile phones by 2004. Romania, one of the most backward in telephony in 1990, had already 58 percent fixed line household penetration by 2003, and 47 percent mobile phone penetration with 10 million units. Estonia, Latvia, Bulgaria, and Croatia all reached a fixed telephone penetration level between 30 and 40 per 100 inhabitants. In the less developed regions, mobile phones predominated: by 2003, 18 sets per 100 inhabitants in Macedonia, 27 per 100 in Bosnia-Herzegovina, and 36 per 100 in Albania (where the number of fixed lines remained the lowest in Europe at 8 per 100 people).

As a consequence of foreign investments in the telecom systems of the region, most of the Central and Eastern European transformation countries rose in the ranks measuring telephone infrastructure. The Czech

Republic moved from the 42nd to the 30th place, Slovakia from 46<sup>th</sup> to 34<sup>th</sup>, Estonia from 40<sup>th</sup> to 29<sup>th</sup>, and Lithuania from 49<sup>th</sup> to 39<sup>th</sup> between 1990 and 2000. Slovenia, Hungary and Poland improved more moderately, while Yugoslavia's position declined as did Russia's and Ukraine's. Mobile phone use, because the previous undeveloped level of the fixed networks, in most cases had surpassed the highest Western level by 2005.<sup>29</sup>

The road for computerization was also opened. The computer revolution did not reach the region before 1989. A personal computer was a rarity, and mainframe computers were principally used by the military and some of the state and research

---

*Mobile phone use, because the previous undeveloped level of the fixed networks, in most cases had surpassed the highest Western level by 2005*

---

<sup>29</sup> Economist Intelligence Unit, 2005; Ehrlich and Szigetvári, 2003, p. 23; The Economist, 2006, p. 90-91.

institutions. Catching up reached a turning point around the turn of the century. Less developed Romania had 700,000 personal computers in 2001, but this number jumped to 2.1 million in two years, and in 2004, the number of computer owners increased by 50 percent in a single year. This tempo was not unique; countries of the region experienced a 20-30 percent annual increase in computer and Internet use around the turn of the century. By 2005, half of the Estonians, one-third of the Slovenes, and one-quarter of the Slovaks used computers. At that time, 10 percent of the Albanian, 20 percent of the Romanian, and 23 percent of the Bulgarian population used the Internet, while the number in Poland, 2.5 million, reached 29 percent of

---

By 2005, half of the Estonians, one-third of the Slovenes, and one-quarter of the Slovaks used computers

---

the adult population. In the Czech Republic, the number of Internet users exploded from 263,000 in 1998 to 3.4 million, more than one-third of the population by 2003. Estonia and Slovenia's 42-43 percent internet use approached the average of the EU-15.

The information and communication technology index, which combines all of the per capita telephone and computer figures, mentioned above, reflects the technological advancement of the region: Estonia surpassed Ireland, Slovenia surpassed Belgium, the Czech Republic reached a higher level than Spain and Italy, and nine Central and Eastern European countries belonged among the top 44 countries of the world.<sup>30</sup>

Services in general, the most backward sector of state socialist economies, became the fastest developing branch of the

economy of the transformation countries. The service branches in 1973, before the economic crisis hit the region, occupied an average 36 percent of the employed population. It hardly increased through 1989 and neared 50 percent of employees only in some of the most developed and reform-oriented countries such as Hungary. By 2005, as a consequence of a service revolution in the advanced world - when Western Europe already employed about two-thirds of its labor force in services, and this sector produced roughly 70 percent of the GDP - the service revolution arrived in the region.

