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CHANGES IN POLAND'S INDUSTRY AFTER 1989

Abstract. This paper has as its goals the presentation and evaluation of the changes in Poland's industry during the economic transformation. After having listed the main characteristics of the industry in the period before 1989, the author points out the changing role of the industry in the national economy as well as changes in ownership and quantity. An evaluation of the changes in employment in industry, the value and structure of fixed assets, capital expenditures (incl. the role of direct foreign investments) as well as of the dynamics and structure of the industrial production has been made. Processes of restructuring of indusstry and spatial changes in the industry deployment are another topic discussed in the paper.

Keywords: Poland, industry, production, restructuring, investments (foreign investments), fixed assets.

INTRODUCTION

Until the end of the 1980s industry played in Poland – similarly as in the other socialist countries – a priority role in the national economy, and the development of industry took place often at the expense of other sectors of economy. The industrial sector was characterised, in particular, by the domination of the state ownership of production means, the centralised model of management, carried out through the realisation – usually partial – of the long-term plans, the order-and-distribute system (control almost exclusively through administrative decisions in the form of orders and restrictions), the domination of large enterprises, high material, energy, capital, labour and space intensity, low technological level and limited innovativeness, high degree of use of the fixed assets, low effectiveness of labour and capital, lack of connection between work effects and wages, low competitiveness of goods, incapacity of satisfying domestic demand (especially in terms of consumption goods), as well as "secure" sales markets in the countries of the Comecon (CMEA: Council of Mutual Economic Assistance).

The strongest influence on the course of production processes and the structural changes in industry after 1989 came from the change of the economic system and the introduction of the modern management methods, as well as of the market rules of doing business. High importance ought to also be attached to the increase of consumption demand on the domestic market (until 1997), resulting from the reaction of the society to the decades of functioning in the shortage economy, and to the opening of the internal market to foreign competition. An increase of imports took place, broadening of access to modern technologies, and an advance in modernisation of industry, enrichment of the assortment and improvement of quality of goods produced by home businesses. One should not neglect, neither, the re-orientation of exports from the CMEA countries to the area of the European Union, the privatisation of industry nor the inflow of foreign capital. During the period of transformation the de-concentration of industry took place, consisting in the splitting of smaller companies from the large-scale enterprises and the emergence of small businesses. The system of connections between the plants, which had existed before 1989, was liquidated, and the new one developed, based on market principles.

THE ROLE OF THE INDUSTRY IN THE NATIONAL ECONOMY

Economic transformation caused that after 1989 the role of industry in the national economy changed, and the changes took place, both positive and negative, in the industry itself. The share of industry in total employment in the national economy decreased in the years 1990 – 2002 from 28.4% to 23.1%, in the capital outlays from 33.8% to 31.7%, in the value of GDP (value added produced in industry) from 43.6% to 20.9%, and in consumption of electric energy from 51.2% down to 48.2%. On the other hand, there has been, for instance, an increase of the share of industry in the value of fixed assets – from 27.5% to 32.7% (*Rocznik*..., 2003).

OWNERSHIP AND MAGNITUDE STRUCTURE TRANSFORMATIONS – THE INCREASE OF SIGNIFICANCE OF THE SME SECTOR

The ownership changes, consisting in the limitation of the role of the public sector to the advantage of the more effective private sector are among the most important ones. The increase of significance of the private sector was the result of the privatisation of the state-owned enterprises and of the increased entrepreneurship of the society. Ownership transformations were carried out in the period 1990 – 2002 in 2,689 industrial enterprises. In this process 1,229 enterprises were commercialised, 696 were subject to liquidation (of which 295 were actually liquidated), and 769 were subject to direct privatisation. There were still 960 state-owned enterprises in industry in 2002. Some of them are still under liquidation or are in the reconstruction process (*Rocznik*..., 2003).

