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# Poland's evolving Net Outward Investment Position: a cross-industry analysis

**Abstract:** This study is a continuation of the authors' previous work on Poland's investment development path (IDP) and its geographic patterns. It examines changes in sector and industry composition of FDI inflows to and outflows from Poland and confronts the observed changes with the hypotheses derived from J. Dunning's model of IDP. The data time frame used (from 1996 to 2005) coincides with Poland's move through stage 2 of her IDP. The study reveals that during that stage a fundamental shift in sector/industry composition of FDI took place: the leading position of the manufacturing sector in both inflows and outflows was replaced by services (especially financial and trade). With respect to economic policy implications of the observed changes, the authors recommend a shift of focus from attracting FDI inflows towards stimulating outward FDI.
**Keywords:** investment development path, net outward investment position, foreign direct investment.
**JEL codes:** F21, F23.

## 1. Introduction

The present study is a continuation of the authors' previous work on Poland's investment development path (IDP) and its geographic patterns (Gorynia, Nowak, Wolniak 2006). This time, the authors undertake a dynamic analysis of the sector and industry structure of Poland's inward and outward FDI as related to and in the context of J. Dunning's IDP model. The purpose of the study is to identify patterns of changes in that sector and industry structure via the synthetic measure of net outward investment position (NOIP)[1] over the period during which

[1] NOIP is the difference between gross outward foreign direct investment stock and gross inward foreign direct investment stock for a given time period, in this case one year.

Poland was in stage 2 and gradually moving towards stage 3 of her IDP, and to confront the observed patterns with the hypotheses or predictions derived from Dunning's model.

The data sets used in this study have been compiled from the database of the National Bank of Poland, which in 1997 started to collect FDI inflow and outflow statistics broken-down by sectors and industries (earlier only aggregate FDI information was collected by the Bank). This, in turn, determined the period covered by the present study: the years from 1996 to 2005. Although the authors' previous study of Poland's IDP covered a period starting from 1990, a convenient coincidence is that, according to the said study, 1996 marks Poland's transition to stage 2 of her IDP. Thus the present study focuses on stage 2 and attempts to present a relatively comprehensive analysis of the shifts in sector and industry composition of both inward and outward FDI and the resulting changes in the sector and industry NOIP.

The authors commence with a literature review referring to those publications that have contributed to the development and refinement of the IDP model used here as a theoretical framework. In addition, a number of relevant studies that deal with the issue of sectoral and/or industrial composition of FDI in the context of IDP are reviewed. The literature review section is followed by a methodology section and an analysis of the changes in the NOIP of the sectors and industries under study between 1996 and 2005. The paper concludes by presenting the main findings and both policy and theoretical implications stemming from those findings.

## 2. Literature review

The origins of the concept of IDP date back to 1979 when J. Dunning presented the concept's basic tenets at a conference on multinational enterprises in Honolulu (Dunning and Narula, 1996). Since then the IDP concept has been refined and extended several times, with most significant modifications contained in Dunning (1986), and Dunning and Narula (1994, 1996 and 2002). Several other authors have made contributions to the development of this concept, including Lall (1996), and Durán and Úbeda (2001 and 2005).

According to the principal IDP proposition, the inward and outward investment position of a country is tied with its economic development. Changes in the volume and structure of FDI lead to different values in the country's NOIP. The changing NOIP passes through 5 stages intrinsically related to the country's economic development (for the most recent description of these stages, see Dunning and Narula, 2002)[2].

[2] In its original version (Dunning 1981), the path had four stages. The fifth stage was added in Dunning and Narula (1996).

Although, as Barry Goerg and McDowell (2003) note, the IDP model is largely silent on the sectoral destinations of FDI inflows and outflows (ibid., p. 347), general predictions regarding the shifts in sector/industry composition and nature of FDI parallel to the IDP stages can be derived from Dunning (1997) and Dunning and Narula (2002).

In stage 1, which is characterised by a low level of inward and an almost non-existent outward FDI, inflows of FDI are directed towards labour-intensive manufacturing and the primary product sectors, such as mining and agriculture. Outward FDI is negligible or non-existent because "the O-specific advantages of domestic firms are few and far between" (Dunning and Narula, 2002, p. 140).

In stage 2, in which inward FDI rises substantially while outward FDI emerges at low levels, inward FDI is predicted to remain largely in natural-resource-intensive sectors. However, it is supplemented by forward vertical integration into labour-intensive production in light, relatively low-technology manufacturing. Outward FDI, fuelled by the newly-acquired O-specific advantages of domestic firms mostly in the production of semi-skilled and moderately knowledge-intensive consumer goods, will be either of a market-seeking or trade-related type, undertaken in adjacent territories, especially those further back in their IDP position, or of a strategic asset-seeking type, directed to developed countries.

Stage 3 marks a gradual decrease in the rate of growth of inward FDI and an increase in the rate of growth of outward FDI. In this stage, the comparative advantage of labour-intensive production will deteriorate as a result of an increase in domestic wages. This, in turn, will stimulate inward FDI to flow to technology-intensive manufacturing and other industries capable of delivering higher value added locally. Motives for such inward FDI will shift towards efficiency seeking production and to some extent towards strategic-asset acquisition. Outbound FDI will be driven by market-seeking strategies (directed more to countries at lower stages in their IDP) and strategic asset pursuit in other stage 3 or stage 4 countries to protect or upgrade advantages of domestic (investing) firms.

Stage 4 is characterised by outward FDI stock first matching and then exceeding that of inward FDI and by outward FDI growing faster than inward FDI. In a country entering this stage, production processes and products will be state of the art and foreign investment will be undertaken in capital- rather than labour-intensive production by firms seeking strategic assets and rationalising their value-adding activities across national borders. Accordingly, such country's L-specific advantages will be mostly or entirely based on created assets. Outward FDI will be motivated by the necessity to maintain firms' competitive advantage by moving operations that lose competitiveness to countries in lower stages of their IDP.

Finally stage 5, which is characterised by the NOI oscillating around zero level, attracts most of Dunning's (1997) and Dunning and Narula's (2002) attention and analysis. Indications of industry or sector preferences of inbound or outbound FDI are mostly concealed in assertions that in stage 5 highly developed, Triad countries

show a marked convergence of their economic structures and that FDI in both directions is increasingly created asset- and efficiency-seeking with greater emphasis on growth via strategic alliances as well as mergers and acquisitions.

