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Poland's Integration with the European Union and the Labour Market Impacts

1. Introduction

Significant changes occured in Poland in the 1990's. On one hand transformation of economic system towards markets started in 1989. It has caused various economic changes in the Polish economy, including the labour market. On the other hand Poland signed Association Agreement (also called European Agreement) with the European Community at the end of 1991 which came into force in 1994. Due to this agreement a free trade zone is to be built between the two sides during the maximum period of 10 years. The agreed principles of economic relations have had their influence upon the present performance of the Polish economy, including the labour market situation. Moreover Poland decided to apply for a full membership in the European Union, which implies various adjustment processes in the Polish economy, also in the labour market. All the mentioned processes have their impacts on the Polish labour market.

The main goal of the paper is to present labour market impacts of Poland's integration with the European Union. We focus especially on two factors: Poland's foreign trade with the EU and the EU foreign direct investment to Poland. We try to identify those branches of the Polish economy which have comparative advantages in the field of foreign trade with the EU countries with the perspectives of increasing employment and those branches which are most

threatened by the foreign producers implying some difficulties in employment. We also try to assess the role of the EU foreign investment to Poland in creating employment.

As to empirical basis of the paper we use official statistical data on employment, unemployment, exports, imports, foreign investment and some other magnitudes for the period 1990-1997. Most of these data are disaggregated into main divisions and branches of the economy.

The structure of the paper is as follows. Section 2 shows labour market developments in Poland in transition and especially the dynamics and structure of unemployment between 1990 and 1997. In section 3 Poland's foreign trade with the EU is investigated with its implications for the Polish employment, especially in the branches with high and low indicators of comparative advantage. Section 4 focuses on the dynamics and structure of the EU foreign direct investment in Poland and the consequences for the creation and destruction of jobs. In section 5 we undertake econometric analysis in which we try to explain how the Polish employment in transition depends on some factors and among others Poland's exports, imports and the EU direct foreign investment to Poland. Section 6 concludes.

2. Labour Market Developments in Poland in Transition

2.1. Unemployment Developments

The past period of economic system transformation in Poland (1990-1997) was not homogenous from the labour market perspective. Three subperiods can be distinguished:

- drastic deterioration of the situation in the labour market between 1990 and 1991,
- improvement of the macroeconomic indicators and relatively slow growth of unemployment between 1992 and 1993,
- relatively strong economic recovery and declining unemployment trend since 1994.

The programme of liberalisation and stabilisation of the economy launched at the end of 1989 was important for the labour market situation in early '90s. This programme stipulated a liberalisation of prices and foreign trade, introduction of the principle of hard budget constraints into state owned companies, introduction of internal convertibility of the Polish currency and tight

macro economic policy of the government. The implementation of this programme added to the emergence of a negative aggregate shock being a combination of the reduced aggregate demand for commodities and credit squeeze (Blanchard, Commander, Coricelli, 1994). As a result GDP dropped heavily and prices increased sharply (see Table 1).

Table 1. Macroeconomic indicators, Poland, 1990-1997

Year	GDP[1]	Consumer price index[1]	Employ-ment[1]	Registered unemploy-ment rate[2]	U/V ratio[3]	Budget deficit/GDP[2]	Public debt/GDP[2]
1990	8.0	585.8	-7.1	6.5	20.8	0.4	95.0
1991	7.0	70.3	-4.3	12.2	74.0	-3.8 (-4.0)	81.4
1992	2.6	43.0	-2.8	14.3	109.6	-6.0 (-6.4)	85.2
1993	3.8	35.3	-1.7	16.4	133.2	-2.8 (-3.3)	88.7
1994	5.2	32.2	1.1	16.0	112.6	-2.7 (-3.5)	72.3
1995	7.0	27.8	0.3	14.9	128.2	-2.6 (-3.5	57.9
1996	6.1	19.9	3.4	13.2	170.9	-2.5 (-3.6)	51.1
1997	6.9	14.9	0.8	10.5	153.5	-1.3 (-2.8)	48.0

[1] - annual changes in percentages
[2] - data at the end of years in % (without revenues from privatization in the parentheses)
[3] - data at the end of the year

Source: Rocznik Statystyczny 1997, GUS, Warszawa 1998; Gospodarka Polski 1997, RCSS, Warszawa 1997.