Although services and infrastructure still exhibited major shortcomings, service employment in Central and Eastern Europe as an average, reached already 56 percent, and the sector accounted for 64 percent of GDP. In the best performing countries the figure reached the EU benchmark of 70 percent of GDP. The Balkan countries remained behind: the share of services in GDP in Albania was only 50 percent, in Romania 49 percent, and in Bulgaria 59 percent, but the trend of catching-up with the West was obvious.<sup>31</sup>

The science and technology, or research and development sector also needs revamping. The countries of the region spend substantial amount for research and development: Slovenia, the Czech Republic and Hungary between 1 and 1.5 percent of GDP, Poland, Slovakia, and Estonia about 0.6 to 0.8 percent. Transforming Central and Eastern Europe inherited a strong base of basic sciences organized by the research institute networks of the Academies of Sciences. State socialist organization of science, however, exhibited some major weaknesses. One of them was the relative backwardness of some of the most mo-

---

<sup>30</sup> Economist Intelligence Unit, 2005; *The Economist*, 2006, p. 60, 91, 93.

<sup>31</sup> *The Economist*, op. cit.

dern scientific areas. While achievements in physics, chemistry, and mathematics reached the highest levels, biotechnology and artificial intelligence languished. More importantly, the scientific base was characterized by one-sided basic science orientation to the detriment of applied sciences and innovation. It did not change much during the transformation period. In 2000, development research received only one-sixth of public funding of basic research in Slovenia.

Publicly funded research focuses on science citation index and scientific excellence with little, if any, concern for the needs of business [which] has to rely more and more on technology solutions from abroad.<sup>32</sup>

Measured by the innovation index, which combines human resource skills, market incentives, and interaction between business and scientific sectors, the Central and Eastern European countries reached only one-half or one-third of the Western level.<sup>33</sup>

Nevertheless, human resources in science and technology – measured by people with tertiary education, and employment in professions where this education required – are quite strong in the region. The EU-15 average in 2002 had a very high level of human resources, 41.2 percent of the economically active population belonged to the above mentioned category. Some of the most advanced regions of Central and Eastern Europe such as the Prague region (55.7 percent), the Bratislava region (53 percent), and the Central-Hungary region (45.4 percent) surpassed the Western average.

The Lisbon Summit of the European Union in 2000 set the goal that R&D expenditures have to reach 3 percent of the GDP by 2010. In 2002, the EU-25 average was only 1.9 percent. From the 268 European Union regions only 21 reached the 3 percent level: from the Central and Eastern European regions, only one, the Prague region is among them.<sup>34</sup> In 2002, the Czech Republic had spent 1.3, Hungary 1.01 percent of the GDP for R&D expenditures, while all the others much less: Poland only 0.67, Slovakia 0.59, and Romania 0.38 percent of it. Stanislas Kubiela maintained on Poland:

A continued downsizing of the country's R&D sector, lacking science and technology policy, and complete dependence on assimilating foreign innovations, led to depleting technology absorption capabilities, structural stagnation and, finally, declining economic growth.<sup>35</sup>

---

*Some of the most advanced regions of Central and Eastern Europe surpassed the Western average*

---

In spite of good export performance, even in the new member countries of the European Union, “their own innovative capacities (expressed... by the number of international patent applications) remains low.”<sup>36</sup> Furthermore, only Hungary, the Czech Republic and Slovenia are supporting the integration of enterprises into international networks to capture spillovers from multinational companies.<sup>37</sup>

Structural modernization led to the dramatic decrease of the role of agriculture.

<sup>32</sup> Bučar and Stare, 2006, p. 248.

<sup>33</sup> *The Economist*, 2006, p. 60.

<sup>34</sup> Eurostat, 2005, p. 86, 88.

<sup>35</sup> Kubiela, 2006, p. 201.

<sup>36</sup> Kadeřábková, 2006, p. 145.

<sup>37</sup> Radosevic, 2006, p. 48-9.

