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Structure of foreign investment in the industry of Poland at the beginning of the second decade of the 21st century

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Abstract. This paper seeks to analyse the sectional and spatial structure of the inflow of foreign direct investment (FDI) to industry in Poland and to determine the extent of internationalisation of this sphere of the economy. Those issues are significant not only in cognitive terms, but can also have implications for the country's economy, in particular for its economic policy. In the first step of the research procedure an analysis was characterised the structure of foreign investment in the various sectors of industry was on the basis of selected variables: the capital invested, the number of companies with foreign capital, and the employment generated. To assess differences in the divisional structure, use was made of two quantitative methods: Rodgers' relativised index of structure diversification and Creamer's diversification index. Then the spatial structure of the foreign capital inflow to Polish industry was identified in two aspects: by region where investment was located and by the investors' country of origin. On the basis of the observed tendencies and regularities, an assessment was made of foreign direct investment in Polish industry, and the performed analysis was summed up by constructing an FDI internationalisation profile.

In the paper use was made of statistical data obtained from the following sources: reports published by the National Bank of Poland; information and materials published by the Central Statistical Office (GUS); and information and materials published by the Polish Information and Foreign Investment Agency (PAIiIZ).

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1. Introduction

The process of integration of the Polish economy with the international market that started in the early 1990s has been advancing largely through the inclusion of Polish firms into the structures of international enterprises – large corporations which employ a variety of internationalisation strategies to build their potential and strengthen their competitive position at the global scale. Depending on the strategy adopted (issues analysed in many publications, e.g. Zorska, 1998; Stryjakiewicz, 1999; Stonehouse, Hamill, Campbell, Purdie, 2001; Rymarczyk, 2004; Yip, 2004; Kutschker, Schmid, 2005; Tobolska, 2006; Czupiał, 2011) the international expansion of those mega-enterprises takes place mainly via trans-border fusions or takeovers, or via a greenfield type of investment. Those two ways of expansion onto foreign markets usually take the form of foreign direct investment (FDI), which means primarily a contribution of capital by investors, but also re-investment of earnings or internal obligations (credit) of investors; those are components of FDI inflow that figure in the calculations of the National Bank of Poland (NBP, cf. e.g. www.nbp.pl/publikacje/zib/zib_2011_usd.xls). The importance of foreign direct investment in the economies of both, host countries and those that are sources of this kind of investment stems from the fact that apart from the transfer of capital in a monetary form it also involves the flow of fixed assets (e.g. machinery, equipment) as well as non-material and legal ones (e.g. patents and licences). Also significant is the initial assumption that the chief motive of a direct investor is to maintain a lasting influence in the management of companies created for this purpose and to increase their share in the local or regional market beyond the boundaries of the investor's home country. That is why FDI, an especially long-lasting form of capital flow, and also one of great value (according to the OECD definition, serious capital involvement means at least a 10% share in the capital of a di-

rect investment enterprise, or at least 10% of voting power at a general shareholders' meeting; cf. e.g. Tobolska, 2007: 246, or www.nbp._zib2003), can be regarded as one of the most essential elements of the processes of internationalisation and globalisation of the economy.

From the point of view of the Polish economy, the most significant has been foreign investment in industry, because in the period of economic transformation that started in 1989 it was this type of investment which contributed the most to the inflow of new technologies to Polish firms, modernisation of fixed assets, and the creation of new jobs, both in direct investment enterprises and in their surroundings. Those are the positive aspects of the inflow of foreign investment, especially direct, stressed by socio-economic geographers and economists, e.g. Dziemianowicz, 1997; Rachwał, 2000; Domański, 2001, 2005; Zorska, 2002; Tobolska, 2004; Cieślak, 2005; Stryjakiewicz, 2005, 2010a; Domański, Gwosdz, 2008; Wdowicka, 2008; Matykowski, Tobolska, 2009; Buszko, Vashchenko, 2012. By its advantageous effects, foreign investment has helped to boost Poland's competitiveness and strengthen its economic potential, although the level of innovativeness and efficiency of this type of investment and its social evaluation is a different matter, and a debatable one too (cf. e.g. Flejterski, Wahl, 2003; Fierla, 2007; Górniewicz, Siemiątkowski, 2007; Stryjakiewicz, 2007; Tobolska, 2010b).

The analysis of the structure of foreign investment in Polish industry was based on statistical materials deriving from a variety of sources: materials published by the Central Statistical Office (GUS); on the basis of those data, differences were assessed in the divisional and regional structures of foreign investment as of 31 December 2011; reports published by the National Bank of Poland (NBP), which were used to compare inflows of foreign capital to Poland in a dynamic approach; however, those data only concern direct investment; and information and materials published by the Polish Information

and Foreign Investment Agency (PAIIZ), which releases data concerning the biggest foreign investors in Poland in various fields, including their location.

It was necessary to resort to all those sources because the above institutions employ different levels of disaggregation for data that can be used when analysing individual aspects of the internationalisation of Polish industry. The source drawn on most extensively was the GUS publication, 'Activity of economic entities with foreign capital in 2011' (Działalność ... 2012) containing information about entities with foreign capital participation operating in Poland that took part in a GUS survey and submitted the required report, irrespective of the share of the invested capital held. It is worth noting that according to those data, 99.9% of total foreign capital was invested in companies with more than 10% share of this capital in their initial capital; what is more, the respondents made up 98% of all entities with foreign capital and accounted for 97.9% of employment in this type of firms. Hence it can be assumed that the data from this source cover almost the entire subset of foreign direct investment, which in turn allows making generalised comparisons with the data from the other sources, that is, PAIIZ and NBP. In the last chapter of this paper, in turn, GUS data from its 2012 'Statistical Yearbook of Industry' was used to compare economic indices of companies with foreign capital against those of all entities from the NACE Manufacturing section. As was established after a consultation with the Production Measures Section of the GUS Production Department, such comparisons are validated by the choice of the set of entities that those data concern.