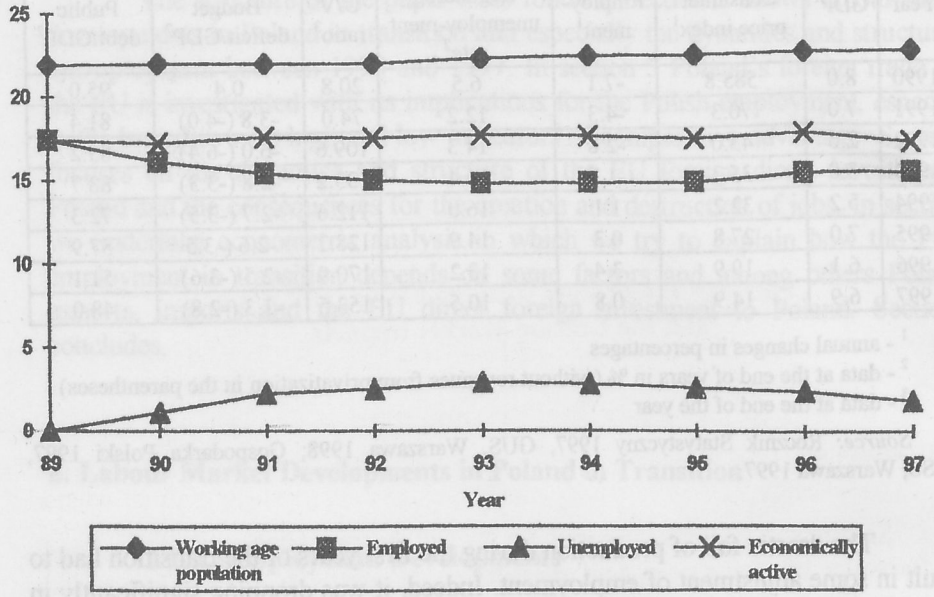
The drastic fall of production during the first years of the transition had to result in some adjustment of employment. Indeed, it was dropping significantly in the Polish economy between 1990 and 1991 contributing to a fast rise of unemployment (see Table 1 and Figure 1). It is interesting, however, that the drop of employment was much weaker than the collapse of production in that period, which implies a drop of labour productivity. Such trends translate into a growth of hidden unemployment which, as revealed by some estimates (Rutkowski, 1990), was at a relatively high level already in the late '80s, reaching 25% of total employment. Therefore, the fast increase of open unemployment at the begining of transition cannot be explained by the reduction of the hidden unemployment as one might suppose. The relatively low sensitivity of employment to the drop of production can be explained by the strong position of trade unions in the state-owned companies. The pressure of the labour made the management of the state-owned companies apply alternative employment adjustment methods to reduce labour cost (e.g. reduction of working time and overtime, or early retirenment) other than dismissals (Kwiatkowski, 1993). The strong position of trade unions also contributed to the fact that the principle of hard budget constraints was not

fully implemented implying a bigger state budget deficit (see Table 1).

Some role in determining the level of unemployment in the Polish economy was played by the growth of labour supply, occuring throughout the period 1990-1997 (see Figure 1).

Figure 1

Working age population and its categories, Poland, 1989-1997, in millions of persons



Source: Rocznik Statystyczny Pracy 1997, GUS, Warszawa 1997, p. XX.

This growth was, however, the strongest in the period 1990-1991, exceeding 400,000 persons a year (Witkowski, 1994). It was due to the operation of two factors. Firstly, the population of working age was growing (see Figure 1). Secondly, some role was played by the increased economic activity rates at the begining of the transition period. The latter trend was connected with the secondary workers entering the labour market via the registration at labour offices as unemployed. It should be stressed that the regulations concerning unemployment benefits being in force in 1990 made eligible for open - ended benefits also these among the registered unemployed who had not worked before.

In the second subperiod covering years 1992-1993 unemployment and its rates continued to grow (see Fig. 1 and Table 1). The U/V ratio (i.e. the ratio showing the relationship between the number of unemployed persons and the number of vacancies) also grew, revealing more and more problems with finding

a job. The growth in unemployment was, however, much weaker than in the first subperiod, which was related to a slowing down decline in employment. Interestingly, the drop in employment in the period 1992-1993 was accompanied by growing GDP, resulting in a fast increase in the productivity of labor. These tendencies can be explained by the growing respect to market economy rules in many state-owned enterprises. Despite this, the size of the budget deficit swelled essentially in 1992.

The third subperiod (years 1994-1997) was characterized by a clear-cut drop in the number of unemployed persons and the rate of unemployment (Fig. 1 and Tab. 1). However, the U/V ratio kept growing to 1996. That tendency can be partly explained by the fact that the U/V ratio shown in Table 1 was based on data provided by labor offices on the numbers of job offers reported, that were largely underestimated. It is worth noting that the drop in unemployment in that period was accompanied by declining inflation and shrinking budget deficit and public debt (see Table 1). This was owned to the fast economic growth. Nevertheless, it must be stressed that the drop in unemployment in the period of recovery in the years 1994-1997 was much weaker than the growth in unemployment between 1990-1993. A probable explanation was a higher share of the structural unemployment in the years 1994-1997. The issue of structural unemployment will be discussed again in the next sections.

A characteristic feature of the Polish unemployment is quite a stagnant pool of unemployment. In a country attempting a system transformation, where flows of the labor force between sectors, industries and regions are unavoidable, one should expect quite large inflows to unemployment and large outflows from unemployment. In other words, we could expect quite fast exchange of persons in the pool of unemployment. Much indicates that in Poland it was not so. In the year 1997 only 7 per cent of the employed joined the pool of unemployment and 30 per cent found jobs (see Table 2).

Table 2. Inflow rates into unemployment and outflow rates from unemployment, Poland, 1992-1997, in %

	Inflow rates			Outflow rates		
Year	total	from employment	from inactivity	total	to employment	to inactivity
1992	8.86	7.03	1.83	55.94	30.43	25.51
1993	11.26	9.04	2.22	63.39	30.32	33.07
1994	11.82	8.84	2.98	74.25	37.85	36.40
1995	13.39	10.02	3.37	90.89	44.67	46.22
1996	12.63	10.15	2.48	94.86	49.64	45.22
1997	11.45	8.63	2.82	109.50	53.35	56.15

Source: Registered Unemployment in Poland, CSO, Warszawa; for the years 1992-1998.