In 2002 there have been 219,500 private businesses active in industry (99.1% of all the companies in industry), employing 2,292,800 persons (78.0%). The shares of the private sector were – in the gross value of the fixed assets in industry: 44.8%, in the value of investment outlays: 65.6%, in the sold production of industry: 76.3%, of which in manufacturing: 89.4%, in mining and quarrying: 27.3%, and in electricity, gas and water supply: 10.9% (*Rocznik*..., 2003).

Businesses of the foreign owners have an increasing significance among the private companies in industry. Their number increased dynamically until 1998 (4,325, i.e. 1.6%), to then systematically decrease (2,727 businesses in 2002). Despite this, the number of persons employed in foreign-owned companies is still on the increase (341,200 persons, i.e. 11.6%), as is their share in the sales of industry (21.2%) (*Rocznik*..., 2003). Labour productivity in the foreign-owned companies is much higher than in the domestic industrial enterprises.

The ownership transformations were accompanied by the magnitude structure changes, seen mainly through the increase of significance of the small and medium sized enterprises (SMEs). The share of the SMEs, employing up to 500 persons each, in industrial production, was estimated in 1989 at about 19%. The SMEs had a particularly significant contribution to the overcoming of the economic recession in the initial period of economic transformation (the years 1990 – 1992), when production breakdowns in the large state-owned enterprises occurred. In 2002 the SMEs (employing up to 249 persons each) accounted for 80.5% of all the industrial businesses, employed 26.8% of the total industrial employment and provided 35.9% of the sold production of industry.[1]

EMPLOYMENT IN INDUSTRY

Until 1989 Polish industry was characterised by excessive employment. Opening up of the Polish market to the foreign competition caused that quite a proportion of enterprises could not stand the challenge. Consequently, many plants were closed down, mainly the unprofitable ones, but also the ones that could survive, if an adequate assistance were extended to them. At the same time, rationalisation of employment took place in many enterprises, consisting mainly in the limitation of the number of working persons (decrease from 4.9 million in 1989 to 2.9 million in 2002) and the employment (from 4.8 million to 2.7 million). Consequently, an increasing open unemployment appeared. The downfall of the enterprises and the limitation of employment concerned, to a lesser or bigger extent, all the branches (sectors) of industry, but it was most visible in the electric machinery industry, exporting their produce until then to the markets of the CMEA. In some kinds of activity employment is at most at 20 – 40% of the levels from before 1989. This phenomenon appeared with special strength in the industrial enterprises playing the leading role in the socialist Poland, particularly in the textile, leather-and-shoe, mining and metal industries, in electronic industry, artificial fibre, machine and transport means industries (except for production of

[1] The data concern the companies, in which employment exceeds 49 persons.

mechanical vehicles). Consequently, even entire branches of industry disappeared (more than 40 branches), which entailed the loss of roughly one million jobs. The process of employment decrease in Polish industry took place in conditions of a low GDP per capita level, when the process of industrialisation of the country was yet far from termination (the post-industrial phase, justifying the phenomenon of dis-industrialisation, has not appeared yet).

The necessity of facing the competition forced, side by side with improvement of product quality, also lowering of production costs, which was done, in particular, by decreasing employment. Thereby, an essential increase of labour productivity followed. In the years 1989 – 2002 labour productivity, as measured with the sales value per person employed, doubled, with increase in the private sector having been higher than in the public sector.

FIXED ASSETS

One of the most serious threats to Polish industry is constituted by the disadvantageous state of the fixed assets, which are characterised by a low technical and technological level, which bears indirectly on the competitive capacity of this industry. The branch, kind and age structure of the fixed assets is disadvantageous, and the degree of wear is high, especially of the machinery. The formation of the fixed assets had been influenced until 1989 by the non-market allocation of resources, propensity of the enterprises to maximise production factors, asymmetric investment model, consisting in preference for building new facilities, especially those turning our production means, at the expense of the reconstruction of the worn out ones. The consequence was the excess of production capacities (estimated in 1989 at approximately 38%) and its inappropriateness to the demand structure. Both industrial structure (high share of raw material and energy industries, featuring low degree of processing) and the lack of modern facilities, together with high degree of wear (72.5% for machines and equipment) of the fixed assets, were not ensuring production of high quality goods, competitive not only on foreign markets, but also on the domestic market. The average age of the machines was very advanced, especially in the iron working industry (82%), in construction materials industry and in the electric machinery industry. At the same time, the value of the fixed assets in the industries being the carriers of innovation and technological progress was quite low. That is why liquidation of the civilisation and technological gap entailed the necessity of making great efforts in reconstruction of the structure, renewal and modernisation of the productive apparatus, requiring large scale means and radical action (*Transformacja*..., 2002).