Central and Eastern Europe had three times higher agricultural employment than the West until the collapse of the regime. The decline of agricultural employment was the most striking element of structural changes. In the Czech Republic the average number of employment in agriculture decreased by 71 percent, from 10 to 4.5 percent of total employment between 1989 and 2004. In Hungary, the change was even more radical: from 15 percent of employed, it diminished to 6.0 percent in one-and-a-half decades. The decreased role of agriculture in the production of GDP was also an important element of post-1989 structural modernization. In one-and-a-half decades after the regime change, the structure of employment and the role of agriculture

in the production of the GDP were shifted towards the Western pattern. In the Czech Republic, Slovakia, Hungary, Estonia, and Slovenia, agriculture accounted for an average 3.5 percent of GDP, and employed roughly 5.8 percent of the active population in the early

---

*In the Czech Republic, Slovakia, Hungary, Estonia, and Slovenia, agriculture accounted for an average 3.5 percent of GDP*

---

2000s. This approximated the Western average. The employment level in Poland, Latvia, Lithuania and Romania remained almost 20 percent, four to five times as much as the Western average, and 71 percent of the Albanian population continued to engage in agriculture.<sup>38</sup>

Although the declining role of agriculture seemed to follow the earlier trend of the West, the driving force behind it was rather different. In the West, the spread of big agro-business, a productivity explosion, high level of specialization, and combination of agriculture with food

processing led to the gradual shrinking of agricultural employment. It went, however, hand in hand with a steep increase of output. In Central and Eastern Europe productivity increase was moderate after 1989. Agricultural labor productivity, as an exception, increased by 100 percent only in the Czech Republic and Hungary, but declined in several other countries of the region, in Poland by 15 percent. As an average in the region, productivity – mostly because of the decreased labor force – increased by 50 percent. Technology, as an average, declined because the new small farms could not use the machinery of the former large cooperative enterprises and returned to more backward technology. Specialization also remained a scattered exception, and food processing was hardly combined with agricultural production. In most of the cases, the declining role of agriculture in employment and output was thus the consequence of a real decline of the sector. While the average total farm assets per hectare of land in the European Union reached 6,000 to 10,000, in Central Europe it was 1,500 to 3,000 at the turn of the century.<sup>39</sup> Most of the more developed transition countries became net importers of agricultural products, and only Hungary had a surplus in agricultural trade.

Poland, with its relatively large agricultural sector, became a net importer of agricultural products by 1993. The agricultural trade deficit, \$0.6 billion that year, more than doubled by 1996. Romania, once the breadbasket of Europe and still an agricultural country, became a net food importer as well. Agricultural trade registered permanent deficits until the early 2000s.

In the first years of transformation, agriculture sharply declined, in some cases by 50 percent. In some countries, decline

---

<sup>38</sup> International Labour Organization, 2002.

<sup>39</sup> Davidova et al., 2006, p. 53.

continued during most of the 1990s. This was the case in Estonia and Latvia, where after steady decline, by the turn of the century output was stabilized at less than half of the 1989 level. Agriculture virtually stagnated in most of the countries during the second half of the 1990s. After the turn of the century, Slovakia's agricultural output surpassed the pre-collapse level by 10 percent. Albania, an exception, achieved a 30 percent increase. In most cases, output only reached the pre-1989 level around 2004-5.<sup>40</sup> Agriculture thus became a crisis branch during the entire transformation period. By the time of European Union membership, nevertheless, the agricultural sector became more or less stabilized. The ten new member countries of the European Union produce 20 percent of the EU-25 total gross harvest. Wheat yields averaging 34.1 quintals per hectare, nearly 20 percent less than the average yields of the EU-15 countries. The yields of potato are 189 quintals in Poland – compared to the 371.4 quintals in EU-15, nevertheless, Poland delivers more than 23 percent of the EU-15 potato's output. The new member countries produce more than 16 percent of the EU-25 sugar-beet production.<sup>41</sup> The most difficult period had passed. Institutional reforms kept pace with accession negotiations from the late 1990s and European Union subsidies, although limited for a while, resulted in net income to the sector. The implementation of the EU standards promises an accelerated adjustment.