Parallel to its conceptual development, numerous empirical studies have been conducted to test the validity of the IDP model. The literature review reveals two main strands in these empirical studies. One strand represents multi-country studies using cross-section analysis. The other strand of studies focuses on one country's NOI position either vis-à-vis all countries of the world or countries (world regions) that represent the main destinations for FDI as well as the main source of FDI. The latter studies are longitudinal in nature (see Gorynia, Nowak and Wolniak, 2006 for a succinct review of the two strands of IDP studies).

Dunning and Narula (1996, pp. 22 and 24-25) argue that a cross-sectional analysis across countries has severe limitations and can only be treated as a surrogate for longitudinal studies. As the IDP is essentially a dynamic concept and every IDP is idiosyncratic and country specific, it can be best analysed on a country-by-country basis. This view is echoed by Durán and Úbeda (2001). They argue that "the speed and direction of movements along the various phases of IDP depend on a set of factors that influence the economic structure of a country and the type of investment it makes and receives" (ibid, p. 9). These factors include: presence of natural resources; geographic and cultural distance; size of a country; its economic system or development model and its government policy. Furthermore, the use of GDP as a proxy for development does not take into account the changes of the economic structure of a country that progresses through the consecutive stages of the IDP. In particular, the IDP model implies systematic changes in the industry structure that parallel the changes in the NOIP. And yet, in both the conceptual and empirical studies, the issue of the industry structure of FDI that evolves when a country moves from one stage of the IDP to another is rarely investigated, and even in these rare cases the sector/industry structure analysis is only supplementary to the main topic. The authors of this paper were able to identify only a handful of studies that devote more than cursory attention to the evolving industry/sector structure of FDI in the context of IDP. Several of them are contained in the book edited by Dunning and Narula (eds.,1996), including contributions by:

- Clegg (1996) examining the UK's IDP and looking at the country's IDP position in three industry groups;
- Graham (1996) focusing on the 5$^{th}$ stage of the US IDP;
- Akoorie (1996) investigating the sectorial patterns of inward and outward FDI in New Zealand;
- Calderón, Mortimore and Peres (1996) analysing, among other things, the impact of FDI on the production structure of the Mexican economy;
- van Hoesel (1996) investigating Taiwan's FDI and its impact on the country's industrialisation;

– Kumar, (1996) analysing India's industrialisation, liberalisation as well as inward and outward FDI during this country's distinct development stages related to FDI;
– Zhang and Van Den Bulcke (1996) examining the IDP of China and focusing on the changing government policy during the country's 15 years of transition to a market economy;
– Also the studies by Bellak (2001) of Austria's IDP and by Barry, Georg and McDowell (2003) of the Irish IDP contain some analysis of inbound and outbound FDI by sectors.

Summing up, the empirical studies mentioned above point to certain important shifts in sector and industry composition of both inward and outward investment taking place when a country progresses from one stage of the IDP to another. However, it is evident that these shifts are far from being uniform across countries. Clearly country-specific factors (idiosyncrasies) play an important role in shaping the sector and industry patterns of FDI. For example, in the case of New Zealand the historic reforms initiated by the government in 1984 led to a dramatic increase in the inflows of non-resource based FDI, particularly into the banking sector (Akoorie, 1996). Likewise, India's and China's economic liberalisation policies induced the changing structure of inward and outward FDI (Kumar, 1996; Zhang and Van Den Bulcke, 1996). And Taiwan's dramatically changing sectoral distribution of inward and outward FDI can be linked to the country's rapid industrialisation (van Hoesel, 1996). Some studies point even to paradoxes, such as the "renaissance" of the manufacturing sector as an FDI destination in the US observed by Graham (1996, p. 91). It can therefore be argued that Dunning's predictions regarding sectoral investment patterns in relation to a country's IDP may not always find full confirmation in the referenced empirical studies.

In the following sections, the idiosyncrasies of Poland's cross-industry composition of FDI inflows and outflows are analysed in the context of her IDP, using NOIP as a synthetic expression of the outcome of the parallel moves of the said inflows and outflows with respect to individual sectors and industries. In contrast to the empirical studies reviewed, in which the issue of sector/industry structure of FDI inflows and outflows is basically viewed as supplementary to the main topic of a country's IDP, the present paper is entirely devoted to the analysis of such structure and its policy implications.

## 3. The data and method of analysis

The data breakdown of the Polish economy made by the National Bank of Poland and considered by the authors as the most reliable source creates nonetheless a certain

problem relating to the terminology and level of aggregation employed. Nominally the country's economic potential and, in this case, the target of FDI inflows is split into industries or more aptly industry groups which bear closer semblance to industry *branches* than to *sectors* of economic activity. However with the exception of one entry, that of "manufacturing", which does indeed represent a fully fledged sector and (as the sole entry) is thus broken down into its constituent components: different industries. Such an approach complicates economic analysis and drawing conclusions since the units of this analysis are of unequal content and composition and thus may be difficult to compare, especially in the context of the influence they exert on the country's economy. This reservation should then be taken into account in interpreting the results that follow. Moreover, recognizing this dilemma the category of industry branches will be used thereafter to denote the industry composition of FDI inflows to and outflows from Poland.

While using the FDI data published by the National Bank of Poland, the authors compiled time series for both FDI inflows and outflows for the period of 1996-2005 with respect to the manufacturing sector and 10 non-manufacturing industries, of which several represent the service sector. The basic data on cumulative FDI inflows and outflows broken down by the above-mentioned sectors and industries are presented in the Appendix Tables 3 and 5. These data constitute a point of departure for the analysis of NOIP for the same sector/industry breakdown, which is undertaken in the following section. The Appendix Tables 4 and 6, on the other hand, show the percentage share of the sectors/industries studied in the overall FDI inflows and outflows respectively, thus allowing for an interpretation of the relative importance of these sectors/industries in FDI over the studied period.