Although essential changes took place during the period of transformation in the structure of the fixed assets, and since 1993, due to the investment expansion an improvement occurred as to the kinds and age structure of the fixed assets, quite a share of them in industry still originates from the era of the centrally managed economy, and the allocation of the assets' wear is disadvantageous (the highest for machines, technical equipment and tools, while the lowest of the buildings and structures). The highest degree of wear of the fixed assets is observed in metal production, while the lowest – in office machinery and computers. The changes in the ownership structure of the fixed assets were not very big, for the ownership transformations took place in the small and medium enterprises, and in these large ones, which had been in a good economic situation. The mining, metal working, gas, energy and oil enterprises, i.e. the ones disposing of highly valued fixed assets, remained the state-owned enterprises.

INVESTMENT OUTLAYS – INFLOW OF FOREIGN CAPITAL

Due to the restrictive fiscal and credit policy in the first period of transformation, there was a drastic decrease of the investment outlays. Thus, in 1993, investment outlays in entire industry were equivalent to 87.9% of the outlays from 1989, and in manufacturing – to only 67.2%. Low propensity to invest was caused by the shortage of capital means, both those in disposal of the businesses, and of the state. Investment demand in the initial period of transformation was limited by the decreasing credit worthiness of the businesses, high inflation and price of money, high investment risk, lack of clear long-term industrial policy and the restructuring programs, unclear perspectives of privatisation, instability of regulations determining the conditions of conduct of business, loss of the traditional sales markets, foreign competition and high investment debts from the preceding years. The biggest decrease of outlays took place in the years 1990-1993 in the industries with high degree of processing, primarily in the electric machinery industry, and in the industries of high importance for exports, like, for instance, in the light industries. High rate of investing characterised only five out of the then classified 23 branches of industry (fuel, energy, paper, printing, as well as animal feed and waste utilisation industries).

The change of tendency, consisting in the increase of investment outlays, occurred in 1994, and lasted until 1998. Consequently, the outlays more than doubled in the years 1990 – 1998. The increase of investment value was largely due to the development of the private sector and the improving adaptation of the public sector to the rules of market economy. Performance of companies worsened, though, in the years 1998 – 2002, their capacity to invest and grow decreased, which brought about the decrease of investment value by 35.1%. This was a disadvantageous phenomenon, for the restructuring of the productive potential and the technological modernisation of industry have not been terminated. During the last decade of the 20th century the disadvantageous changes in the investment structure took place. Thus, in the years 1989 – 2000 the share of outlays into the raw material and energy industries increased from 36.2% to 47.4% (in 1993 even 61.5%), which resulted from the necessity of adapting and synchronising Polish electric energy system with the western European one, the increase of the production capacities of the refineries and the need of modernising the existing installations, the restructuring of the pit coal mining and steel industry, as well as the necessity of limiting the environmental impact of these industries. During the same period the share of investment outlays into the high-tech industries, conditioning the increase of the level of innovation and competitiveness of production, decreased from 21.8% to 14.1% (in 1993 – only 7.5%). The consequence of the inappropriate structure of investment outlays in industry was the worsening of the overall industry's structure, expressed through the decreasing share of the branches having key significance for technological advance and modernisation of economy. These phenomena caused that the robust foundations for the dynamic economic growth over a longer time period could not be established. Investment outlays in industry, along with recession in many sectors, and the processes of restructuring, led to the stabilisation of the spatial patterns inherited from the period of the centrally managed economy. This was associated with the investment inertia, caused by the political and social pressures, and especially by the existing technical infrastructure. The changes taking place in the spatial structure of the investment outlays resulted primarily from the different behaviour of the public and private sectors (*Transformacja*..., 2002).