2. Structure of foreign investment in Poland and its diversification in terms of industrial division

In 2011 the cumulative foreign capital invested in Poland in entities with its participation amounted to 164,559.4 million zlotys, the highest proportion of which, as much as 38.5%, was invested in the Manufacturing section (GUS data, Działalność ... 2012). The next place was taken by entities operating in the section of Trade and repair of motor vehicles (21.1%); Information and communication (8.9%),

closely followed by Real estate activities (7.1%), came third and fourth (Fig. 1). When comparing foreign capital accumulated in 2011 in the individual sections against the yearly figures of investment coming to Poland, one can note that even though the stream of capital flowing to industry in the individual years was not the broadest (e.g. according to the NBP data, in 2011 this was only 9.6% of total capital invested in Poland, cf. www.nbp.zib_2011), foreign capital invested in this section of the economy had the greatest value, 63,401.3 million zlotys (GUS, Działalność ... 2012). In turn, in those sections to which capital kept coming every year in substantial amounts, the value of cumulative investment gathered up to 2011 occupied only farther, fairly distant places in this ranking. For example, in 2011 the heaviest investment, according to the NBP data, was made in Financial and insurance activities, at 14,249.1 million zlotys (as against 5,351.2 million in the entire Manufacturing section), but in terms of cumulative foreign capital, investment in this section only came 7th. Those facts demonstrate that in Poland foreign investment is more permanent in industry, in the Manufacturing section, than in the remaining sections, which may be due a less frequent occurrence of de-investment here, like withdrawal of capital shares from the country, or a debit balance in credit operations, or no re-investment of profits.

Manufacturing is also the field of the Polish economy accounting for the highest proportion of employment in entities with foreign capital – 742,186 people, or 47.3% of the total (GUS, Działalność ... 2012). Trade and repair of motor vehicles comes second, at 23.5%. In turn, by the criterion of the number of entities with foreign capital, Manufacturing comes second to Trade and repair: out of the 24,910 entities with foreign capital operating in Poland in 2011, 5,005 belonged to Manufacturing (20.1%), and 6,985 to Trade and repair of motor vehicles (28.0%).

In the next stage of the research an analysis was made of the diversification of the structure of foreign investment in industry, i.e. in terms of the 23 divisions of the Manufacturing section in the NACE classification. Divisional differences in this section look somewhat different depending on the criterion adopted: value of the capital involved, employment figure, or number of economic entities in the individual divisions (Table 1).

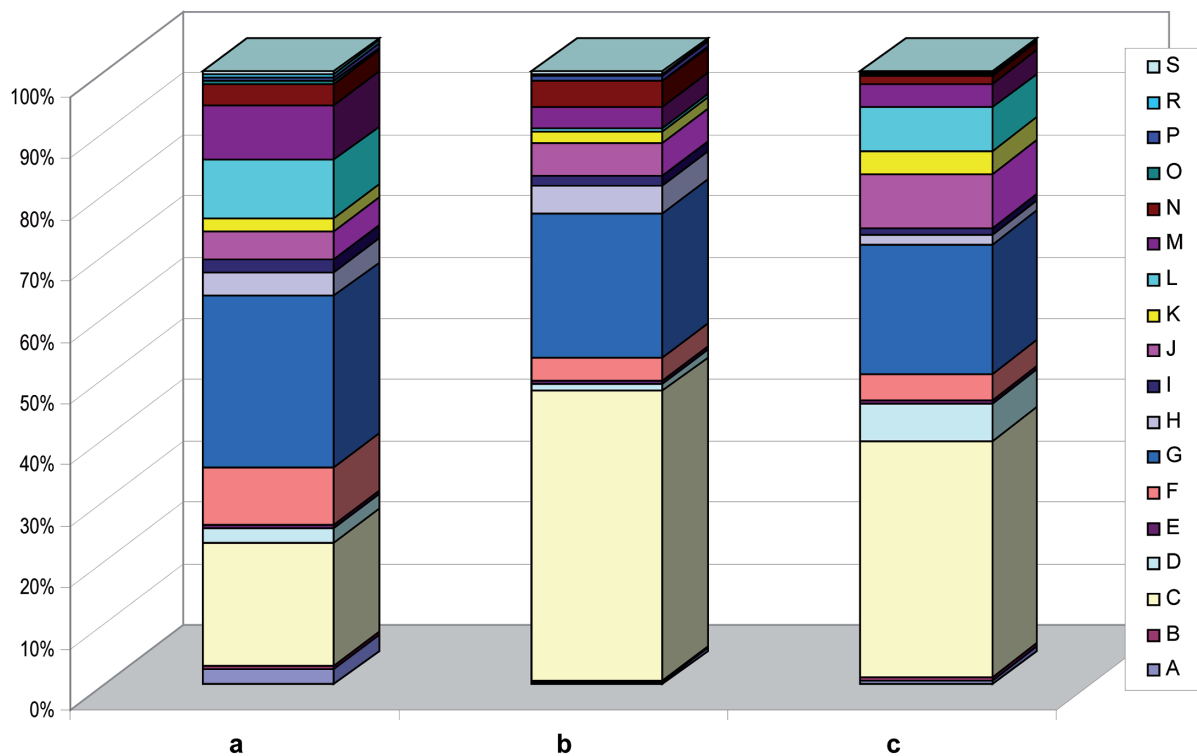


Fig. 1. Structure of economic entities with foreign capital in Poland, their employees, and foreign capital by manufacturing and other section NACE, 2011

Explanation: A – Agriculture, forestry, hunting and fishery, B – Mining and quarrying, C – Manufacturing, D – Electricity, gas, steam and air conditioning supply, E – Water supply; sewerage, waste management and remediation activities, F – Construction, G – Trade; repair of motor vehicles, H – Transportation and storage, I – Accommodation and catering, J – Information and communication, K – Finance and insurance activity, L – Real estate activities, M – Professional, scientific and technical activities, N – Administrative and support service activities, O – Education, P – Human health and social work activities, Q – Arts, entertainment and recreation, R – Other service activities, a – % entities, b – % persons employed, c – % foreign capital

Source: Own calculations based on 2012 GUS data

Among all divisions of the Manufacturing section, the largest percentage of foreign capital was invested in entities dealing with Manufacture of motor vehicles, trailers and semi-trailers (14.5%), Manufacture of food products (11.4%), Manufacture of other non-metallic mineral products (9.7%), and Manufacture of rubber and plastic products (9.3%). In sum, 10 divisions out of the 23 in this section account for a total of 78.4% of foreign capital (Table 1). The diversification of the structure of the number of entities with foreign capital participation is slightly greater: the first 75% of such entities come from 11 divisions, the largest proportion operating in Manufacture of metal products and Manufacture of rubber and plastic products, followed by Manufacture of food products and Man-

ufacture of machinery and equipment. Still more different is the structure of employment in entities with foreign capital, although the first two places go to the same two divisions as in the structure of foreign capital invested, viz. Manufacture of motor vehicles, trailers and semi-trailers, and Manufacture of food products. The first 10 divisions of the section account for three-fourths of total employment.