The rates are much below those in developed countries (Rynek pracy, OECD, 1994). We have to observe, however, the positive changes in that area in the consecutive years. The outflow rate from unemployment, defined as a ratio of annual outflows from registered unemployment to the pool of registered unemployment as at the end of the previous year, showed an upward trend in the years 1992-1997 (see Table 2), although the growing rates of outflows from unemployment to inactivity can be alarming. To the year 1995 also the rates of inflows to unemployment kept growing, defined as ratios of annual inflows of persons to registered unemployment to the stock of the labour force as at the end of the previous year (see Table 2).

A result of this rather stagnant pool of unemployment is the long average duration of unemployment. It is reflected in the low share of the short-term unemployment and high share of the long term unemployment. In the years 1992-1997 the share of persons out of work to 1 month was never higher than 10 per cent, but it grew from 5 per cent in 1992 to 9.5 per cent in 1997 (see Table 3).

Table 3. Unemployed by duration of unemployment, Poland, 1992-1997, % (data for November)

Duration of unemployment	1992	1993	1994	1995	1996	1997
- total	100.0	100.0	100.0	100.0	100.0	100.0
- ≤1 months	5.0	6.1	7.7	8.2	8.1	9.5
- 2-6 months	29.9	32.4	28.6	31.6	30.8	32.9
- >6 months	65.1	61.5	63.7	60.2	61.1	57.6

Source: Aktywność ekonomiczna ludności Polski, GUS, Warszawa, 1992-1997; own calculations.

Relatively high was the share of unemployment lasting over 6 months, that exceeded 60 per cent in the years 1992-1996 and only in 1997 it slightly declined (Table 3). Particularly alarming was the high share of unemployment longer than 12 months that oscillated around 40 per cent of total unemployment throughout the period in question. This meant concentration of unemployment in certain groups of the labor force, that were, in consequence, pushed to the margin of the labor market. The long term unemployment is specially high among women and persons with primary and general secondary education in the medium aged group (40-50 years).

2.2 Variation of unemployment

Economic recovery in the years 1992-1997 made unemployment go down, but the drop was quite slow. After six years characterized by rather high rates of economic growth, the rate of registered unemployment still exceeded

10 per cent. A relatively weak drop in unemployment in the milieu of a long lasting recovery proved that a considerable part of unemployment, especially structural unemployment, was not related to economic conditions. This was indicated by the quite stable variation of unemployment in labor force groups distinguished by education, occupations and regions. A significant variation in unemployment can also be found by gender and age groups, although in this case higher mobility of the labor force cannot reduce that variation.

Table 4. Unemployed, employed and unemployment rates by sex, Poland, 1992-1997, % (data for November)

Specification	1992	1993	1994	1995	1996	1997
Unemployed						
- total	100.0	100.0	100.0	100.0	100.0	100.0
- women	51.0	50.8	52.2	50.3	53.5	53.8
- men	49.0	49.2	47.8	49.7	46.5	46.2
Employed						
- total	100.0	100.0	100.0	100.0	100.0	100.0
- women	45.1	45.5	45.3	45.2	44.9	44.8
- men	54.9	54.5	54.7	54.8	55.1	55.2
Unemployment rates						
- women	15.2	16.5	15.7	14.4	13.4	12.0
- men	12.4	13.6	12.3	12.1	9.9	8.7

Source: Aktywność ekonomiczna ludności Polski, GUS, Warszawa, the bulletins published between 1992 and 1997; own calculations.

Table 4 contains data on the structure of unemployment, employment and the rates of unemployment by gender. From the table it results that women make up the biggest group among unemployed, with their rate increased significantly in the years 1991-1997. On the other hand, in the stock of employment men clearly prevail, and their share oscillated around 55 per cent throughout the period in question. Rather small predominance of men over women in the stock of employment and women in the stock of unemployment prove quite high activity rates of women. In addition, as it results from Table 4, rates of unemployment are considerably higher among women than men. A more difficult women's position on the labor market is due, above all, to their slimmer chances for finding jobs. A factor here is the behaviors of employers who are more willing to employ men than women.

Significant variation of unemployment can also be found by age groups. Age itself is not a cause of the differences, but age is connected with other characteristics being of impact on unemployment variation. First of all, young persons are characterized by short professional experience, high propensity to change employers and, usually, lower discipline of labor. On the other hand, they

present higher mobility in terms of occupations, skills and geographical areas, as well as considerable adaptability to changes introduced to their workplaces. Older people can generally be attributed a set of opposite features.

Table 5. Unemployed, employed and unemployment rates by age groups, Poland, 1993-1997, % (data for November)

Age groups (in years)	1993	1994	1995	1996	1997
Unemployed					
- total	100.0	100.0	100.0	100.0	100.0
- age< 20	9.4	10.1	9.7	8.3	7.9
- 20 ≤ age < 50	81.7	82.3	82.6	83.5	83.5
- age ≥ 50	8.9	7.7	7.7	8.3	8.6
Employed					
- total	100.0	100.0	100.0	100.0	100.0
- age < 20	2.2	2.0	1.9	2.0	1.9
- 20 ≤ age < 50	78.2	79.7	80.3	80.1	80.0
- age ≥ 50	19.6	18.3	17.8	17.9	18.1
Unemployment rates					
- age < 20	42.9	45.3	44.1	35.1	31.7
- 20 ≤ age < 50	15.5	14.3	13.5	11.9	10.6
- age ≥ 50	7.4	6.3	6.1	5.7	5.1

Source: as in Table 4.