Investments in industry were financed mainly from the domestic sources. Additional capital came from abroad. Poland, especially in the initial period of transformation, became an attractive country for making investments. The foreign direct investments (FDI) secured financial means, which were lacking in the country, as well as the possibility of importing advanced technologies, new methods of production organisation, and the access to the international market, on which foreign businessmen have already been present. Foreign capital added dynamics to the development of industrial production. Consequently, the industries featuring the highest dynamics are as a rule the same, in which the role of companies with a share of foreign capital is the biggest. The inflow of the FDI was associated to a high degree with the on-going process of privatisation of the state-owned firms. Hence, foreign capital influenced to a greater degree the change of the ownership structure of the enterprises, and to a smaller degree stimulated modernisation of the existing production capacities. The basic form of transactions with foreign partners were "joint venture" undertakings, less frequently – take-overs of the entire enterprises and the greenfield investments (the largest of the latter type of investments was the plant of Opel Poland in Gliwice, awarded the "best foreign investment project" prize in 2001).

In the first years of transformation capital flowed first of all to industry (until 1994 – 61.5% of FDI value in Poland), mainly to industries with low degrees of processing and relatively high returns (food products, tobacco products, household chemicals, cellulose and paper), or turning out an export surplus, and only later on to the industries with more advanced technologies (motor vehicle industry). That is why these investments contributed insufficiently to the modernisation of industry and the liquidation of the technological gap, and thus also to the increase of competitiveness of Polish products. Besides, these firms (except for the motor vehicle industry) had often orientation at the internal market and induced imports (foreign companies account for more than 50% of Polish imports and exports). Until the end of 2003 the cumulative value of the FDI in industry amounted to 30.6 billion USD, that is – 44.0% of the value of foreign investments of more than 1 million USD each.[2] The largest investors in industry include Fiat (Italy) – 1.7 billion USD (entire scope of activity), Kronospan Holdings Ltd (Cyprus) – 1,1 billion USD and General Motors Corporation (USA) – 1.0 billion USD. The biggest amount of foreign investment flowed to the manufacturing (27.8 billion USD), mainly to the branches of transport means production (6.6 billion USD) and food products (6.2 billion USD).[3] The majority of the FDI concentrates in the economically strong voivodships, and on the areas in need of economic activation. In recent years Poland was considered as potential location for large investment projects in motor vehicle industry, but lost this competition to Czechia (Toyota) and Slovakia (PSA Peugeot-Citroën, Hyundai/Kia).

RESTRUCTURING OF INDUSTRY

In the past period activity was also undertaken aiming at restructuring and modernisation of some of the industrial branches, like hard coal mining, energy production, iron and steel metallurgy, arms industry, etc.

The necessity of restructuring coal mining resulted from the decreased demand for coal both on the domestic and foreign markets, from the loss of the CMEA markets, as well as high price competitiveness of coal from the RSA, India and Australia. Hard coal is the most important fossil resource of Poland and has key significance for the economy. It is used mainly in power plants and co-generation plants (some 60% of the domestic consumption), as well as in the coke refineries (13%). Coal extraction is excessively high (it was reduced from 177.6 million tons in 1989 down to 104.0 million tons in 2002) and it is beyond the needs of the economy. A large share is exported (28.9 million tons in 1989, 22.6 million tons in 2002), the export being maintained at a high level for social reasons (prices at the world market cover only 70% of the extraction cost in Polish mines). Introduction of the market mechanisms at the beginning of the 1990s caused that the collieries could not adapt to the new conditions and at the same time the catastrophic situation of the Polish pit coal mining got uncovered. Hard coal mining became unprofitable in a persistent manner. The systematically growing financial losses and the increase of debt of the mining sector forced the government

[2] As of 30 June 2003 the value of foreign investments in Poland of more than 1 million USD each amounted to 69,441.0 million USD, while the total value of FDI was 72,706.0 million USD (www.paiiiz.gov.pl).