The analysis of the statistical data makes it possible to identify several divisions of Polish industry in which foreign investors are particularly active, not only in terms of capital involved, but also of the number of jobs created. Those are: Manufacture of food and tobacco products, Manufacture of motor vehicles, Manufacture of rubber and plastic products, and Manufacture of metal products;

Table 1. Structure of economic entities with foreign capital in Poland, their employees, and foreign capital by division of the NACE Manufacturing section, 2011

NACE divisions in manufacturing section	A		B		C	
	a	%	b	%	c	%
Total	5,005	100.0	742,186	100.0	63,401.3	100.0
Manufacture of food products	440	9.3	79,982	10.7	7,255.4	11.4
Manufacture of beverages	60	1.3	15,985	2.2	2,555.4	4.0
Manufacture of tobacco products	10	0.2	5,127	0.7	534.2	0.8
Manufacture of textiles	145	3.1	15,958	2.2	368.6	0.6
Manufacture of wearing apparel	147	3.1	10,004	1.3	138.7	0.2
Manufacture of leather and related products	31	0.7	3,775	0.5	45.3	0.1
Manufacture of wood, cork, straw and wicker	221	4.7	16,795	2.3	2,381.2	3.8
Manufacture of paper and paper products	138	2.9	21,449	2.9	2,645.5	4.2
Printing and reproduction of recorded media	107	2.2	10,910	1.5	839.7	1.3
Manufacture of coke and refined petroleum products	281	0.3	9,518	1.3	277.2	0.4
Manufacture of chemicals and chemical products	224	4.7	22,445	3.0	3,607.4	5.6
Manufacture of pharmaceutical products	51	1.1	9,448	1.3	872.4	1.4
Manufacture of rubber and plastic products	523	11.0	67,338	9.1	5,906.0	9.3
Manufacture of other non-metallic mineral products	242	5.1	38,492	5.2	6,119.5	9.7
Manufacture of basic metals	112	2.7	24,957	3.4	3,947.6	6.2
Manufacture of metal products	841	17.6	64,837	8.7	3,656.6	5.8
Manufacture of computer, electronic and optical products	179	3.7	35,607	4.8	4,018.0	6.3
Manufacture of electrical equipment	218	4.6	55,173	7.4	3,212.4	5.1
Manufacture of machinery and equipment n.e.c.	397	8.4	37,425	5.0	2,839.6	4.5
Manufacture of motor vehicles, trailers and semi-trailers	260	5.4	120,423	16.2	9,168.0	14.5
Manufacture of other transport equipment	81	1.6	21,230	2.9	2,084.4	3.3
Manufacture of furniture	159	3.4	43,354	5.8	497.3	0.8
Other manufacturing	138	2.9	11,928	1.6	430.9	0.7

Explanation: A – entities with foreign capital; B – employees; C – foreign capital; a – number of entities; b – number of persons employed; c – value [mln zł]

Source: Own calculations based on 2012 GUS data

the last division accounts for the greatest number of entities with foreign capital participation. Such a distribution of foreign investment by NACE division indicates that Polish industry attracts it not only to the traditional processing activities, but also those that require large inputs of knowledge and capital.

The divisional diversification can be assessed most objectively with the help of quantitative methods. In this study use was made of two classical measures: Rodgers' relativised index of structure diversification *Im* (Warakomska, 1981: 755; Tobolska: 2004: 42) and Creamer's diversification index *Wz*, modified by Rogacki (cf. Rogacki 1988: 51, Tobolska, 2004: 42–43). They were employed to assess the diversification of the structure of foreign investment in industry according to three criteria: (a) number of economic entities with foreign capital participation; (b) number of employees in entities

with foreign capital participation; and (c) foreign capital invested. The two methods led to similar results (Table 2).

The values of Rodgers' relativised index indicate an average level of divisional differences in the structure of industry by each of the three criteria. The calculated *Im* figures oscillate around 0.5, i.e. almost exactly the middle of the variability interval of this index, [0,1]. To be more precise, the *Im* value for the divisional structure by the criterion of number of entities with foreign capital is the same as for the structure by the criterion of their employment (0.46), while the slightly higher figure for the structure of capital invested (0.5) indicates its greater concentration, or a smaller degree of scatter across the various divisions.

The results obtained were corroborated by the calculated values of Creamer's index of structure diversification *Wz*. Diversification of the division-

al structure was the lowest by the criterion of foreign capital invested ($Wz = 9.24$), and the highest,

by the number of entities with foreign capital participation ($Wz = 10.14$).

Table 2. Indices of the diversification of the divisional structure of foreign investment in the Manufacturing section by number of entities, number of their employees, and capital invested, 2011

	A	B	C
Rodgers' relativised index of structure diversification I_m	0.46	0.46	0.5
Creamer's diversification index Wz (modified by Rogacki)	10.14	9.62	9.24

Explanation: A – structure of entities; B – structure of employees; C – structure of foreign capital

Source: Own calculations

Creamer's diversification indices calculated for all three categories of structure of foreign investment in manufacturing are quite high, which shows the divisional structure to be relatively highly diversified, i.e. the structure to be fairly well developed. The indices of structure diversification I_m oraz Wz were applied in earlier studies to assess the concentration of industry, although with reference to various fields (Gruchman, 1967; Rogacki, 1988; Tobolska, 2004), and their high values were interpreted as a manifestation of the maturity of the regions for which the analysis was conducted. The results of those authors also support the thesis about a positive relation between the diversification of the industrial structure and the dynamics of socio-economic development. Hence, by analogy to their research and interpretation of those indices, in the case at hand one might venture the generalisation that this highly diversified divisional structure of foreign investment in manufacturing can be a factor speeding up Poland's socio-economic development.

When analysing the structure of foreign investment in Polish industry, worth noting is also the great dominance of big enterprises. In 2011, according to GUS statistics (Działalność ... 2012), out of the 3,395 economic entities that invested more than a million US dollars here, the biggest number, 1,255 (37.0%), belonged to the Manufacturing section, and the foreign capital invested in them amounted to 61,762.7 million zlotys, or 97.4% of total foreign capital invested in this section. Thus, in the numerous group of foreign entrepreneurs there is only a relatively small subgroup of investors highly significant in terms of investment value. Lists of the biggest investors are published annually by the Polish Information and Foreign Investment Agen-

cy (PAIiIZ). In 2011 it included 1,470 firms from 54 countries, of which 896 (or 61.6%) coming from 40 countries belonged to the Manufacturing section (www.paiz.gov.pl).