## 4. Industry NOIP analysis

The sector/industry analysis of NOIP may be conceived as a synthesis of changes in incoming and outgoing FDI, evidenced in detail in the Appendix tables. In this context, Table 1 in the Appendix contains sector/industry NOI positions as well as the overall NOIP for Poland, whereas Table 2 shows the dynamics of the said sector/industry NOI positions. In addition, Graphs 1 and 2 provide a visual representation of the NOIP evolution over the period under study with respect to the main sectors and industries, as well as the whole economy.

In the whole period for which the NOIP values have been calculated only during two years (1997 and 1998) and in one industry (hotels and restaurants) did this measure have a positive sign (but very low absolute values in m USD: 8.3 and 2.5 respectively). In all the remaining years and industries the NOIP values were always negative.

For the Polish economy as a whole there was a consistent increase in the negative NOIP value, rising from –4408.5 m USD in 1996 to –65767.8 m USD in 2005. But the rate of this negative growth was decreasing from 207.8% in 1997 to 110.3% in 2005, with the exception of two years (2003 and 2004) when it was slightly higher and theoretically attributable to the surge in Poland's attractiveness to foreign investors due to entry into the European Union (EU).

The manufacturing sector had the highest negative values of NOIP throughout the studied time period, ending with a level of over -20 billion USD in 2005. This reflected its importance and leading position in FDI flows in the Polish economy. At the same time Table 2 demonstrates that the rate of negative growth of NOIP was decreasing, again with a small counter trend registered in 2003 and 2004, thus providing another piece of evidence that Poland was at the end of stage 2 of her IDP.

Within the manufacturing sector, to keep the analysis more focused, the NOIP values were calculated for just the four main industry groupings. Up to the end of 2002 the highest NOIP values were registered for food, beverages and tobacco: all falling into the light industry, relatively low technology and low knowledge intensive classification category. Thereafter came, with slight differences between them, motor vehicles and transport equipment as one grouping plus chemical and rubber products as the other, both also in the relatively high technology, capital and knowledge intensive classification category. From 2003 on, one year before Poland's entry as a full member to the EU, a shift occurred with motor vehicles taking the lead and retaining it till the end (i.e. 2005), followed (in descending order for 2005) by chemical and rubber products, and the food, beverages and tobacco grouping. The lowest NOIP values were observed in wood, paper, publishing and printing – a branch falling also into the light industry category. The said negative NOIP values increased until the end of 2004 and decreased in 2005, reflecting that branch firms' growing competitiveness in foreign markets and thus contributing to the advance of Poland into stage 3 of her IDP.

As the Appendix tables show, the leading industries in the service sector were financial intermediation (or in reality banks and other financial institutions) and trade and repairs (meaning mainly investment by large distribution companies, especially on the retail level). Both those branches started with practically the same level of negative NOIP in 1996 and ended in 2005 with a NOIP of over -14.6 billion USD for financial intermediation and –10.1 billion USD for trade and repairs, exhibiting consistent growth of their negative NOIP. However, noteworthy was the overall falling trend in their NOIP year to year growth rate, indicating growing competitive advantage of firms investing out of Poland. For financial intermediation the NOIP growth rate for 2005 was only 45% of such growth rate for 1997, whereas for trade and repairs it was 75%, indicating exploitation of somewhat weaker competitive advantage.

For another service industry – transport and communications – the negative NOIP values showed considerable fluctuation with an overall tendency to increase.

The highest value was attained in 2004 (over – 8 billion USD) and then in the last year under investigation there was a decrease to 94.9% of the 2004 value.

For the industry grouping with the curious composition of real estate, IT, R&D plus equipment lease the negative NOIP values grew consistently during the analysed time period. But their growth rates fluctuated, showing a growing trend for the last three years and thus pointing to a still unexploited investment potential inside Poland.

Apart from the years of 1996 and 1997 the utilities sector (electricity, gas and water) showed a rise in negative NOIP values but to a relatively low level of just over – 2.9 billion USD in 2005. The annual increases in this sector fluctuated as well and for the last year the increase was 107.9%, being lower than in 2004 and thus pointing to the desirable path of Poland on her IDP.

The remaining four industries: construction, agriculture and fishing, hotels and restaurants, and mining and quarrying could be considered as being of relatively low interest for FDI in and out of Poland, with negative NOIP values not surpassing –626.7 m EUR (for construction in 2004). Agriculture and fishing plus mining and quarrying had an uninterrupted record of negative NOIP growth whereas construction plus hotels and restaurants had periods of improved NOIP, reflecting more investment activity abroad of firms based in Poland. Also all exhibited high fluctuations in the annual growth rates of their respective NOIP values.

## 5. Findings

Departing from the assumption that Poland may be considered as a mature transition economy, the following conclusions can be drawn regarding the industry cross section of inflowing FDI, as the country moves through stage 2 of its IDP:

1. Throughout the decade under investigation the accumulated value of FDI outflows was by far smaller than that of FDI inflows, ranging from 1.2% (the share of accumulated FDI outflows in accumulated FDI inflows) in 1996 to 6.7% in 2005. This asymmetry reflected the continuing, albeit decreasing, disparity between the overall competitiveness of Polish domestic firms and their foreign/multinational rivals.
2. The synthesis of the said asymmetry was enclosed in the rising negative values of the NOIP. However, there was a clearly visible dichotomy in the negative NOIP values as well: in relatively high technology industries/branches, knowledge and capital intensive, the negative NOIP values were the highest; in relatively low technology, labour intensive, light industry branches the respective negative NOIP values were the lowest.
3. The NOIP dynamics revealed one recurring tendency associated with Poland's accession to the EU in 2004 as a full member: the year to year percentage change

in most industries would increase/accelerate usually between one to two years before the said accession and then suddenly, one year later ( in 2005), slow down considerably. The most logical explanation of this pattern seems to lie in the surge by firms operating from Poland to invest more abroad in order to secure first mover advantages or consolidate and sustain market positions acquired earlier.