Industrial decline in the first transformation years was devastating, but represented - using the Schumpeterian term - at least partially, a creative destruction. The misdevelopment of industry as a consequence of socialist industrialization policy, the creation of obsolete, material and energy intensive

“heavy industrial” branches had to be corrected. The leading sectors of Stalinist and post-Stalinist industrialization, as a consequence, became the victims of transformation. Symbolic expression of this transformation was the October 15, 2005 report in the leading Hungarian daily, *Népszabadság* that the one time center of coal production of Nógrád, which formerly produced up to 40 percent of output, had been converted into a museum of coal mining.<sup>42</sup> Poland, the country of coal, iron, and steel industries, downsized these sectors sharply: steel output dropped from 20 million to 8.4 million tons, hard coal output decreased from 193 million tons to 101 million tons between the late 1980s and 2004, and production was cut further again after that. The coal sector of the Czech Republic employed 186,000 workers in 1990, but only 64,000 by 2003.

It was also mostly positive that de-industrialization helped to establish a better sectoral balance towards the advanced pattern of the turn of the century. Industrial employment and contribution to GDP dramatically declined: in 2004, industry employed less than 30 percent of the active population in the European Union, and produced 28 percent of the GDP. In Poland, the share of industry in the production of the GDP declined from 42 to 30 percent, in Hungary from 40 to 28 percent, and in Romania, from 57 to 38 percent between 1989 and 2004. The role of industry in the national economy is now more similar to the Western pattern.<sup>43</sup>

On the other hand, most of the countries of the region, except Slovenia,

*Industrial decline in the first transformation years was devastating*

<sup>40</sup> Rättinger et al., 2006, p. 7, 10.

<sup>41</sup> Eurostat, 2005.

<sup>42</sup> *Népszabadság*, Oct. 15 2005.

<sup>43</sup> *The Economist*, 2006.

and in some cases Slovakia, have written off huge sectors and rejected their modernization. The less developed countries of the Balkans, especially Albania, and some newly independent successor states of Yugoslavia experienced a de-industrialization process before a successful industrialization. In 1989, 40 percent of Albanian GDP was produced by mining and industry, but by 2004, this share dropped to 20 percent. In Macedonia, the share of industrial contribution to the GDP decreased from 45 to 30 percent during the first one-and-a-half decades of transformation. Mining, a leading sector during the Yugoslav period, practically collapsed. Unemployment reached a record 38 percent in 2004. In Kosovo, unemployment remained 43 percent, but

among the young people, who represent the largest layer of the society, it was 75 percent. In Croatia, 36 percent of the young generations were unemployed while the general unemployment rate, according to the ILO standard remained 15 percent in 2005. The country's

In Croatia, 36 percent of the young generations were unemployed

“economy, is still in the stage of prolonged recession,” stated Croat economic experts. “On microeconomic level the degree of instability is increasing... Croatia needs a policy of reindustrialization... by creating a new export based manufacturing.” De-industrialization destroyed important factors of modernization.<sup>44</sup>

In Hungary, as an average, fixed investments increased by 6.3 percent annually, in Poland by 13.5 percent, in Slovenia by 11.8 percent. While fixed investments in Slovenia reached 19 percent of the GDP in 1992, they increased to 26 percent by 1999. Estonia and Latvia saw double digit

increases in the second half of the 1990s. The situation was repeated in Bulgaria and Slovakia before the end of the century. In the first five years of the twenty-first century Romanian gross fixed investments increased by 48 percent.