3. Diversification of the spatial structure of foreign investment in the industry of Poland

3.1. Differences in the directions of foreign investment inflow, by investors' home country

According to GUS data (Działalność ... 2012), foreign investors in Poland came from 121 countries, but most of them did not locate substantial capital here. There were only 16 states from which came entrepreneurs investing more than 1% (that is, 2077.2 million zlotys) of total foreign capital in Poland, and from the next 32 countries came capital not greater than 0.01%. In Manufacturing, more than half (53.1%) of foreign capital invested came from four countries: the Netherlands (12,971.8 million zlotys), Germany (9,913.8 million), France (5,513.9 million), and Luxembourg (5,292.3 million – cf. Fig. 2). Those data show there to be a fairly high concentration of home countries of foreign capital, restricted in fact to highly advanced EU states and the USA. Such a spatial distribution of the directions of investment inflow can be a confirmation of Knickerbocker's conception of an oligopolistic reaction, which explains why transnational corporations follow rivals into foreign markets (follow-the-leader behaviour, i.e. adjustment of strategies to those of competitors; cf. e.g. Gorynia, 2007; Tobol-

ska, 2010c). According to this conception, the behaviour of enterprises is motivated by the wish to defend their position and prevent one of the rivals on a new market from gaining excessive profits. As

a result, firms tend to cluster in selected regions. In the case under analysis, this means a substantial concentration on the Polish market of investors from a few highly advanced states.

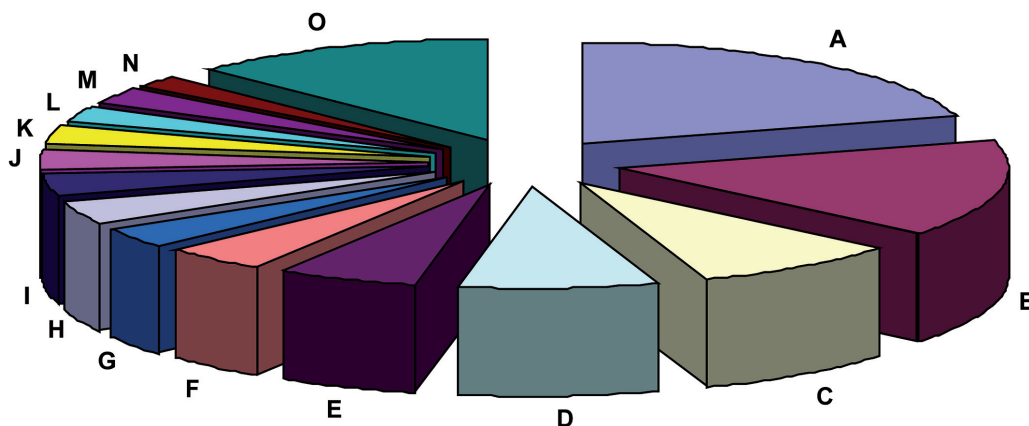


Fig. 2. Structure of foreign capital in manufacturing in Poland, by country of origin – the 2011 state

A – Netherlands; B – Germany; C – France; D – Luxembourg; E – Italy; F – Belgium; G – United Kingdom; H – USA; I – Cyprus; J – Switzerland; K – Spain; L – Denmark; M – Sweden; N – Austria; O – other

Source: Own calculations based on 2012 GUS data

Among the biggest foreign investors from the PAIiZ list (www.paiz.gov.pl), the largest group in the Manufacturing section includes international enterprises from Germany (219), followed by the USA (88), the Netherlands (72), Italy (62), and France (61). Worth noting here is the position of US investors, who are only in 8th place in terms of the value of capital invested; this shows investments by American firms to be rather ‘minor’ in comparison with Dutch or German ones. The bulk of American investors from the PAIiZ list represent the divisions Manufacture of transport equipment (e.g. General Motors Corporation – chief investor in the Opel plant in Gliwice), Manufacture of machinery and electrical equipment (e.g. General Electric Corporation, with branches in Warsaw, Kłodzko and Rzeszów), and Manufacture of food products (e.g. Kraft Foods, or Mondelez International since April 2013 – the producer mainly of sweets, with seven plants in Poland: at Płońsk, Jankowice near Poznań, Skarbimierz, Bielany Wrocławskie, Cieszyn, and Jarosław). In turn, investors from Luxembourg, who occupy 4th place in terms of capital invested, do not make up a significant group in terms of numbers (15, as against 219 from Germany or 88

from the USA). The most powerful investor among them is certainly ArcelorMittal, registered in Luxembourg, but also e.g. the Goodyear Tire & Rubber Company – the firm which has taken over the former Stomil factory at Dębica.

Fig. 3 presents the distribution of companies of the biggest foreign investors in Polish industry: Dutch, German and French. It takes into account not only the place of registration of the headquarters of a company from the PAIiZ list, but also its branches located in the various regions of Poland. The chief source of information in the identification of those localities was the web pages of individual companies. It can readily be noted that an important position in the location of foreign investment is occupied by Mazowieckie voivodship. This follows largely from the registration of company seats in Warsaw (which lies in this voivodship), even though the companies themselves carry out their activity in plants situated in places other than the capital city.

Dutch companies have the largest share of foreign capital invested in Poland’s industry, but their number is nearly one-third of that of German firms (72 as against 219, according to the PAIiZ list). Dutch firms are mostly located in Mazowieckie

(33), Wielkopolskie (13) and Dolnośląskie voivodships (10). Investors from the Netherlands have engaged their capital mainly in the production of food

as well as paper and paper products. A selection of major investors in those divisions is presented in Table 3.