4. From 1996 to 2005 accumulated FDI inflows rose 15.8 times reaching the value of over 70.5 billion USD, indicating that Poland with her large internal market and a growing pool of created assets offered attractive investment opportunities.
5. In FDI inflows the dominance of manufacturing was systematically eroded by growth of the service sector, led by such industries as banking, trade, transport and communications.
6. Starting from 1999 the entire service sector became a new leader in absorbing the incoming FDI, replicating a similar trend in more developed economies.
7. Managing to defend their positions with relatively small losses in the share of FDI inflows were those industries within manufacturing that are technology and capital intensive, focused both on consumer and industrial markets. Best examples in the Polish case are motor vehicles and chemical as well as rubber products.
8. A change occurred within the light manufacturing sector: the gap left by the demise of food, beverages and tobacco was filled by wood, paper, publishing and printing. Or looking from a behavioural/needs perspective: once basic needs had been satisfied by the food et al group of industries they were substituted by the more sophisticated ones catered to by companies from the paper and print media industry.
9. The market seeking motive was prevalent in the growth of real estate and the utilities, whereas the drive to improve efficiency was visible in FDI in IT as well as R&D activities.
10. The remaining industries consisting of a wide assortment raging from agriculture and fishing, through construction to services like hotels and restaurants and ending with the extractive sector played a negligible role mainly due to the lack of sufficient location advantages and local assets, both natural and created.

As for the outflows of FDI, the following tendencies in stage 2 of Poland's IDP were identified:

1. From 1996 to 2005 accumulated FDI outflows rose 89.3 times, much faster than FDI inflows, reaching the value of over 4.7 billion USD
2. Throughout the studied period, but only up to the end of 2003, manufacturing appeared as the leading sector for FDI flowing out of Poland. Thereafter the service sector took over, dominated by banks and other financial institu-

tions (financial intermediation) plus trade and repairs. The coincidence with Poland's accession to the EU as a full member in 2004 may offer an explanation to this change in leadership in the sense that many of these service sector firms investing from Poland might have attempted to take initial advantage of access to the wider EU market.

3. In these service industries market and strategic asset seeking motives seemed to be the prevailing ones. Thus a similar trend has been observed in both FDI inflows and outflows with the difference lying in the unknown real provenance and proportions of the origin of firms investing out of Poland, i.e. whether they were Polish owned or MNC subsidiaries operating in Poland.
4. Within the manufacturing sector capital intensive and technology oriented industries such as metal and mechanical products plus the motor industry were observed as being in the lead until 2003 but then giving in to petroleum as the new leader. In the case of the latter, FDI can be practically traced to the expansion, via acquisitions of strategic assets, of Orlen, Poland's largest petroleum company by revenue.
5. The meaningful share of construction was mainly related to the ownership advantages of Polish firms while the observed (share) fluctuations could be partly explained by the industry's sensitivity to changes in the business cycles on the foreign markets.
6. Thus it is evident that in stage 2 of Poland's IDP there has been a very limited spread and a narrow profile of industries generating FDI out of Poland, reflecting mainly Polish firms' still relatively weak competitive advantages and/or their embedded preference to still consider exporting as the ultimate method of sustaining market presence abroad.

## 6. Policy recommendations

Policy recommendations offered by Dunning in his IDP model are rather scant (Dunning 1997, p. 237-238). In stage 1 government intervention, in order to stimulate FDI inflows, takes the form of providing basic infrastructure and upgrading human capital via education and training. Economic policies are supposed to focus on import protection via domestic content regulations and export subsidies. There is also limited government involvement in upgrading domestic created assets via innovatory capacity stimulation (Dunning, ibid.).

In stage 2 of the ideal IDP the main trends of government policy toward inflowing FDI do not differ from those identified in stage 1. Import protection now embraces also tariff and non-tariff barriers and stress is placed on development of domestic firms' technological capabilities. Outward FDI is influenced by government-induced

push factors very similar to those recommended for FDI inflows: export subsidies and technology development or acquisition (Dunning, ibid.).

Poland has only partially followed those prescriptions in her economic policies so far. Extensive import protection did exist in stage 1 but kept falling in stage 2, especially in trade with the EU countries as the 2004 entry into the EU drew closer. Infrastructure development both in stage 1 and 2 has been quite visible but still much lies ahead, especially in creating a network of motorways compatible with the EU standards. The most visible advances and positive qualitative changes have been observed in education and training.

Government decision makers and institutions responsible for economic policy formulation and implementation have been criticised for following a strategy towards FDI based too much on a liberal, laissez-faire approach with very few proactive components attracting foreign capital to locations desirable from the point of view of national interest. Attention of all public institutions having any responsibility in the sphere of FDI has been focused on inward FDI, leaving outward FDI practically to the initiatives and efforts of the firms themselves. This imbalance calls for an urgent redirection of attention focusing more on outward rather than on inward FDI. In strengthening the capacities of domestic firms to effectively compete with foreign firms in Poland and in advocating and undertaking measures stimulating outward FDI, the weakest point, however, has been the practical absence of a comprehensive and coherent government program of technological upgrading and development oriented towards those usually much weaker domestic Polish firms[3]. This deficiency is gradually turning into a pressing need as Poland attempts to pass into stage 3 of her IDP and many Polish firms are beset by this technological gap which hinders their competitiveness in foreign markets, especially in the countries positioned in more advanced stages of their IDP.

An alternative solution lies of course in providing those firms with funds for which they could develop or secure access to new technologies without or with minimal government direct assistance. There is also room here for government induced financial and fiscal measures fostering and promoting mergers and acquisitions as well as business alliance formation, the notion of which is still quite alien to most small and medium sized Polish firms. Moreover, in order to reinforce the identified trend towards the service industries, the above measures should have such sectoral focus more clearly delineated. In the manufacturing sector technology upgrading is required, which should be government co-financed and directed towards the identified industry leaders: mechanical and metal products, the motor industry and petroleum. And lastly, more effort on the part of government promotion programs is needed to investigate and change the negative effect of the country's image afflicting the sales of Polish products abroad, especially in the services

[3] For discussion whether all firms should benefit from government support or only those with domestic ownership, see Gorynia, Nowak, Wolniak, 2005 a.

and industrial product categories, attempting to compete with better known and well established local, regional and global brands.