As it results from Table 5 in the years 1993-1997 persons under 20 years of age represented much lower shares in employment than in unemployment. As a result, rates of unemployment in this age group were at a very high level exceeding 40 per cent. It is, however, worth stressing that this rate dropped rapidly between 1996-1997. To some extent it was due to changed legal regulations, put in force on March 1, 1996. Unemployment benefits for school-leavers were replaced with an allowance being a kind of a bonus for active behaviors on the labor market (for participation in training courses or taking up an internship at employer's). These modifications stimulated higher job search intensity and, in effect, caused a drop in the rate of unemployment among young people.

Besides, Table 5 reveals that persons aged 50 years plus had much lower shares in unemployment than employment. As a consequence, rates of unemployment in this age group were at a level much below average. This can be interpreted that employed persons at the pre-retirement age – when leaving employment stock – fed the group of the economically inactive rather than unemployed. This was related to the regulations in force (introduced in 1989) that allowed early retirement. Early retirement option could be exercised by women

aged 55 years and with at least 30 years of service. Moreover, early retirement could be picked by persons dismissed under mass lay offs, if they had worked 40 years (men) or 35 years (women).

Table 6 presents the structure of unemployment and employment by education and rate of unemployment. From the table it results that (a) the level of education among those employed rose in the years 1992-1997. Share of persons with secondary and higher education went up in that period from 42.8 to 47.0 percent; (b) persons with basic vocational education and secondary general education represented much higher shares in unemployment than employment. As a result, rates of unemployment in these two groups were the highest. Relatively high rates of unemployment can also be found in the group of persons with primary or lower education; (c) persons with higher education hold the lowest rates of unemployment. The significance of the human capital in the transforming economy is also emphasized by the fact that the drop in the rate of unemployment was the strongest in the period in question just in the group of persons with higher education.

Table 6. Unemployed and employed by educational attainment, Poland, 1992-1997, % (data for November)

Educational attainment	1992	1993	1994	1995	1996	1997
Unemployed						
- total	100.0	100.0	100.0	100.0	100.0	100.0
- university	4.6	3.1	2.6	2.4	2.7	2.2
- secondary vocational and post secondary schools	27.4	22.7	23.0	23.5	24.4	24.9
- general secondary	9.0	7.6	7.8	7.1	6.9	8.1
- basic vocational	37.7	41.3	44.0	43.5	43.0	41.6
- primary and lower	21.3	24.2	22.8	23.5	23.0	23.2
Employed						
- total	100.0	100.0	100.0	100.0	100.0	100.0
- university	10.2	10.5	11.1	11.4	11.5	12.0
- secondary vocational and post secondary schools	26.7	25.5	27.2	27.9	28.3	28.8
- general secondary	5.9	7.0	6.3	6.0	6.0	6.2
- basic vocational	31.5	32.2	32.9	33.5	34.0	34.5
- primary and lower	25.7	24.8	22.5	21.2	20.1	18.5
Unemployment rates						
- university	5.3	5.0	3.6	3.0	2.9	2.0
- secondary vocational and post secondary schools	12.9	13.6	12.0	11.3	10.1	8.9
- general secondary	16.5	16.2	16.2	15.3	13.1	13.0
- basic vocational	16.9	18.4	17.8	16.4	14.1	12.0
- primary and lower	12.7	15.0	14.0	14.4	12.9	12.5

Source: As in Table 4.

Another characteristic trait of Polish unemployment is its strong regional variation. This is confirmed by data on the rates of unemployment according to voivodeships presented in Table 7.

The lowest rates are in the voivodeships of Warsaw, Krakow, Poznań, Katowice and Bielsko-Biała. These are highly urbanized voivodeships, with quite well developed industry and services and a high share of the non-agricultural private sector. On the other hand, the highest rates of unemployment can be found in agricultural voivodeships, with a small participation of the non-agricultural private sector and low urbanization rates. These voivodeships include those of Słupsk, Koszalin, Suwałki, Elbląg and Olsztyn.

Table 7. Registered unemployment rates by voivodeships, Poland, 1990-1997, % (data of the end of years)