[3] www.paiiiz.gov.pl.

to undertake restructuring activities. Until 1992 coal mining was subsidised by the state. It was assumed that even if mining itself is not profitable, it largely contributes to the development of the country. In the framework of restructuring all the collieries in Lower Silesia were liquidated, along with a number of plants in the Upper Silesian mining region, supplying 95.5% of all coal in Poland. Restructuring in Upper Silesia is a complex process, encompassing organisational, ownership and technical transformations (reconstruction, as well as closing of the unprofitable collieries), economic and social instruments (reduction of employment from 420,000 in 1989 down to roughly 140,000, various forms of protection and activation measures for the former miners and coal mine employees), financial instruments (restructuring is costly, and the debt of the coal mining sector equals the double of the value of this sector), environmental measures (ecologically oriented investments in mining), as well as regional undertakings (association of the coal mining restructuring programme with the implementation of the "Regional contract for the voivodship of Katowice", establishment of special economic zones, collaboration of the coal mining companies with the mining municipalities). Yet, social acceptance for a deep restructuring of coal mining is lacking (around one million people live in some way off coal mining) (Osińska, 2001).

There have been ownership and organisational transformations in the power sector, meant to prepare Polish energy industry to the membership in the EU. The companies were consolidated, power generation blocks were modernised and investments were made into the installations limiting emissions of dusts and gases and into the waste management.

Iron and steel metallurgy is technologically outdated and dispersed in organisational terms, as well as structurally ill adapted. The production capacities of the metallurgic plants are too high in terms of the little processed products (some 70% of production), and insufficient in these domains, for which there is demand. Consequently, during the 1990s import of steel products increased eight times and accounts for more than 1/3 of the domestic demand, with the cost of import of one ton of metallurgic products being three times as high as the price of one ton of the exported products. Metallurgic plants need thorough modernisation and change of production structure, which is made difficult by the lack of capital. Although metallurgy was included in the process of ownership transformations, the attempts of privatisation to date – except for Lucchini-Warsaw (purchased by the Italians) and Polskie Huty Stali S.A., now Ispat Polska (steel works in Cracow, Dąbrowa Górnicza, Sosnowiec and Świętochłowice), bought by the Indian LNM corporation – have not ended with success. Resulting from the restructuring was the decrease of employment from 147,000 in 1990 to roughly 37,000, steel production was decreased by almost half, and the emission of the noxious substances diminished five times over. At the beginning of the 1990s extraction of Polish iron ores was abandoned and the demand for raw materials from the Polish metallurgy is covered entirely by imports.

In the arms industry the necessity appeared of adapting the quantity and quality of production to the shifting needs of the customers, of searching for new sales markets, and of orienting a part of the production potential towards the civilian production, since orders for arms and military equipment dropped dramatically, both on the governmental side and from the foreign customers. The NATO membership, since 1999, obliges Poland to introduce military equipment that satisfies the requirement of alliance. High hopes for the resolution of some problems of the arms producing enterprises are associated with the offset agreement (the Americans took the obligation of investing 7.5 billion USD), in connection with the purchase of F-116 fighter planes by Poland.

Changes of a variety of kinds are also affecting many other sectors and branches of industry, like the fuel sector, shipbuilding industry, motor vehicle industry, copper, zinc and plumb mining and metallurgy, as well as sulphur industry.