## 7. Theoretical implications

There are certain theoretical implications of this study for the IDP model. The analysis of the experience of Poland allows for making the following observations regarding the specific nature of the said model when it is applied to transition countries, requiring of course further verification and testing:

1. For countries with relatively large internal markets that are passing through stage 2 of their IDP, the dynamic growth of outward FDI does not impede the continuing flow of inward FDI, thus extending the length of the said stage 2. This justifies the proposition that the classical Dunning model of the IDP is subject to modification by a prolonged stage 2.
2. This extended stage 2 reflected by the still growing, although visibly lessening, negative NOIP, also reveals increased outward FDI by foreign firms investing out of Poland and by domestic Polish firms wanting to exploit their newly acquired competitive advantage abroad. Such competitive advantage usually stems from two sources: (a) indirect technology transfer from foreign MNCs via spillovers of technology through vertical (supplier) linkages of Polish firms, and (b) effects of the drive to effectively counter foreign competitors entering the Polish market using aggressive marketing strategies and introducing superior products. Faced with lost market shares, domestic Polish firms attempt to endogenously generate new and competitive technologies, as well as new products of equal or superior quality marketed with state of the art strategies.
3. In both inward and outward FDI the domination of the manufacturing sector is radically eroded by the growing importance of services. Within services we see the predominance of: (a) the financial sector, composed mainly of banks, insurance companies and various types of investment funds, plus (b) retail trade, focused on mass distribution in hypermarkets, large discount stores and shopping malls.
4. In both manufacturing and services there is a rising share of capital and knowledge intensive industries.

The transition countries' IDP reveals a certain paradox. This paradox seems to lie in the crucial role played by the growth of the modern manufacturing and service sectors in both prolonging their stay in their IDP stage 2 and, at the same time, in being the main force moving these countries into stage 3 of their IDP.

**Table 1. The Sector/Industry NOIP for Poland, 1996–2005, in mln USD**

| Sector/Industry | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|
| Manufacturing, of which: | –1793.4 | –3239.5 | –5433.6 | –7087.5 | –9180.1 | –10403.6 | –11865.5 | –13691.9 | –18496.0 | –20129.3 |
| motor vehicles and transport equipment | –347.0 | –536.2 | –935.5 | –1230.4 | –1531.6 | –1681.3 | –2091.7 | –2807.3 | –3875.3 | –4222.4 |
| chemical and rubber products | –258.9 | –545.4 | –853.0 | –1171.6 | –1469.9 | –1659.1 | –2180.6 | –2490.7 | –3266.5 | –3549.1 |
| food, beverages and tobacco | –588.6 | –940.0 | –1689.3 | –1855.0 | –2265.4 | –2373.6 | –2538.3 | –2698.6 | –2851.8 | –3207.7 |
| wood, paper, publishing and printing | –40.3 | –278.8 | –457.1 | –723.8 | –1011.9 | –1116.7 | –1223.9 | –1407.4 | –2274.5 | –2247.6 |
| Financial intermediation | –596.2 | –1467.3 | –2524.8 | –4680.1 | –6697.7 | –8857.4 | –10446.9 | –11011.6 | –13191.2 | –14593.2 |
| Trade and repairs | –591.8 | –1007.9 | –1839.1 | –2630.1 | –3379.1 | –4215.7 | –5077.3 | –6498.0 | –7911.6 | –10077.8 |
| Transport, communications | –147.0 | –198.3 | –194.4 | –1915.8 | –5556.0 | –6580.6 | –5721.3 | –5612.5 | –8040.7 | –7630.3 |
| Real estate, IT, R&D, equipment lease | –156.0 | –394.4 | –594.3 | –875.7 | –1313.1 | –1399.1 | –1861.9 | –2393.6 | –3365.1 | –4740.0 |
| Electricity, gas and water | –4.8 | –3.1 | –38.7 | –89.0 | –442.0 | –726.9 | –1499.8 | –1879.3 | –2734.7 | –2949.5 |
| Construction | –45.8 | –60.3 | –155.5 | –160.9 | –316.0 | –432.5 | –508.0 | –449.1 | –626.7 | –519.5 |
| Agriculture and fishing | –4.4 | –9.3 | –17.9 | –76.3 | –87.3 | –96.1 | –106.0 | –147.9 | –240.5 | –288.5 |
| Hotels and restaurants | –2.6 | 8.3 | 2.5 | –22.2 | –106.6 | –78.3 | –111.8 | –149.8 | –131.9 | –163.9 |
| Mining and quarrying | –7.8 | –24.9 | –26.6 | –27.1 | –52.0 | –46.2 | –53.7 | –51.1 | –82.0 | –73.7 |
| Other services and not allocated | –1058.8 | –2765.6 | –4639.3 | –4726.2 | –4757.5 | –4765.8 | –4689.1 | –4959.4 | –4789.5 | –4602.2 |
| TOTAL | –4408.6 | –9162.3 | –15461.8 | –22290.6 | –31886.9 | –37602.4 | –41941.2 | –46844.1 | –59609.1 | –65767.8 |

S o u r c e : Authors' calculations based on National Bank of Poland, 1997–2006.

**Table 2. Percentage change in sector/industry NOIP over previous year**

| Sector/Industry | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|---|---|---|---|
| Manufacturing, of which: | 180.6 | 167.7 | 130.4 | 129.5 | 113.3 | 114.1 | 115.4 | 135.1 | 108.8 |
| Motor vehicles and transport equipment | 154.5 | 174.5 | 131.5 | 124.5 | 109.8 | 124.4 | 134.2 | 138.0 | 109.0 |
| Chemical and rubber products | 210.7 | 156.4 | 137.4 | 125.5 | 112.9 | 131.4 | 114.2 | 131.2 | 108.7 |
| Food, beverages and tobacco | 159.7 | 179.7 | 109.8 | 122.1 | 104.8 | 106.9 | 106.3 | 105.7 | 112.5 |
| Wood, paper, publishing and printing | 691.8 | 164.0 | 158.4 | 139.8 | 110.4 | 109.6 | 115.0 | 161.6 | 98.8 |
| Financial intermediation | 246.1 | 172.1 | 185.4 | 143.1 | 132.2 | 118.0 | 105.4 | 119.8 | 110.6 |
| Trade and repairs | 170.3 | 182.5 | 143.0 | 128.5 | 124.8 | 120.4 | 128.0 | 121.8 | 127.4 |
| Transport, communications | 134.9 | 98.0 | 985.5 | 290.0 | 118.4 | 86.9 | 98.1 | 143.3 | 94.9 |
| Real estate, IT, R&D, equipment lease | 252.8 | 150.7 | 147.4 | 150.0 | 106.6 | 133.1 | 128.6 | 140.6 | 140.9 |
| Electricity, gas and water | 64.6 | 1248.4 | 230.0 | 496.6 | 164.5 | 206.3 | 125.3 | 145.5 | 107.9 |
| Construction | 131.7 | 257.9 | 103.5 | 196.4 | 136.9 | 117.5 | 88.4 | 139.6 | 82.9 |
| Agriculture and fishing | 211.4 | 192.5 | 426.3 | 114.4 | 110.1 | 110.3 | 139.5 | 162.6 | 120.0 |
| Hotels and restaurants | 319.2 | 30.1 | 888.0 | 480.2 | 73.5 | 142.8 | 134.0 | 88.1 | 124.3 |
| Mining and quarrying | 319.2 | 106.8 | 101.9 | 191.9 | 88.9 | 116.2 | 95.2 | 160.5 | 89.9 |
| Other services and not allocated | 261.2 | 167.8 | 101.9 | 100.7 | 100.2 | 98.4 | 105.8 | 96.6 | 96.1 |
| TOTAL | 207.8 | 168.8 | 144.2 | 143.1 | 117.9 | 111.5 | 111.7 | 127.3 | 110.3 |