Voivodeship	1990	1991	1992	1993	1994	1995	1996	1997
Poland	6.5	12.2	14.3	16.4	16.0	14.9	13.2	10.5
Warszawskie	2.1	4.2	5.9	7.6	7.5	5.3	4.1	2.6
Bialskopodlaskie	6.0	9.6	11.1	14.0	14.8	13.6	11.9	9.9
Białostockie	8.5	12.2	11.4	14.2	14.6	14.2	11.7	8.5
Bielskie	4.1	8.2	7.9	11.1	11.5	11.3	9.6	6.9
Bydgoskie	7.8	14.6	17.4	20.4	19.6	18.2	16.7	13.5
Chełmskie	6.4	9.2	10.2	14.2	15.1	16.5	13.1	11.4
Ciechanowskie	9.8	17.0	19.8	23.4	21.6	21.1	19.0	16.5
Częstochowskie	5.8	12.4	13.9	15.1	14.5	13.7	12.1	8.6
Elbląskie	8.4	16.4	21.4	27.3	26.7	25.8	23.4	19.5
Gdańskie	5.0	11.5	14.7	15.5	14.9	13.4	10.6	7.1
Gorzowskie	9.2	16.4	18.7	22.8	22.0	19.9	17.0	13.0
Jeleniogórskie	9.9	16.8	17.4	20.3	19.4	19.0	18.2	14.8
Kaliskie	7.5	13.3	14.4	17.0	17.0	16.4	14.9	11.5
Katowickie	3.4	6.6	8.6	10.1	10.1	9.2	8.4	6.4
Kieleckie	6.7	12.2	14.1	17.6	17.4	17.2	15.2	12.1
Konińskie	9.2	13.1	15.5	19.5	20.2	18.8	17.3	14.7
Koszalińskie	9.5	17.9	24.1	28.9	28.0	26.9	24.7	19.9
Krakowskie	3.4	6.2	8.9	7.7	8.5	8.1	6.1	4.3
Krośnieńskie	7.3	13.4	14.9	16.9	17.5	16.7	14.9	13.3
Legnickie	8.0	13.9	17.0	19.1	19.5	18.6	16.9	14.3
Leszczyńskie	5.5	11.2	12.3	14.5	14.5	14.0	12.0	9.2
Lubelskie	6.4	10.9	11.4	14.2	14.7	13.5	11.7	9.5
Łomżyńskie	9.4	14.6	15.4	18.6	15.7	15.8	14.3	12.3
Łódzkie	8.5	15.4	16.4	18.9	18.1	17.5	16.2	11.2
Nowosądeckie	5.8	10.7	13.5	13.4	14.1	15.2	12.8	11.1
Olsztyńskie	10.2	18.2	23.6	30.1	28.2	26.1	23.6	18.9
Opolskie	3.9	8.8	12.1	14.4	14.8	14.0	12.9	10.5
Ostrołęckie	8.3	16.8	15.3	20.8	20.9	19.2	17.0	14.9
Pilskie	7.7	15.5	19.7	25.1	24.2	19.8	17.4	13.3
Piotrkowskie	8.5	15.8	17.3	19.6	19.2	17.9	16.8	14.2

Table 7. Registered unemployment rates by voivodeships, Poland, 1990-1997, % (data of the end of years) [cont.]

Voivodeship	1990	1991	1992	1993	1994	1995	1996	1997
Płockie	8.9	15.9	18.5	22.5	20.8	18.3	16.6	14.3
Poznańskie	3.5	5.6	7.9	9.0	8.8	7.7	6.2	3.6
Przemyskie	8.5	13.3	15.1	18.4	18.7	16.7	14.2	12.2
Radomskie	6.1	12.3	14.1	20.6	18.7	17.9	17.2	14.4
Rzeszowskie	6.9	13.2	15.4	17.9	17.9	17.0	14.6	12.3
Siedleckie	5.0	9.7	12.4	16.7	16.9	12.9	10.7	8.8
Sieradzkie	6.7	11.5	13.3	15.9	15.3	14.8	12.7	9.8
Skierniewickie	6.8	10.7	11.5	15.7	14.5	13.2	10.7	7.6
Słupskie	9.0	17.8	23.2	29.7	30.5	28.6	25.7	20.9
Suwalskie	11.5	18.6	23.7	30.3	29.1	27.6	24.6	21.2
Szczecińskie	4.6	10.0	11.6	14.5	14.2	13.5	13.1	10.4
Tarnobrzeskie	6.1	10.9	12.2	14.3	15.1	15.1	13.9	12.3
Tarnowskie	5.4	10.2	13.5	14.0	13.8	13.7	12.4	10.3
Toruńskie	9.3	15.4	18.2	22.9	22.7	20.6	18.6	14.8
Wałbrzyskie	8.2	17.1	21.0	26.1	27.1	24.4	21.7	17.3
Włocławskie	7.9	16.5	19.7	22.1	21.7	22.3	21.5	18.2
Wrocławskie	4.4	7.7	10.1	13.2	13.1	11.4	9.8	7.7
Zamojskie	5.8	11.2	11.4	14.7	14.3	15.0	12.4	10.5
Zielonogórskie	8.0	12.8	14.1	18.9	17.8	17.2	15.3	12.6

Source: Bezrobocie rejestrowane, wydania z lat 1990-1997, GUS. Warszawa; Rynek Pracy nr 1/97, KUP, Warszawa.

3. Impact of Poland's trade with the European Union on the Polish labour market

3.1. The theoretical aspects of the impact exerted by foreign trade on the labour market in the international economic integration process

The impact of the integration of the goods market on the labour market is expressed in the consequences of the trade creation and trade-shift effects for the following processes:

1. The shifting of production resources (in the integrating countries) to their more effective uses in accordance with the competitive advantage following both from lower labour costs (having a bearing on the so-called comparative advantage in exports) as well as higher quality (non-cost) competitiveness. This effect means that producers whose production costs are too high to meet the competitive pressure on a large integrated market go bankrupt, which has a

bearing on growth of unemployment until labour resources are shifted to their more effective uses. This effect is connected with the economy-restructuring process aimed at eliminating ineffective enterprises or even entire branches of production unable to meet competition in a large integrated market in the framework of an established free trade area or/and a customs union. In practice, this effect is expressed mainly in increased import penetration or growing shares of competitive products coming mainly from imports from the member countries in the domestic market.