### The role of low wages, outsourcing and productivity increase

Several countries of Central and Eastern Europe exhibited important structural changes, improved their technological base, and integrated into the European Union's industrial economy. In the first phase of transformation, nevertheless, the industrial sector of the region profited the most from its low wage level. On an exchange rate basis, industrial wages reached only 7 percent of the Western level in the first transformation years, and then increased to 15 to 20 percent. Since exchange rate and purchasing power parity level are very different, the real income of the workers neared 40 to 50 percent of the Western level, but for foreign investors, exchange rate parity was the important basis for calculation. In most of the countries the ratio between the two exchange rates are 1.5 to 3.0. This difference extended a wage advantage for the countries of the region. Low wage levels in countries with a relatively well trained and educated work force, with a strong base of basic research, and talented specialists in important sectors, was combined with an outstanding geopolitical situation. Nearby location, short, sometimes only 200-500 kilometer distances from the advanced countries of Europe, created a huge market for labor intensive sectors of textile, clothing, leather, furniture and others.

Outward processing agreements and trade played the leading role in the first

<sup>44</sup> Economist Intelligence Unit, 2005; Mildner, 2006, p. 49; Teodorović et al., 2005, p. 21, 54.

years of transformation. Western multinational companies supplied the materials for Central European countries to produce finished and semi-finished products for delivery back to the West. These agreements were most common in low-tech industrial sectors such as textiles, clothing, footwear, and furniture. Hungarian industry began subcontracted production in these branches already during the 1980s. Poland became a major producer in the consumer good sector from the early 1990s. Two-thirds of the Polish exports to the European Union consisted of products of low human capital intensive sectors, with low white collar work-force participation, but sometimes with high investment and physical capital need between 1988 and 1996. By 1996, 75 percent of Central and Eastern European outward processing exports to the European Union originated from these low-tech sectors. Even the middle-tech sectors such as electrical machinery production based on subcontracting played only a minor role, accounting for 14 percent of the re-exports by the EU. Outward processing trade reached its heights in the first half of the 1990s: in 1993, 17 percent of Central and Eastern European exports to the European Union was outward processing trade. By 1996 these exports declined to 13 percent.

Around 2000, low-tech outward processing was partly shifted to Romania and Bulgaria. In less developed countries of the region such as Romania, the role of subcontracting was much higher and maintained a dominant role during the first decade of the twenty-first century as well: roughly one-third of the Romanian exports consisted of industrial consumer goods, and Albania's main export item remained textile and clothing products even in 2003-04. Poland preserved its role in producing

low-tech products in the European supply network. Outward processing also took a more advanced form: establishing various kinds of assembling works, such as in the car industry, which went hand in hand with building up a supply network in the region. One may differentiate among first-, second-, and third-tier suppliers. The first, which closely collaborate with the main firm, produce complex components such as engines in the car industry. They are mostly foreign owned or joint ventures. Second-tier suppliers, mostly local, produce advanced single components for the first-tier suppliers. Firms in the third category supply the second-tier suppliers with simple components. All these firms are local. This hierarchy in the supply network opens the window of opportunity for industrial development as the Asian economic miracle earlier demonstrated. Integration into the supply network becomes one of the main vehicles of technology transfer. In the less sophisticated cases, management, organization, communication systems and computerization contribute to modernizing business technology. On a more advanced level such as the car industry, transfer of hard technology triggers spin-off effects.<sup>45</sup>

While the less developed countries remained subcontracting deliverers in the textile, clothing, leather, and furniture industries until 2000-2005, the more developed countries began producing more sophisticated engineering and high-tech products in the European supply chains. In one-and-a-half decades a visible shift of investments had already taken place mostly in Central Europe towards more

---

Around 2000, low-tech outward processing was partly shifted to Romania and Bulgaria

---

<sup>45</sup> Dyker, 2004, p. 157, 164.

sophisticated branches of industry, such as engineering, communication technology, and the chemical industry. Here too, the skilled and cheap labor force was a decisive factor. Even less-developed Romania, for example, is a leader in Europe, and the 6th in the world in terms of the number of certified information technology specialists. The Czech Republic, Slovakia, and Hungary have a well-trained work force, and an outstanding group of engineers, software engineers, and other experts.