S o u r c e : Authors' calculations based on National Bank of Poland, 1997–2006.

**Table 3. Industry Structure of Accumulated FDI Inflows in Poland, 1996–2005, in mln USD at Current Prices**

| Sector/Industry | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|
| Manufacturing, of which: | 1800.4 | 3255.3 | 5522.3 | 7172.9 | 9277.1 | 10465.2 | 11930.5 | 14012.9 | 19016.3 | 21539.2 |
| motor vehicles and transport equipment | 347.0 | 537.2 | 1003.2 | 1294.8 | 1597.2 | 1693.7 | 2102.0 | 2844.6 | 3980.1 | 4376.8 |
| chemical and rubber products | 258.9 | 545.4 | 853.0 | 1171.6 | 1477.1 | 1665.5 | 2184.2 | 2482.1 | 3263.0 | 3579.7 |
| food, beverages and tobacco | 591.6 | 944.0 | 1693.3 | 1859.4 | 2270.0 | 2379.5 | 2546.3 | 2708.9 | 2910.9 | 3402.7 |
| wood, paper, publishing and printing | 40.3 | 278.8 | 457.1 | 724.4 | 1013.8 | 1124.3 | 1238.2 | 1340.9 | 2220.5 | 2277.3 |
| Financial intermediation | 603.2 | 1479.1 | 2539.8 | 4749.1 | 6738.8 | 8794.6 | 10462.2 | 11025.8 | 13544.3 | 16534.5 |
| Trade and repairs | 606.7 | 1029.7 | 1844.2 | 2630.4 | 3385.8 | 4198.6 | 5040.9 | 6486.1 | 8125.8 | 10567.0 |
| Transport, communications | 149.0 | 197.3 | 201.7 | 1931.6 | 5583.7 | 6617.2 | 5761.4 | 5589.3 | 8020.1 | 7600.1 |
| Real estate, IT, R&D, equipment lease | 156.0 | 395.4 | 609.9 | 879.5 | 1327.7 | 1426.3 | 1895.8 | 2523.3 | 3571.7 | 4899.0 |
| Electricity, gas and water | 4.8 | 3.1 | 32.4 | 73.9 | 426.9 | 714.5 | 1489.0 | 1870.5 | 2727.2 | 2942.0 |
| Construction | 47.8 | 67.1 | 159.2 | 160.0 | 317.9 | 434.5 | 499.1 | 430.3 | 609.0 | 686.5 |
| Agriculture and fishing | 4.4 | 9.3 | 17.9 | 71.7 | 82.7 | 91.7 | 101.6 | 142.8 | 233.5 | 280.0 |
| Hotels and restaurants | 2.6 | -11.3 | -5.5 | 20.0 | 104.6 | 76.2 | 109.7 | 147.7 | 131.9 | 162.4 |
| Mining and quarrying | 7.8 | 24.9 | 43.3 | 46.3 | 72.1 | 73.4 | 61.4 | 59.1 | 80.2 | 84.4 |
| Other services and not allocated | 1078.8 | 2809.1 | 4922.5 | 5010.5 | 5042.1 | 5096.4 | 5215.2 | 5502.4 | 5346.6 | 5187.0 |
| TOTAL | 4461.4 | 9259.0 | 15887.7 | 22745.7 | 32359.1 | 37988.6 | 42566.6 | 47790.1 | 61406.4 | 70482.0 |

S o u r c e : National Bank of Poland, 1997–2006.

**Table 4. Industry Structure of Accumulated Percentage Shares of FDI Inflows in Poland, 1996–2005**

| Sector/industry | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|
| Manufacturing, of which: | 40.4 | 35.2 | 34.8 | 31.5 | 28.7 | 27.5 | 28.0 | 29.3 | 31.0 | 30.6 |
| motor vehicles & transport equipment | 7.8 | 5.8 | 6.3 | 5.7 | 4.9 | 4.5 | 4.9 | 6.0 | 6.5 | 6.2 |
| chemical and rubber products | 5.8 | 5.9 | 5.3 | 5.2 | 4.6 | 4.4 | 5.2 | 5.1 | 5.3 | 5.1 |
| food, beverages and tobacco | 13.3 | 10.2 | 10.7 | 8.2 | 7.0 | 6.3 | 6.0 | 5.7 | 4.7 | 4.8 |
| wood, paper, publishing and printing | 0.2 | 2.4 | 2.4 | 2.8 | 2.8 | 2.6 | 2.7 | 2.6 | 3.4 | 3.0 |
| Financial intermediation | 13.5 | 16.0 | 16.0 | 20.9 | 20.8 | 23.2 | 24.6 | 23.1 | 22.1 | 23.5 |
| Trade and repairs | 13.6 | 11.1 | 11.6 | 11.6 | 10.5 | 11.1 | 11.8 | 13.6 | 13.2 | 15.0 |
| Transport, communications | 3.3 | 2.1 | 1.3 | 8.5 | 17.3 | 17.4 | 13.5 | 11.7 | 13.1 | 10.8 |
| Real estate, IT, R&D, equipment lease | 3.5 | 4.3 | 3.8 | 3.9 | 4.1 | 3.8 | 4.5 | 5.3 | 5.8 | 7.0 |
| Electricity, gas and water | 0.1 | 0.0 | 0.2 | 0.3 | 1.3 | 1.9 | 3.5 | 3.9 | 4.4 | 4.2 |
| Construction | 1.1 | 0.7 | 1.0 | 0.7 | 1.0 | 1.1 | 1.2 | 0.9 | 1.0 | 1.0 |
| Agriculture and fishing | 0.1 | 0.1 | 0.1 | 0.3 | 0.3 | 0.2 | 0.2 | 0.3 | 0.4 | 0.4 |
| Hotels and restaurants | 0.1 | –0.1 | –0.0 | 0.1 | 0.3 | 0.2 | 0.3 | 0.3 | 0.2 | 0.2 |
| Mining and quarrying | 0.2 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 |
| Other services and not allocated | 24.2 | 30.3 | 31.0 | 22.1 | 15.5 | 13.4 | 12.3 | 11.5 | 8.7 | 7.3 |
| TOTAL | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Note: Minus (-) sign signifies disinvestment/withdrawal of capital to investor's home country. Percentage shares may not add up to 100 because of rounding.