2. Increased access of competitive exports by a given member country to a large integrated market of the remaining member countries, which influences the possibility for producers to obtain the effects of economies of scale and reduce unit costs as well as to get access to foreign technologies and management methods. Growth of the scale of production and new export opportunities following from the opening up of the members' markets allow producers to increase employment and absorb some of the labour resources released as a result of increased export penetration. Enterprises grow in size, which provides them not only with a better negotiation position but also with an easier and more advantageous access to capital as well as with the opportunity of more economical use of labour as a result among others of greater possibilities to mobilise resources for investment and to attract highly qualified labour. Sales in the large integrated market may lead to a cost reduction resulting from a fuller, more effective use of productive capacity and from hiring employees with higher technological and management qualifications (Hitiris, T., 1991).
3. The impact of the trade creation effect on employment in a given country being a member of a free trade area is thus a resultant of the two processes mentioned above and is dependent on the economic strength of this economy and its competitive capacity in foreign markets.
4. Theory also points to a positive impact exerted by integration of the production factors market on restructuring processes in the integrated area on condition, however, that liberalisation of commodity flows within the customs union precedes liberalisation of flows of factors of production (Molle, W., 1990, p. 132). Dynamic effects of integration of the market for factors of production result from growth in competition between financial organisations through increased gains from an increased scale of services rendered by them. Increased competition in the capital market causes consequences for the protected (from the launching of the integration processes) banking and financial institutions which are forced to improve the quality of their services. On the other hand, however, growth of competition in the capital market and in the labour market may yield positive effects for borrowers who previously had no access to cheaper foreign capital and for producers of goods and

services for whom the possibility of availing themselves of cheaper and more accessible credits and cheaper labour may mean an increase in competitiveness of their products both in the integrated market and in third markets.

3.2. Liberalisation of trade in industrial products between Poland and the European Union in the light of the Association Agreement

The Agreement about Association between Poland and the European Communities, officially called the Europe Agreement[1] was signed on 16 December 1991. The Agreement came into life on 1 February 1994 after the completion of a long ratification procedure which required the Agreement to be ratified by the European Parliament and by the Polish Parliament as well as by the parliaments of all the 12 member states.

With respect to trade in manufactured products, the Agreement assumes establishment within a maximum of 10 years (from the entry into force of the Interim Agreement) of a free trade area between Poland and the EC. The fundamental rule on which this process is based is asymmetrical liberalisation which means that owing to the inequality of the partners, the economically weaker partner - Poland will obtain full access for its exports of industrial products to the EC market earlier than the EC to the Polish market and that the process of removal of trade restrictions will be carried faster by the EC than by the Polish side. For each product, the base custom rate subjected to custom reductions is the custom rate used *erga omnes*, including the decisions of the GATT Uruguay Round - such reduced rates will replace the base rates when the reductions come into force. This happened at the beginning of 1995, when the reductions of customs on industrial products negotiated under the Uruguay Round became operative. Since the Interim Agreement came into life, mutual trade between Poland and the Community has been based on the *standstill rule*. This rule means that neither new import or export customs or any other charges of similar nature may be imposed nor the used customs and charges can be raised. This rules also applies to quantitative restrictions on trade and other similar measures.

Once the Interim Agreement became operative, i.e. on 1 March 1992 Poland obtained free access to the EC market for about 47% of its exports of manufactured products (in 1990 prices). The process of liberalisation of the remaining part of Polish exports to the EC countries was to proceed gradually and its completion was set for 1997 at the latest. More specifically, this means that:

(1) the so-called semi-sensitive products - mainly those listed in Enclosure III

[1] Europe Agreement, Journal of Law of the Republic of Poland, 27 January 1994, no. 11, item 38.

to the Europe Agreement (and the Interim Agreement): chemicals, pharmaceuticals, cement, tires, leather and leather products, furniture and wood products, glass and porcelain products, some copper products, radio and television sets and lamps obtained free access to the EC market at the beginning of 1995.

In accordance with the Additional Protocol[2] which Poland and the EC signed after the Copenhagen summit, the quotas and tariff ceilings for products specified in Enclosure III were increased according to the following schedule:

- by 20% at the time of entry into force of the Agreement
- by a further 20% on 1 January 1993
- by a further 10% on 1 July 1993
- by a further 30% on 1 January 1994.

The customs on products imported in excess of the above quotas and tariff ceilings were decreased according to the original scheme, i.e. by 15% p.a., but it should be noted that they were lifted in full at the beginning of 1995.

(2) the so-called sensitive products covering textiles (fabrics and clothing) and coal and steel products were planned to obtain free access to the EC market by the end of 1997. Starting from 1 March 1993 quotas in direct textile exports from Poland to the EC and in the so-called IPT were raised by about 11% p.a. for each of the textile categories in accordance with the Additional Protocol to the European Agreement on Trade in Textile Products between the European Community and the Republic of Poland.[3] These quotas were ultimately lifted on 1 January 1998, which implies full liberalisation of EC imports of textiles from Poland.