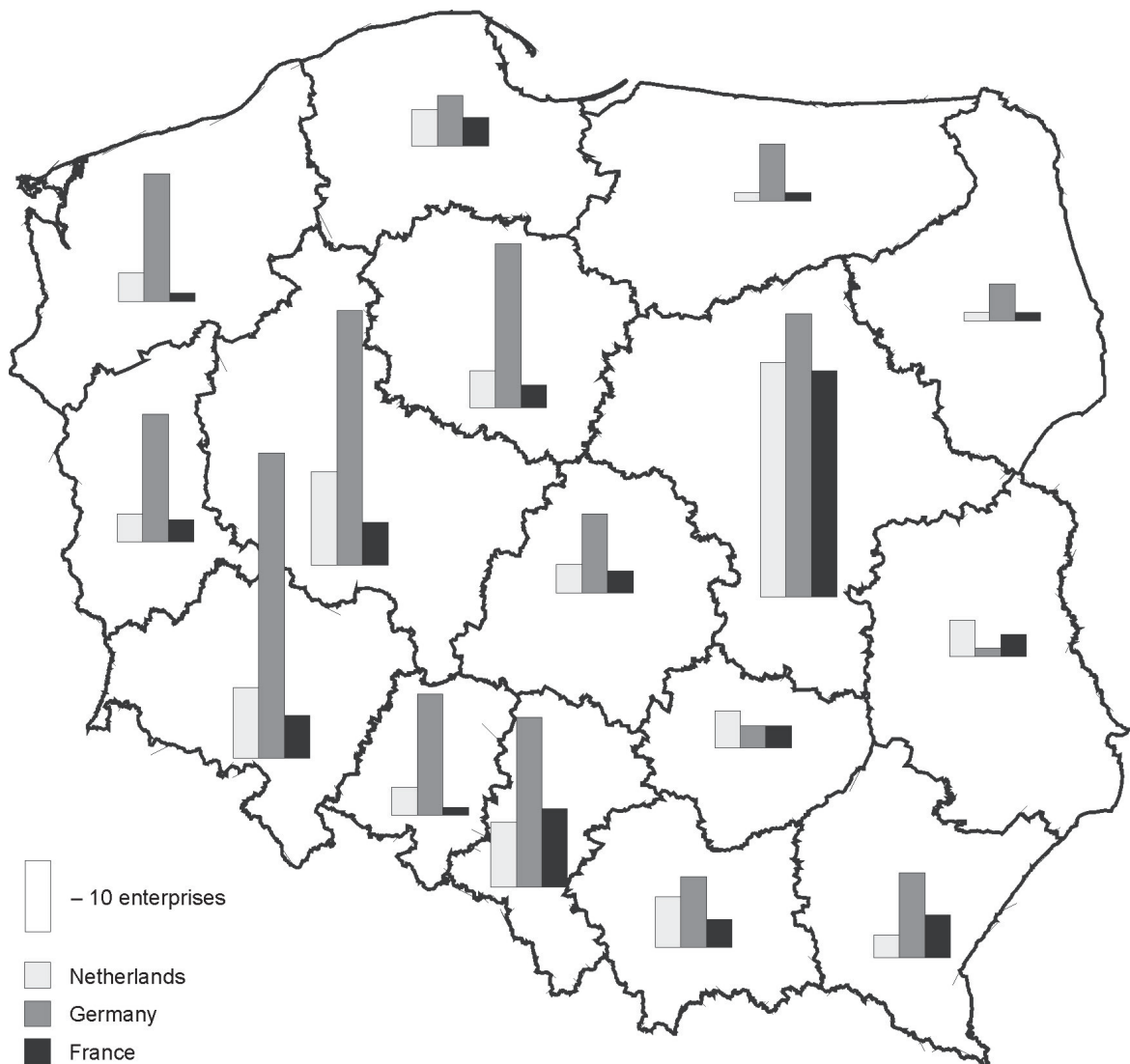


Fig. 3. Distribution of the biggest Dutch, German and French investors in manufacturing in Poland, 2011

Source: Own calculations based on www.paiz.gov.pl

The most sizeable group of companies with foreign capital in Polish industry is that of German ones. According to the PAIiZ list, they are mainly located in Dolnośląskie (43), Mazowieckie (40) and Wielkopolskie voivodships (36), in such divisions as Manufacture of metals and metal products, Manufacture of food products, and Manufacture of rubber and plastic products (Table 3). A signif-

icant position by value of capital invested in industry (3rd place) and by number of companies (5th place) is occupied by French investors. The greatest number of French companies operate in Manufacture of food products and Manufacture of rubber and plastic products. Selected companies from the PAIiZ list of the biggest ones are presented in Table 3.

Table 3. Selected industrial enterprises from the Netherlands, Germany and France in the most popular industrial divisions in Poland, 2011