S o u r c e : Authors' calculations based on National Bank of Poland, 1997–2006.

**Table 5. Industry Structure of Accumulated FDI Outflows from Poland, 1996-2005, in mln USD at Current Prices**

| Sector/Industry | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|
| Manufacturing, of which: | 7.0 | 15.8 | 88.7 | 85.4 | 97.0 | 61.6 | 65.0 | 321.0 | 520.3 | 1409.9 |
| refined petroleum | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 141.1 | 197.6 | 582.7 |
| food products | 3.0 | 4.0 | 4.0 | 4.4 | 4.6 | 5.9 | 8.0 | 10.3 | 59.1 | 195.0 |
| metal and mechanical products | 4.0 | 9.8 | 15.1 | 14.0 | 18.0 | 22.5 | 22.2 | 67.9 | 92.0 | 178.8 |
| motor vehicles and transport equipment | 0.0 | 1.0 | 67.7 | 64.4 | 65.6 | 12.4 | 10.3 | 37.3 | 104.8 | 154.4 |
| textiles and apparel | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 1.3 | –0.3 | 18.3 | 39.3 | 53.5 |
| wood, publishing and printing | 0.0 | 0.0 | 0.0 | 0.6 | 1.9 | 7.6 | 14.3 | –66.5 | –54.0 | 29.7 |
| chemical, rubber and plastic products | 0.0 | 0.0 | 0.0 | 0.0 | 7.2 | 6.4 | 3.6 | –8.6 | –3.5 | 30.6 |
| radio, tv and communication equipment | 0.0 | 0.0 | 0.0 | 0.0 | –1.0 | –1.0 | –1.0 | 68.0 | –8.9 | 28.6 |
| office machinery and computers | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.8 |
| Financial intermediation | 7.0 | 11.8 | 15.0 | 69.0 | 41.1 | –62.8 | 15.3 | 14.2 | 353.1 | 1941.3 |
| Trade and repairs | 14.9 | 21.8 | 5.1 | 0.3 | 6.7 | –17.1 | –36.4 | –11.9 | 214.2 | 489.2 |
| Transport, communications | 2.0 | –1.0 | 7.3 | 15.8 | 27.7 | 36.6 | 40.1 | –23.2 | –20.6 | –30.2 |
| Real estate, it, R&D, equipment lease | 0.0 | 1.0 | 15.6 | 3.8 | 14.6 | 27.2 | 33.9 | 129.7 | 206.6 | 159.0 |
| Electricity, gas and water | 0.0 | 0.0 | –6.3 | –15.1 | –15.1 | –12.4 | –10.8 | –8.8 | –7.5 | –7.5 |
| Construction | 2.0 | 6.8 | 3.7 | –0.9 | 1.9 | 2.0 | –8.9 | –18.8 | –17.7 | 167.0 |
| Agriculture and fishing | 0.0 | 0.0 | 0.0 | –4.6 | –4.6 | –4.4 | –4.4 | –5.1 | –7.0 | –8.5 |
| Hotels and restaurants | 0.0 | –3.0 | –3.0 | –2.2 | –2.0 | –2.1 | –2.1 | –2.1 | 0.0 | –1.5 |
| Mining and quarrying | 0.0 | 0.0 | 16.7 | 19.2 | 20.1 | 27.2 | 7.7 | 8.0 | –1.8 | 10.7 |
| Remaining, unclassified | 20.0 | 43.5 | 283.2 | 284.3 | 284.6 | 330.6 | 526.1 | 543.0 | 557.1 | 584.8 |
| TOTAL | 52.8 | 96.7 | 425.9 | 455.1 | 472.2 | 386.2 | 625.4 | 946.0 | 1797.3 | 4714.2 |

Note: Minus (–) sign signifies disinvestment/withdrawal of capital to Poland

S o u r c e : National Bank of Poland, 1997–2006.