INDUSTRIAL PRODUCTION

During the period of transformation quantitative and qualitative changes took place in the production profile, in the direction of adaptation to the requirements of the market economy. Until the middle of 1992 a significant decrease of industrial production could be observed (in 1990 by 22.0%, and in 1991 by 17.1%), which had a decisive impact for the drop in the GDP value (the transformation recession phase). In this period strong recession affected the state-owned industry, which could not be compensated for by the dynamically developing private sector. Big decrease of production was due to liquidation of the "unwanted production", not adapted to the new requirements of the market. The biggest production decrease occurred in the industries depending upon trade within the CMEA – light, electric machinery, metallurgic industries (*Raport...*, 1994). There was a turnaround of the tendencies in the economic processes, and a rapid growth of industry ensued, lasting until 1997. The rate of growth of industrial production amounted in this period to 9.6% per annum on the average and was among the highest in Europe. Initially, the main growth factor was high internal demand, but since 1994 – also increase of exports. In the years 1998-2002 the rate of growth of production decreased, mainly owing to the decreased domestic demand. In the years 1990 – 2002 the sold production of industry increased by 73.9%, with the increase in manufacturing amounting to 94.9%, and in production and supply of electricity, gas and water – to 16.3%, while the sales of mining and quarrying dropped by 27.7%. There has been an especially dynamic growth of production of business machines and computers, rubber and plastic products (more than five-fold increase), of radio, TV and telecommunication equipment and devices, as well as metal products (more than four-fold increase). A generally high growth rate characterised production of consumption and supply goods, raw materials and semi-products, which ultimately entailed the liquidation of the shortage economy and the improvement of the consumption goods market situation. Even though there has been a technological modernisation of industry going on since 1989, there were only few high-tech industries (products) among the dynamically developing ones. There has been a dangerous tendency towards the limitation of the production of goods requiring more advanced technologies, to the advantage of the simpler products, with low degree of processing, so that final product is characterised by an insufficient offer of the high-tech goods. Thus, one can hardly speak of the "structural modernisation" of industry, which would consist in the establishment of the new links in the structure, that is – new branches or products, whose production is linked with introduction of technological progress. The share of the traditional industries, the ones with low growth rates or stagnation, or the industries "sensitive" to foreign competition is still high (*Transformacja*..., 2002). Industrial production structure, despite more than dozen years of transformation, is still haunted with weaknesses. It is still largely outdated and characteristic for a traditional industrial economy, as demonstrated by the dominating role of production of food and beverage production (18.6% of sold production of industry in 2002). This structure is not adapted to the future needs, is not conducive to the attainment of a high rate of economic growth, and is little competitive from the point of view of exports to the markets of the economically developed countries.

SPATIAL CHANGES

There have also been changes in the spatial structure of industry during the period of transformation. These changes consisted primarily in the accelerated process of dis-industrialisation of some areas, which led to the shrinking of the industrial space. The gradual liquidation of the unprofitable industrial plants, and the loss of the sales markets for the raw materials resulted in the demise of such industrial regions as those of Tarnobrzeg, Turoszów, Konin or Sudety Mts. The difficulties in adaptation to the conditions of market economy and the changes in the functional structure of the large cities brought about the decrease of the industrial surfaces of, for instance, the industrial districts of Opole, Bydgoszcz, Gdańsk, Wrocław, Łódź and Cracow. Consequently, during the last two decades of the 20th century the number of industrial districts dropped from 24 to 15. These districts (of Bielsko-Biała, Bydgoszcz, Dębica-Stalowa Wola, Gdańsk, Kalisz, Cracow, Lublin, Łódź, Poznań, Szczecin, Silesia, Holy Cross Mts., Wałbrzych, Warsaw and Wrocław) occupy roughly 32,000 sq. km (82,000 sq. km at the beginning of the 1980s). They are inhabited by around 14 million people (21.3 million before), with industrial employment of 1.7 million (approximately 2.6 million before). The quicker restructuring and modernisation of industrial production (increased science intensity and modernity) is observed in the Warsaw and Poznań districts, this fact finding its reflection in the higher attractiveness of these areas for the domestic and foreign investors. Slower transformations are taking place in the regions located in the South of the country, where domination of the traditional sectors of industry has been preserved (Gierańczyk, Stańczyk, 2001).