Manufacturing divisions NACE	Company name / Investor name	Location
Netherlandish		
Manufacture of food, drinks and tobacco products	Unilever / Unilever BV	Warszawa, Poznań, Katowice, Banin k. Gdańska
	Grupa Żywiec S.A./ Heineken International B.V./ Harbin B.V. / Brau Union AG – Österreich	Żywiec, Cieszyn, Elbląg, Warka, Leżajsk
	Farm Frites Poland S.A / CEPV	Łęborg
	CSM Polska Sp. z o. o / CSM NV	Warszawa
	Prima Sara Lee Coffee & Tea Poland Sp. z o.o. / D.E Master Blenders 1753	Poznań, Sułaszewo (pow. Chodzieski)
	Zakład Lecznicy Uzdrawisko Nałęczów S.A. / East Springs International NV	Nałęczów
	McLean Brothers Poland Sp. z o. o. / Natel Investment BV	Szczecin
	Trouw Nutrition Polska Sp. z o. o. / Nutreco International B.V.	Grodzisk Mazowiecki
	NUTRICIA Polska Sp. z o.o. / Nutricia Poland BV	Warszawa, Opole
	Philip Morris Polska S.A. / Philip Morris Holland B.V.	Kraków
	Strouss Cafe Poland Sp. z o. o. / Union Caffè Confectionary Group BV	Swadzim k. Poznania
	Zeelandia Sp. z o. o. / Zeelandia International Holding B.V.	Tarnowo Podgórne
	Bystrzyckie Zakłady Wyrobów Papierowych S.A., Mondi Bags Mielec Sp. z o.o.; Mondi Świecie S.A.; Mondi Warszawa sp. z o.o.; Mondi Dorohusk Sp. z o.o.; Mondi Szczecin sp. z o.o.–Kliniska; Mondi Wierzbica sp. z o.o.; Mondi Solec sp. z o.o.–Solec / Mondi International Holdings B.V.	Bystrzyca Kłodzka, Świecie, Mielec, Mszczonów, Brzeźno, Kliniska Wielkie, Wierzbica, Dorohusk, Solec (gm. Góra Kalwaria)
	Clondalkin Pharma and Healthcare Poland Sp. z o.o. / Clondalkin Group Holdings BV	Lublin
Manufacture of pulp and paper, publishing and printing;	pkt.pl Polskie Książki Telefoniczne Sp. z o. o. / European Directories	Warszawa
	Holbox Poland Sp. z o.o./ Holbox bv	Gliwice
	R.R. Donnelley Poland Sp. z o.o. / R.R. Donnelley International Inc.	Kraków
	Wydawnictwo Prawnicze Lexis Nexis Sp. z o. o. / Reed Elsevier Overseas B.V.	Warszawa
	Steijn Paper Sp. z o. o.; / Steijn Design BV	Łódź
	Wolters Kluwer Polska Sp. z o.o. / Wolters Kluwer Int. Holding B.V.	Warszawa
	German	
Manufacture of basic metals and metal products	Altrad-Mostostal Sp. z o.o.; ALTRAD-Pomorze Spółka z o.o. ; ALTRAD PRYMAT Sp. z o.o.Białystok; ALTRAD KOŃSKIE Sp. z o.o.; Altrad – Mostostal Montaż Sp. z o.o. – Białystok; ALTRAD BALLIAUW Sp. z o.o. – Białystok / Altrad-Baumann GmbH	Siedlce, Szczecin, Białystok, Końskie, Białystok
	Viessmann Technika Grzewcza Sp. z o. o. / VISSMANN Werke GmbH & Co KG	Legnica, Wrocław
	GEDIA POLAND Sp. z o.o. / GEDIA GEBRUDER DINGERKUS GMBH	Nowa Sól
	Hansgrohe Sp. z o.o. / HANSGROHE INTERNATIONAL GMBH	Tarnowo Podgórne
	BMF Instal Sp. z o.o. / Bürener Maschinenfabrik GmbH	Leżajsk
	ThyssenKrupp SteerTec Poland Sp. z o.o. – Międzyrzecz; ThyssenKrupp Stahlunion Polska Sp. z o.o. – Katowice; ThyssenKrupp Steel Europe AG – Będzin; ThyssenKrupp Stainless Polska Sp. z o.o. – Dąbrowa Górnicza / ThyssenKrupp AG	Międzyrzecz, Katowice, Będzin, Dąbrowa Górnicza, Poznań
	Andreas Stihl Sp. z o. o. / STIHL International GmbH	Sady k. Poznania
	Konstrukcje Stalowe KTR GROUP Sp. z o. o / KTR Kupplungstechnik GmbH	Ozimek
	Krause Sp. z o.o. / KRAUSE-WERK GmbH CO&KG,	Świdnica

Continue Table 3

Manufacturing divisions NACE	Company name / Investor name	Location
Manufacture of food products	Bahlsen Polska Sp. z o.o / Bahlsen GmbH & Co. KG	Skawina, Myślenice
	Dr Oetker Polska Sp. z o. o. / Dr August Oetker Nahrungmittel K. G.	Gdańsk, Płock
	Kruger Polska Sp. z o. o.; TRUMPF MAUXION Chocolates Sp. z o.o. / Kruger GmbH	Ostrów Mazowiecka, Skoczów
	Nordische Futterfette Carroux Polska Sp. z o.o.; NFC Polska South sp. z o.o / NORDISCHE FUTTERFETTE CARROUX GMBH & CO. HANDELS KG	Stepnica, Sławków (woj. śląskie)
	Intersnack Poland Sp.z.o.o. / Intersnack Group	Słomniki k. Krakowa
	Frosta Sp. z o. o. / Frosta AG	Bydgoszcz
	Hochland Polska Sp. z o. o / Hochland AG	Kaźmierzu koło Poznania, w Baranowie koło Ostrołęki i w Węgrowie koło Siedlec
	Magnolia sp. z o.o. / STENGER	Lubsko,
	GlobalMalt Polska Sp. z o. o./ TIVOLI MALZ GmbH	Bydgoszcz
	Südzucker Polska S.A. / Südzucker AG	Świdnica, Strzelin, Ropczyce, Polska Cerekiew, Strzyżów
Manufacture of rubber and plastic products	Polychem Systems Sp. z o. o. / Polychem Isolierhandel GmbH	Poznań
	Muller Technik Koszalin sp. z o.o. / MÜLLER TECHNIK GmbH	Koszalin
	Nordfolien Polska Sp. z o.o./ NORDFOLIEN GmbH	Zdzieszowice
	Bruss Polska Sp. z o.o. / G.Bruss GmbH & Co. KG	Mrągowo
	Coko-Werk Polska Sp. z o. o. / Coko Werk GmbH & Co. KG	Łódź
	Union Knopf Polska Sp. z o. o. / Union Knopf GmbH	Turek
	B+K Polska Sp. z o.o. / Bischof + Klein GmbH & Co	Walce (woj. opolskie)
	Nordenia Polska Poznań Sp. z o. o., STARPAC SP. Z O.O. – Zduny / Enpac	Dopiewo; k. Poznania, Starogard Gdański
	Veka Polska Sp. z o. o. / VEKA AG	Skierniewice
	French	
Manufacture of food products	Sobieski Spółka z o.o. / BELVEDERE S.A.	Starogard Gdański, Kraków, Łańcut
	Polmos Żyrardów Sp. z.o.o., oraz Pernod Ricard S.A / LVMH	Żyrardów, Zielona Góra, Poznań
	Materne-Polska Sp. z o. o / Andros	Łopatkki koło Lublina
	Danone Polska Sp. z o. o. / Groupe Danone S.A	Warszawa, Bieruń Śląski,
	DELIFRANCE POLSKA Sp. z o.o. / Delifrance	Warszawa
	Bonduelle Polska S.A. / Bonduelle	Warszawa, Gniewkowo (kujawsko- pomorskie), Ruchocice k. Poznań
	Mleczarnia „Turek” Sp. z o.o. / Bongrain	Turek
	Zakłady Tytoniowe w Lublinie S.A. / Biosyntezy	Lublin
	Słodownia Soufflet Polska Sp. z o. o. / Malteries Soufflet S.A.	Poznań
	Lesaffre Polska S.A. / Lesaffre Group	Wołczyn k. Kluczborka
Manufacture of plastic products	Polser Sp. z o. o., Lactalis Polska Sp. z o.o. / LACTALIS	Siemiatycze; Warszawa, Koźienice
	DELTA PLAST Poland Sp. z o.o. / DTP Holding	Piaseczno
	Zeller Plastik Polska Sp. z.o.o. / Global Closure Systems	Wola Rębkowska
	Hutchinson Poland Sp. z.o.o. / Hutchinson S.A.	Żywiec, Bielsko-Biała, Łódź
	Inergy Automotive Systems Poland Sp. z o. o., Plastic Omnium	Lublin, Kleszczów,
	Auto Exteriors Sp. z o.o., / Inergy Automotive Systems	Kleszczów (powiat Gliwice)
	Plastic Omnium Auto Exteriors Sp. z o.o. / Plastic Omnium	Tychy
	NP Polska Sp. z o.o. / Nief Plastic	Tychy
Fabryka Plastików Pomerania Sp. z o. o. / Plastiques Du Val de Loire	Kwidzyn, Gliwice, Kętrzyn	