In a single decade, industrial structure dramatically changed and obsolete branches were partly replaced by modern sectors. After one-and-a-half decades of transformation, nearly two-thirds of the Hungarian industrial output was produced by the

electrical, optical equipment, car, and chemical industries. In the Czech Republic, engineering played an outstanding role: by 2003, 50 percent of exports consisted of machinery and cars. In Slovenia, from the mid-1990s, besides the tradi-

tionally strong and competitive electronics sector, the car industry and pharmaceutical industry achieved the highest growth rate.

The share of high tech industries in the production of manufacturing value added around 2000, was the highest in the United States, Finland, and Japan around 20 percent of total. In a second group, several West European countries had a roughly 15 percent share. Hungary, at the 9<sup>th</sup> place in 23 countries, follows, together with Belgium, but ahead of Canada, Germany, Italy and Austria, with more than 12 percent. The Czech Republic and Poland reached only 7-8 percent, Slovakia about 4 percent.

One cannot question the importance of these impressive structural changes. Nevertheless, the real, long-lasting achievements of this restructuring is much less striking if one considers that most of the transformation countries produces mostly parts and components to high tech products, or make assembly work, and in both cases a significant part of the job is done by a low skilled workforce. Roughly 40 percent of the workers in high tech industries in Central and Eastern Europe have low skill occupations. In the top high tech exporter countries of the region, Hungary and Estonia, the share of low skill workforce in high tech industries are 39 and 59 percent respectively, while this share in the Netherlands is only 17 percent. On the other hand, the highly skilled workforce is small in the transforming countries, 20 percent lower than in similar industries in the West.<sup>46</sup> In the Hungarian high tech industry, IBM's subsidiary produced office, accounting and computing machinery and contributed to Hungarian high tech production and export, but the work performed in Hungary was not knowledge intensive and was carried out by semi-skilled workers. Attila Havas called this kind of high tech productions "foot -loose," meaning the lack of deep embedding in the domestic production network. These kinds of industries are ready to move to cheaper production sites, further to the East, or to China.

High tech industries, in other words, did not take deep roots yet in the region, but this is a natural first stage of development that might be followed by domestic research and highly qualified labor input on the next stage of development. The first signs of entering the second stage is already visible in Hungary and in some other countries: more and more foreign companies established research laboratories, and some spill

*In a single decade, industrial structure dramatically changed and obsolete branches were partly replaced by modern sectors*

<sup>46</sup> Kadeřábková, 2006, p. 157, 159.

over effect began developing the domestic networks and roots, the passage towards higher development level.

Several less successful transforming countries, although rid of obsolete “heavy industries,” developed mostly consumer good industrial branches, especially in the export sectors. Textiles, clothing, leather products, furs, and furniture accounted for more than one-third of Romanian exports in 2003. In Lithuania, food processing proved one of the strongest branches, responsible for nearly one-third of manufactured product sales, employing nearly one-quarter of the labor force, absorbing 36 percent of industrial investments and delivering 15 percent of the country’s industrial exports by the second half of the 1990s. Textiles hold a similar position and produce 16 percent of the country’s exports.<sup>47</sup> Some of the newly independent Balkan countries still based their exports on mining: Kosovo’s only export possibility was its nickel, magnesium, lead, and zinc resources.<sup>48</sup> Almost all of the countries of the region are already becoming well-connected with the international production networks.

Transforming industries boosted economic growth and labor productivity. Since 1995, Central and Eastern European average growth rate surpassed 4 percent per annum, i.e. increasing twice as fast as Western Europe. In the 1990s, a West European worker produced \$25-\$28 value per hour. In Central and Eastern Europe the productivity level remained far behind: a worker produced about \$5-7 per hour until the early-mid 1990s. From that time,

however, productivity increased faster than in the West. Gross industrial output per employed person increased consistently, as an average roughly by 10.5 percent per year in Hungary, 10 percent in Poland, 8.7 percent in Estonia, 5.3 percent in the Czech Republic, and 5.1 percent in Slovenia. Moderate productivity increase characterized other countries as well, although renewed crises between 1997 and 1999 led to a transitory productivity decline in Romania, and four years of productivity decline in Bulgaria between 1996 and 1999.<sup>49</sup> The level of productivity, while achieving a roughly 50 percent increase in Central Europe, remained below the 1989 level in the Balkans until 1998. Around the turn of the century, however, South Eastern European productivity also improved fast.<sup>50</sup> The productivity increase in the better performing Central and Eastern European countries became two to three times faster than in Western Europe, demonstrating a clear catching up process.