The process of formation of the new industrial space, depending upon the action of the location factors typical for the market economy, appeared also during the 1990s. New location factors started to play, as well, such as the establishment of the special economic zones (SEZs), and various forms of investment incentives from the side of the local self-governmental authorities on the areas, where structural unemployment exists. The highest importance should be attached to the SEZs, which became a new form of economic activation of selected areas. In the years 1995-97 17 SEZs were established, of which two have not started to function. As of this writing 14 SEZs are functioning with total surface area of 6,324.05 hectares. Until 31 March 2003 altogether 49,658 jobs had been created.[4] Many investors were granted licenses for the conduct of activity in these zones, but only a small fraction of them actually started to function. Yet, it can be generally stated that the SEZs have not fulfilled the hopes that were associated with them (the best functioning ones are those established the earliest), they contributed only slightly to the reduction of unemployment and to creation of modern economic spaces, and, finally, they were the subject of controversy in the negotiations with the EU.

CONCLUSIONS

After 1989 the role of industry in the national economy decreased, as did the role of the public sector to the advantage of the private sector. Among the private businesses an increasing importance of the ones owned by foreign capital is observed. The ownership changes were accompanied by the magnitude structure changes, seen through the increase of significance of the small and medium sized firms. In the effect of the downfall of many enterprises in the initial period of economic transformation and the rationalisation of employment, the number of persons working and employed in industry essentially dropped. This was one of the basic factors behind the two-fold increase of labour productivity. The development of Polish industry is seriously threatened by the disadvantageous state of the fixed assets, characterised by a low technical and technological level, hampering the competitive capacity of industry. There has been an improvement of the kind and age structure of the fixed assets during the period of transformation. Until 1998 there had been a rapid increase of the investment outlays, although, alas, mainly oriented at the raw materials and energy related activities, at the expense of the high-tech industries. Since 1999 investment outlays slowed down, so that the restructuring of the production potential

[4] www.paiiiz.gov.pl.

and the technological modernisation of industry have not been finished. Investments were primarily financed from the domestic sources. An additional source was constituted by the foreign capital, for which Poland became an attractive country as location of investment projects. The FDI were flowing mainly to the industries of low degree of processing and relatively high profitability, and only in a limited proportion to the industries featuring more advanced technologies. Thus, FDI have not supported sufficiently modernisation of industry and liquidation of the technological gap, and hence also the increase of competitiveness of Polish products. During transformation the restructuring and modernisation of some industries was started, e.g. of the hard coal industry, energy industry, iron and steel metallurgy, arms industry. The restructuring programmes tended to liquidate the excessive and unprofitable productive capacities, to limit production and employment, to increase economic efficiency and to improve competitiveness. Implementation of the restructuring programmes is very costly, and the effects to date are not satisfactory. Industrial production became better adapted to the requirements of market economy during the period of transformation. In the years 1993–1997 the rate of growth of industrial production in Poland was among the highest in Europe. High growth rates characterised mainly production of consumption and supply goods, raw materials and semi-products, which, ultimately, led to the liquidation of the shortage economy and the improvement of the supply on the consumption market. Technological modernisation of industry took place, but there were only few high-technology industries (products) among the most dynamically developing ones. There has been even a dangerous tendency towards limitation of production of goods requiring more advanced technologies to the advantage of the simple goods, of low degree of processing. Consequently, the "structural modernisation" of industry has not taken place and the share of the traditional industries, as well as those sensitive to foreign competition, is still high. The structure of Polish industry is not adapted to the future needs, is not conducive to the attainment of high rates of economic growth, and is little competitive from the point of view of exports to the markets of the economically highly developed countries. The role of industry in the traditional industrial districts (like the Upper Silesian region) decreased in the period considered here to the advantage of the more attractive new spaces (the districts of Warsaw and Poznań). An accelerated process of dis-industrialisation of some areas took place, mainly of the industrial regions, whose number decreased from 24 to 15. A new phenomenon was observed of establishment of the special economic zones (SEZs), which, however, have not fulfilled the initial promise and only marginally contributed to reduction of joblessness and to establishment of modern economic spaces.

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