Source: Own calculations based on data www.paiz.gov.pl the and web pages of individual companies

3.2. Regional differences in the location of industrial foreign investment in Poland

The location of foreign investment in Poland shows fairly wide regional differences. According to the 2011 GUS statistics (*Działalność ... 2012*), the largest proportion of foreign capital, nearly half of the national total (48.5%), was invested in Mazowieckie voivodship and the smallest, in Podlaskie voivodship, a mere 0.3% of the total. As has already been emphasised, the dominance of Mazowieckie voivodship results from the fact that very many companies

register their seats in Warsaw, and the practice followed in statistics demands assigning initial capital to the address of a company’s headquarters. The dominance of Mazowieckie voivodship is less pronounced when the number of foreign entities is taken into consideration: registered there are 37.9% of their total number, and the figure is even smaller for the subset of industrial companies – a mere 22.8%, or 281 from the PAIiZ list (Fig. 4). The next places in this ranking go to Dolnośląskie, Śląskie, and Wielkopolskie voivodships, which jointly account for 55.9% of the biggest (PAIiZ-ranked) industrial entities; in this ranking, too, the last place is occupied by Podlaskie voivodship, again – 0.6% (that is, 10 entities).

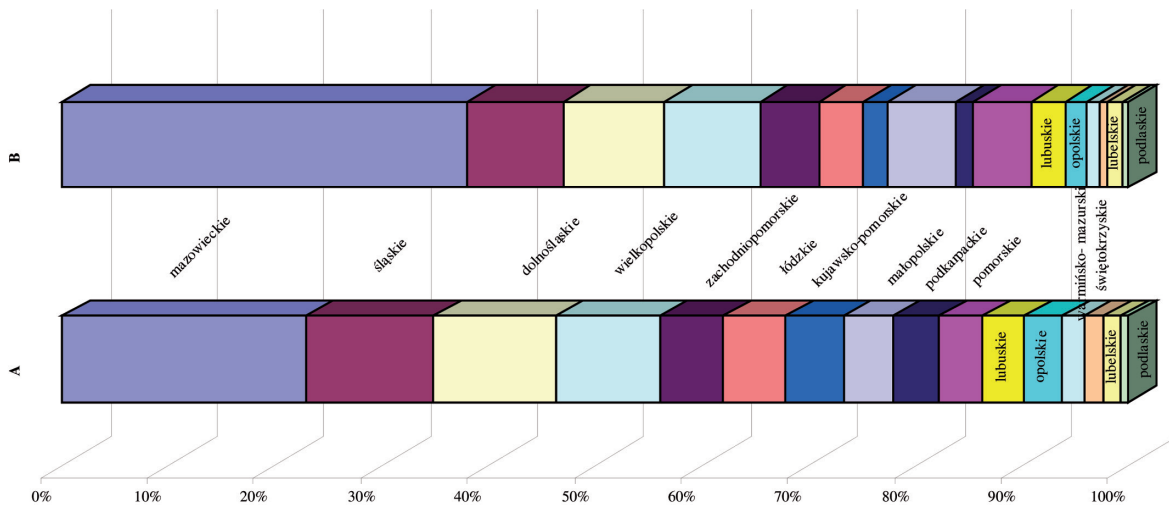


Fig. 4. Entities with foreign capital participation in Poland by voivodship - the total number and in the Manufacturing section, 2011

Explanation: A – manufacturing; B – total entities

Source: Own calculations based on 2012 GUS data and www.paiz.gov.pl

The relative approach to the statistical data presented in the form of location quotients (calculated as the ratio of the percentage share of the given region in the quantity analysed to the quantity adopted as basic) also shows there to be a fairly great regional concentration of entities with foreign capital from the Manufacturing section in relation to the share of those voivodships in the country’s total population. The basic value adopted is the population number, which well reflects the locational advantage of Poland deriving from the country’s great supply of labour (Fig. 5). The regions where the

over-proportionality of this variable is great are Mazowieckie and Dolnośląskie voivodships ($I_{lr} > 1.5$), but the figure is also high in western Poland: Zachodniopomorskie ($I_{lr} = 1.3$), Lubuskie ($I_{lr} = 1.4$), Wielkopolskie ($I_{lr} = 1.1$), and Opolskie voivodships ($I_{lr} = 1.4$). In turn, in two voivodships: Kujawsko-pomorskie and Śląskie, the distribution of companies with foreign capital is proportional to the number of their residents ($I_{lr} = 1.0$), and in the remaining voivodships there is a relative ‘deficit’ of industrial entities of foreign investors in relation to their share of the country’s population.