From that time, however, productivity increased faster than in the West

Central and Eastern Europe during the transformation period became part and parcel of the global, mostly European economic system. Foreign capital and multinational companies dominate several of the countries of the region and trigger modernization and catching up in some of them. The process is in the making and may take another generation’s life time until the outcome will be clear and unquestionable.

<sup>47</sup> Van Zon, et al., 2000, p. 66, 69.

<sup>48</sup> Mildner, 2006, p. 53.

<sup>49</sup> Based on Economic Survey of Europe, 2004.

<sup>50</sup> Teodorović et al., 2005, p. 30.

## Bibliography

- AUTOMOTIVE NEWS EUROPE. v. 9, n. 10, May 17 2004.
- BUČAR, Maja; STARE, Metka. From Quantity to Quality: Critical Assessment of Slovenia's Potential for Knowledge-Based Growth. In: PIECH, Krzysztof; RADOCEVIC, Slavo (Ed.). *The Knowledge-based Economy in Central and Eastern Europe: Countries and Industries in a Process of Change*. Houndsmills: Palgrave Macmillan, 2006.
- BUSINESS WEEK ONLINE. Sept. 5 2005.
- BUSINESS EASTERN EUROPE. v. 32, n. 5, Jan. 27 2003.
- DAVIDOVA, Sophia et al. Variations in Farm Performance: Evidence from the New Member States and EU-15 Member States. In: DAVIDOVA, Sophia et al. (Ed.). *Integrated Development of Agriculture and Rural Areas in Central European Countries*. Lanham: Rowman and Littlefield, 2006.
- DYKER, David A. *Catching Up and Falling Behind: Post-Communist Transformation in Historical Perspective*. London: Imperial Collage Press, 2004.
- ECONOMIC SURVEY OF EUROPE. Geneva: United Nations, n. 1, 2004.
- ECONOMIST INTELLIGENCE UNIT. *Country Reports*, 2005.
- EHRlich, Eva; SZIGETVÁRI, Tamás. *Az infrastruktúra nemzetközi összehasonlítása: 1990-2000*. Budapest: MTA Világ gazdasági Kutatóintézet, 2003.
- EICHENGREEN, Barry; KOHL, Richard. The External Sector, the State, and Development in Eastern Europe. In: ZYSMAN, John; SCHWARTZ, Andrew (Ed.). *Enlarging Europe: The Industrial Foundation of a New Political Reality*. Berkeley: University of California, 1998.
- EUROPEAN BANK FOR RECONSTRUCTION AND DEVELOPMENT. *Transition Report 2000: Employment, skills and transition*. London, 2000.
- \_\_\_\_\_. *Transition Report Update 2005*. London, 2005.
- EUROSTAT. *Regions: Statistical Yearbook 2005*. Luxembourg: Office for Official Publications of the European Communities, 2005.
- HUNYA, Gábor. Restructuring Through FDI in Romanian Manufacturing. *Economic Systems*, v. 26, n. 4, 2002.
- INTERNATIONAL LABOUR ORGANIZATION. *Yearbook of Labour Statistics 2002*. Geneva: United Nations, 2002.
- JEFFRIES, Ian. *The Countries of the Former Soviet Union at the Turn of the Twenty-first Century*. London: Routledge, 2004.
- KADEŘÁBKOVÁ, Anna. Skills for Knowledge-Based Economy in Central Europe. In: PIECH, Krzysztof; RADOCEVIC, Slavo (Ed.). *The Knowledge-based Economy in Central and Eastern Europe: Countries and Industries in a Process of Change*. Houndsmills: Palgrave Macmillan, 2006.
- KIPPENBERG, Eva. Sectoral Linkages of Foreign Direct Investments Firm to the Czech Economy. *Research in International Business and Finance*, v. 19, n. 2, 2005.
- KUBIELAS, Stanisław. Key Challengee to the Development of the Knowledge-Based Economy in Poland. In: PIECH, Krzysztof; RADOCEVIC, Slavo (Ed.). *The Knowledge-based Economy in Central and Eastern Europe: Countries and Industries in a Process of Change*, Houndsmills: Palgrave Macmillan, 2006.
- KURZ, Constanze; WITTKE, Volker. Using Industrial Capacities as a Way of Integrating Central and Eastern European Economies. In: ZYSMAN, John; SCHWARTZ, Andrew (Ed.). *Enlarging Europe: The Industrial Foundation of a New Political Reality*. Berkeley: University of California, 1998.