Liberalisation of customs on direct imports of textiles from Poland to the EC proceeded according to the following schedule:

- at the entry into life of the Interim Agreement, customs rates were lowered to the level of 71% of the base rates,
- at the beginning of the third year of operation of the Agreement, or in 1994 they were reduced to 57% of the base customs rates,
- at the beginning of 1995 - to 43% of the base customs rates,
- at the beginning of 1996 - to 29% of the base customs rates,

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[2] Additional Protocol to the Interim Agreement on Trade and Trade-Related Matters between the European Community and the European Coal and Steel Community and the Republic of Poland, and the Europe Agreement between the European Communities and their Member States and the Republic of Poland, Official Journal, ser.: Law, no. 195.

[3] Cf. Additional Protocol to the Europe Agreement on Trade in Textile Products between the European Community and the Republic of Poland, Official Journal, 1992, Ser.: Law, no. 410.

- at the beginning of 1997, the customs rates were completely lifted (in accordance with the decision taken at the European Council summit in Copenhagen, this process was accelerated by 1 year[4].

In line with the recommendations made in June 1993 by the European Council, it was the task of the EC Commission to examine the possibility of lifting the customs on total imports of textiles from Poland under IPT at the beginning of 1994, which was effected according to the timetable.

The import customs rates (Protocol no. 3 to the Interim Agreement) applied in the EC to steel products imported from Poland were lifted according to the following timetable:

- each customs rate was cut to 80% of the basic customs rate at the time the Agreement came into life,
- further reductions to 60%, 40% and 20% of the base rate were introduced respectively at the beginning of the second (i.e. 1993), third and fourth year of operation of the Interim Agreement. At the beginning of 1996, customs rates were lifted in full.

Quantitative restrictions on imports of Polish steel products were lifted by the EC at the time the Interim Agreement became operative.

Customs and quantitative restrictions on coal products imported by the EC from Poland were lifted a year after the Interim Agreement came into life with the exception of those used by Germany and Spain, both of which undertook to lift them within 4 years after the Agreement came into force, i.e. on 1 January 1996 at the latest.

The above timetable of access for Polish exports of manufactured products to the EC market means that Poland got full access for its products to that market at the latest by the beginning of 1998.

Exports of industrial products from Poland to the EU have the following 6 basic groups covered by the trade liberalisation schedule:

- **Group I** coves mainly raw materials such as salt, silicon, calcium, iron, alloys, tungsten powders, silicates, cermets, etc. (Article 9, Section 2 of the Agreement, products listed in Enclosure IIa);
- **Group II** covers ferroalloys, non-ferrous metals, antimony, lead, zinc, manganese (Article 9, Section 2 of the Agreement, products listed in Enclosure IIb);

[4] Additional Protocol to the Interim Agreement on Trade and Trade-Related Matters between the European Community and the European Coal and Steel Community and the Republic of Poland, Official Journal, ser.: Law, no. 195.

- **Group III** covers cement, chemicals, nitrogenous fertilisers, ceramics, leather, drawn glass, trunks, suitcases, manual tools, fibreboards, cars, tractors, clocks, radio and TV equipment, furniture, toys, rubber footwear, rolling bearings and others (Article 9, Section 3 of the Agreement, products listed in Enclosure III);
- **Group IV** covers textiles (Protocol no. 1 and the modifications consequent on the Uruguay Round of the GATT);
- **Group V** covers coal and steel (Article 16 of the Agreement, Protocol no. 2);
- **Group VI** covers industrial products other than those listed above (Article 9, section 1 of the Agreement).

Timetable of liberalisation of Polish exports to the European Communities

Commodity group	Liberalisation timetable
Raw materials and industrial products I	A 50% reduction of customs rates in the first year (1992) and total lifting of customs in the next year (1993).
II	Customs reductions in the period 1992-1994.
III	Customs reductions in the period 1992-1994.
IV (textiles)	Reductions of customs rates in the period 1992-1996. Quota increases of about 11% p.a. in 1993-1997. Full lifting of quotas on 1 Jan. 1998.
Va (coal)	Lifting of quotas and customs on coal in 1992, except for exports to Spain and Germany (which will lift them on 1 Jan. 1996).
Vb (steel)	Customs reductions in the period 1992-1995.
VI (industrial products)	Customs lifted on the entry into force of the agreement.

Source: Calculated on the basis of the provisions of the Europe Agreement: EC-Poland.

Poland liberalised access to its market for about 25% of the value of imports (in 1990 prices) coming from the EC (mainly raw materials and investment equipment) at the time the Interim Agreement came into force. As regards the remaining part of imports of manufactured products from the EC, the process of liberalisation of access to the Polish market began in 1995 and will continue for 5 years, i.e. it will be completed at the beginning of 1999 with the exception of imports of cars which will get fully liberalised access to the Polish market in the year 2002.

Four basic groups can be pointed out in industrial imports:

- **Group I** covers among others non-metallic minerals, metal ores, coal, gas, electricity, natural rubber, wood, textile crude materials, non-ferrous metals as

well as agricultural machinery (except tractors), some chemicals, pharmaceuticals, vitamins and other pharmaceutical products, paper, stamps, etc., (Article 10, Section 1 of the Agreement, goods listed in Enclosure III).

A detailed timetable of liberalisation for products of coal and steel looks as follows: some of the products gained liberalised access to the Polish market on the entry into force of the Agreement, and the period of liberalisation for remaining products belonging to that group is spread over 1995-1999.