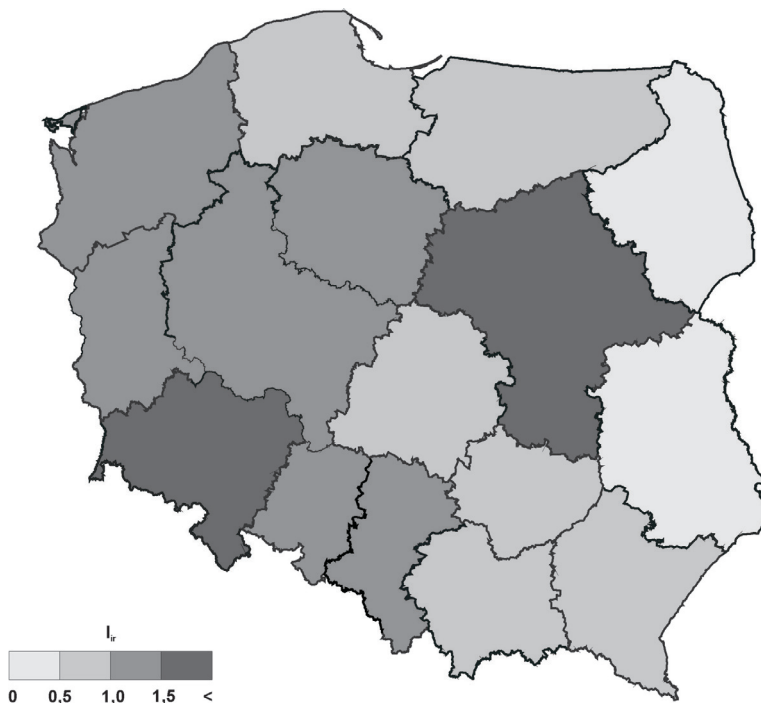


Fig. 5. Location quotients I_{tr} of entities with foreign capital participation in the Manufacturing section calculated against the number of voivodship residents, 2011

Source: Own calculations based on 2012 GUS data and www.paiz.gov.pl

An analysis of the spatial concentration of foreign capital in industry reveals wide regional differences in its location, the distribution being fixed since the 1990s, as indicated by earlier studies, e.g. Stryjakiewicz (1999). The effect of the disproportions is limited access to new technologies and knowledge transferred within the structures of international firms in those regions where the investment level is the lowest. This, in turn, leads to a further deepening of disparities in regional development, as observed, e.g., by Dziemianowicz (1997), Domański (2001) or Cieślík (2005).

4. Summing up: the level of internationalisation of Polish industry

The detailed characterisation of the structure of foreign investment in Polish industry presented above shows it to be fairly concentrated in divisional and spatial terms: most investment is concentrated in

4–5 divisions of industry (cf. Table 1: about 50% of investment) and 4 voivodships, and principal investors come from 4–5 countries. A synthetic reflection of the involvement of foreign investors in this field of the economy, abstracting from structural diversification, can be an ‘internationalisation profile’ constructed in the form of a diagram presenting the share of foreign capital in several economic quantities (cf. Tobolska, 2007 and Fig. 6): (a) share of companies with foreign capital in the total number of economic entities registered in the Manufacturing section; (b) share of employees of companies with foreign capital in total manufacturing employment; (c) share of proceeds from all operations of industrial companies with foreign capital in the proceeds of all entities registered in the Manufacturing section; (d) share of industrial companies with foreign capital in investment outlays made in the Manufacturing section; (e) share of industrial companies with foreign capital in the export of all economic entities from the Manufacturing section; and (f) share of industrial companies with foreign capital in the import of all economic entities from the Manufacturing section.

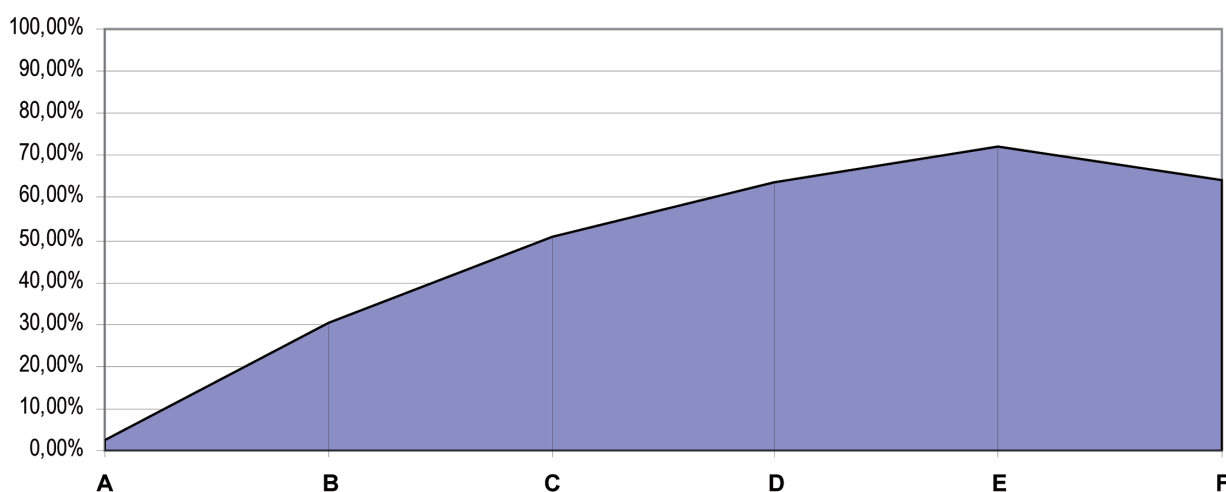


Fig. 6. Internationalisation profile of Polish industry in 2011 (shares of companies with foreign capital in totals)

Explanation: A – Number of entities; B – Number of persons employed; C – Revenues from total activity; D – Investment outlays on fixed assets; E – Exports; F – Imports

Source: Own calculations based on 2012 GUS data, Statistical Yearbook of Industry

The internationalisation profile as a synthetic compilation of information about the share of foreign investors in selected economic variables characterising the Manufacturing section is a graphic way of presenting the most essential aspects of the internationalisation of this field of the Polish economy. From the profile one can read that there is a relatively small number of companies with foreign capital in Polish industry – a mere 2.7% in the entire set of economic entities operating in the Manufacturing section – but they account for more than 30% of total employment in this section. In terms of earnings from all their activities, companies with foreign capital participation occupy an important position among the remaining industrial entities, because in 2011 they contributed more than a half (50.7%) of total receipts of all industrial entities. Besides, they financed most investment in industry (their share of investment outlays in the Manufacturing section amounted to 63.9% at the national scale) and displayed decidedly the greatest activity in foreign trade among all economic entities involved in manufacturing in Poland – they accounted for 72.1% of exports and 64.3% of imports. One can therefore conclude that the position of this small group of entities in Polish industry is significant because of their activity and contribution to the development of the economy, as mani-

fested primarily by the volume of their investment outlays and involvement in international trade. Relying on Gorynia's findings (2012, p. 423), the fairly great activity of foreign investors and the volume of foreign capital inflow can be regarded as proof that the Polish economy is quite competitive at the macroeconomic scale. However, as the quoted author demonstrates, when compared against indices attained in other countries, like Spain, Portugal, Czechia, Slovakia or Hungary, the Polish economy still has a considerable internationalisation potential.

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