**Table 6. Industry Structure of Accumulated Percentage Shares of FDI Outflows from Poland, 1996–2005**

| Sector/industry | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|
| Manufacturing, of which: | 13.2 | 16.3 | 20.8 | 18.8 | 20.5 | 15.9 | 10.4 | 33.9 | 28.9 | 29.9 |
| refined petroleum | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 14.9 | 11.0 | 12.4 |
| food products | 5.6 | 4.1 | 0.9 | 1.0 | 1.0 | 1.5 | 1.3 | 1.1 | 3.3 | 4.1 |
| metal products and mechanical products | 7.5 | 10.2 | 3.5 | 3.1 | 3.8 | 5.8 | 3.5 | 7.2 | 5.1 | 3.8 |
| motor vehicles and transport equipment | 0.0 | 1.0 | 15.9 | 14.1 | 13.9 | 3.2 | 1.6 | 3.9 | 5.8 | 3.3 |
| textiles and apparel | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | –0.1 | 1.9 | 2.2 | 1.1 |
| wood, publishing and printing | 0.0 | 0.0 | 0.0 | 0.1 | 0.4 | 2.0 | 2.3 | –7.0 | –3.0 | 0.6 |
| chemical, rubber and plastic products | 0.0 | 0.0 | 0.0 | 0.0 | 1.5 | 1.7 | 0.6 | –0.9 | –0.2 | 0.6 |
| radio, TV and communication equipment | 0.0 | 0.0 | 0.0 | 0.0 | –0.2 | –0.3 | –0.2 | 7.2 | –0.5 | 0.6 |
| office machinery and computers | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Financial intermediation | 13.2 | 12.2 | 3.5 | 15.2 | 8.7 | –16.3 | 2.4 | 1.5 | 19.6 | 41.2 |
| Trade and repairs | 28.2 | 22.5 | 1.2 | 0.1 | 1.4 | –4.4 | –5.8 | –1.3 | 11.9 | 10.4 |
| Transport, communications | 3.8 | –1.0 | 1.7 | 3.5 | 5.9 | 9.5 | 6.4 | –2.5 | –1.1 | –0.6 |
| Real estate, IT, R&D, equipment lease | 0.0 | 1.0 | 3.7 | 0.8 | 3.1 | 7.0 | 5.4 | 13.7 | 11.5 | 3.4 |
| Electricity, gas and water | 0.0 | 0.0 | –1.5 | –3.3 | –3.2 | –3.2 | –1.7 | –0.9 | –0.4 | –0.2 |
| Construction | 3.8 | 7.1 | 0.9 | –0.2 | 0.4 | 0.5 | –1.4 | –2.0 | –1.0 | 3.5 |
| Agriculture and fishing | 0.0 | 0.0 | 0.0 | –1.0 | –1.0 | –1.2 | –0.7 | –0.5 | –0.4 | –0.2 |
| Hotels and restaurants | 0.0 | –3.1 | –0.7 | –0.5 | –0.4 | –0.5 | –0.3 | –0.2 | –0.0 | –0.0 |
| Mining and quarrying | 0.0 | 0.0 | 3.9 | 4.2 | 4.3 | 7.0 | 1.2 | 0.8 | –0.1 | 0.2 |
| Remaining, unclassified | 37.9 | 45.0 | 66.5 | 62.4 | 60.3 | 85.5 | 84.1 | 57.4 | 31.0 | 12.4 |
| TOTAL | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Note: Minus (–) sign signifies disinvestment/withdrawal of capital to Poland. Percentage shares may not add up to 100 because of rounding

S o u r c e : Authors' calculations based on National Bank of Poland, 1997–2006.

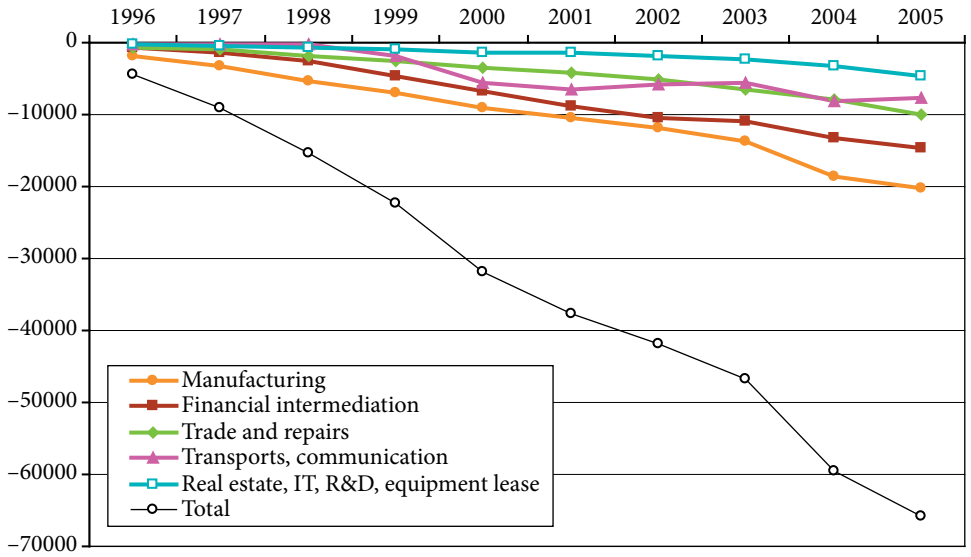


**Figure 1. NOI Positions of Poland's Main Sectors/Industries and of the whole Polish Economy, 1996-2005, in mln USD**

Source: Authors' calculations based on National Bank of Poland, 1997–2006

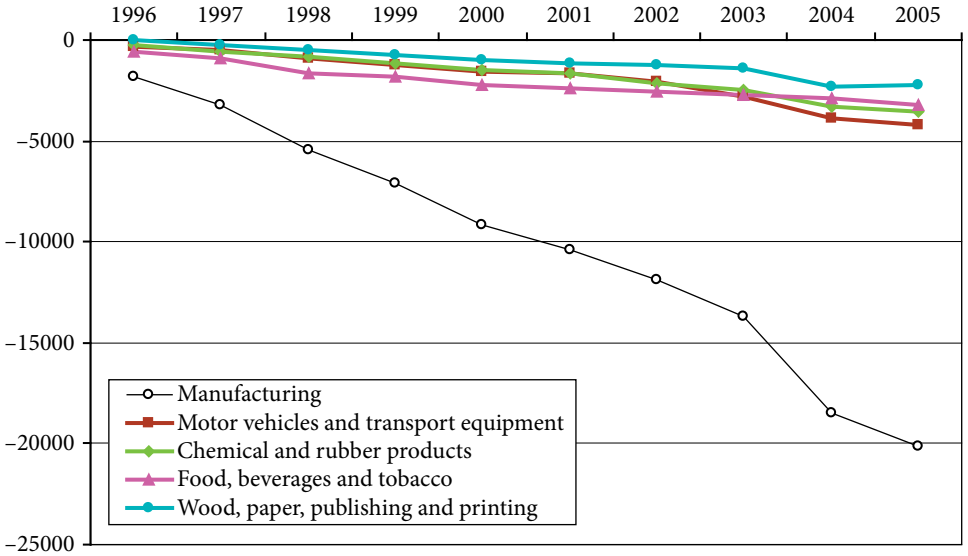


**Figure 2. NOI Positions for Poland's Manufacturing Sector and Its Main Component Industries, 1996-2005, in mln USD**

Source: Authors' calculations based on National Bank of Poland, 1997–2006

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