- LINDEN, Greg. Building Production Network in Central Europe: the Case of the Electronics Industry. In: ZYSMAN, John; SCHWARTZ, Andrew (Ed.). *Enlarging Europe: The Industrial Foundation of a New Political Reality*. Berkeley: University of California, 1998.
- MARER, Paul; MABERT, Vincent. GE Acquires and Restructures Tungsram. The First Six Years (1990-1995). In: *Performance of Privatized Enterprises: Corporate Governance, Restructuring, Profitability*. Paris: OECD, 1996.
- MILDNER, Kirk. Die Volkswirtschaft des Kosovo am Vorabend der Statusverhandlungen. *Südosteuropa Mitteilungen*, 46. Jahrgang, n. 2, 2006.
- MINISTRY OF ECONOMY AND TRANSPORT (Hungary). Report of the Ministry of Economy and Transport. Budapest, July 12 2006.
- NÉPSZABADSÁG. Oct. 15 2005.
- RADOSEVIC, Slavo. The Knowledge-Based Economy in Central and Eastern Europe. In: PIECH, Krzysztof; RADOSEVIC, Slavo (Ed.). *The Knowledge-based Economy in Central and Eastern Europe: Countries and Industries in a Process of Change*, Houndsmills: Palgrave Macmillan, 2006.
- RATINGER, Tomas et al. The Central European Countries: Heritage and Challenges. In: DAVIDOVA, Sophia et al. (Ed.). *Integrated Development of Agriculture and Rural Areas in Central European Countries*. Lanham: Rowman and Littlefield, 2006.
- SZALAVETZ, Andrea. From Industrial Capitalism to Intellectual Capitalism: the Bumpy Road to a Knowledge-based Economy in Hungary. In: PIECH, Krzysztof; RADOSEVIC, Slavo (Ed.). *The Knowledge-based Economy in Central and Eastern Europe: Countries and Industries in a Process of Change*, Houndsmills: Palgrave Macmillan, 2006.
- TEODOROVIĆ, Ivan et al. (Ed.). *The Croatian Economic Development: Transition Towards the Market Economy*. Zagreb: Institute of Economics, 2005.
- THE ECONOMIST. *World in Figures 2006*. London: Profile Books, 2006.
- VAN ZON, Hans et al. *Central European Industry in the Information Age*. Aldershot: Ashgate, 2000.
- WALL STREET JOURNAL. June 2 1995.
- \_\_\_\_\_. Nov. 7 1995.
- \_\_\_\_\_. Mar. 1 1996.
- \_\_\_\_\_. Apr. 16 1996.
- \_\_\_\_\_. Apr. 23 1998.
- WERESA, Marzenna Anna. Can Foreign Investment Help Poland Catch Up with the EU? *Communist and Post-Communist Studies*, v. 37. n. 3, 2004.