- **Group II** covers crude materials and industrial products not enumerated in groups I, II and V (Article 10, Section 2 of the Agreement).
- **Group III** covers cars (Article 10, Section 3, Enclosure V).
- **Group IV** covers products obtained from petroleum and textiles (Article 10, Section 1 of the Agreement; products listed in Enclosure V, as are products of group III).

Timetable of liberalisation of Polish imports from the European Union

Commodity group	Liberalisation timetable
Raw materials and industrial products I	Customs lifted on the entry into force of the Agreement, or in 1992.
II	Starting from 1995, a customs reduction of 20% p.a.
III	Liberalisation period from 1992 until 2002. From 1992, a customs-free quota for 25,000 motor-cars, increasing by 5% per year, for 100,000 utility vehicles and for 5000 cars with catalysts, increasing by 10% per year.
IV (products obtained from oil and textiles)	Partial lifting of customs on putting the Agreement into force, and the ultimate liberalisation process spread over 5 years, 1995-1999.

Source: On the basis of the provisions of the Europe Agreement: EC-Poland.

3.3. Changes in foreign trade in industrial products between Poland and the EU in the integration process

In the period of Poland's systemic transformation and its integration into the European Union there occurred a shift in the directions of foreign trade from the eastern one (former CMEA countries) to the west European direction and the share of the EU (former EC) countries was doubled in 1997 compared with the share in 1989, i.e. it rose from the level of about 35% to about 70%. In this period of time, Poland's trade with the European Union recorded an almost sixfold increase in imports and an increase of 3.5 times in the value of exports.

In 1989, the respective import and export values in this direction of trade amounted to USD 3,514.7 million and USD 4,407.1 million whereas in 1996 the respective figures were USD 23,739.2 million and USD 250.2 million[5].

The products characterised with the highest growth rates in Polish exports to the European Union in the years 1993-1996 included telecommunications equipment (1,205%), office machinery and electronic data processing equipment (605%), power engineering machinery and equipment (306%), cameras, optical equipment, clocks and watches (431%), i.e. products with the highest increments in the global demand (Wysokińska, Z., Witkowska, J., 1997, pp. 36-44) belonging to technologically advanced groups and prognosticating positively for development of these branches in future and consequently for employment in them. The commodity groups which also recorded high growth rates of export to the EU (above 250%, or above the average growth rate) included specialised equipment and metalworking machinery, paper, paperboard and products made of paper pulp, base oils and perfume materials, artificial fertilisers and furniture (cf. Table 8).

[5] On the basis of official data of the Central Statistical Office, Warsaw.

Table 8. Exports of industrial products from Poland to the European Union, 1993-1996

SITC section		1993	1994	1995	1996	1996/1993
		in thousands of US dollars				growth rate in %
	Total	**8 942 726**	**10 666 203**	**16 038 496**	**16 250 233**	**181.71**
	Total sections 5-8	**86 856 118**	**8 396 712**	**12 986 975**	**13 297 889**	**15.31**
	Section 5 Chemicals and related products	**442 506**	**531 990**	**915 027**	**834 561**	**188.60**
51	Organic chemicals	108 501	154 670	305 147	238 062	219.41
52	Inorganic chemicals	71 262	114 497	150 709	124 769	175.08
53	Dyeing, tanning materials	13 349	20 236	29 215	26 937	201.79
54	Pharmaceuticals	31 560	31 345	37 709	48 168	152.62
55	Base oils and scents	9 646	8 835	23 630	25 969	269.22
56	Manufactured products	78 902	102 516	175 483	201 841	255.81
57	Plastics, not processed	76 049	59 504	133 200	103 192	135.69
58	Plastics, processed	8 959	9 559	17 842	22 725	253.66
59	Chemicals and products not classified elsewhere	44 278	30 828	42 093	42 898	96.88
	Section 6 Basic manufactures	**2 323 699**	**3 117 063**	**4 690 235**	**4 279 500**	**184.17**
61	Skins, hides, tanned	61 183	74 220	117 118	117 532	192.10
62	Rubber products	70 858	93 443	147 538	165 750	233.92
63	Products of wood and cork (without furniture)	253 900	357 440	548 559	543 642	214.12
64	Paper, paperboard and products of pulp	85 974	129 495	268 672	240 350	279.56
65	Wool yarn and fabrics	185 338	233 272	356 094	365 241	197.07
66	Products of non-metal materials	288 723	371 898	478 196	491 217	170.13
67	Iron and steel	292 292	464 262	743 927	521 728	178.50
68	Non-ferrous metals	646 086	805 073	1 051 860	811 772	125.64
69	Metal products	438 345	587 960	978 272	1 022 268	233.21

Table 8. Exports of industrial products from Poland to the European Union, 1993-1996 [cont.]

SITC section		1993	1994	1995	1996	1996/1993
		in thousands of US dollars				growth rate in %
	Section 7 Machinery and transport equipment	**1 811 955**	**1 947 386**	**3 461 610**	**3 952 648**	**218.14**
71	Power engineering machinery and equipment	70 162	85 694	175 868	214 930	306.33
72	Specialised equipment	95 438	142 854	230 814	252 339	264.40
73	Metal working machinery	20 968	21 763	44 200	56 835	271.06
74	Other industrial equipment	137 841	157 420	292 438	338 621	245.66
75	Office machinery and electronic data processing equipment	8 369	11 900	19 528	50 702	605.83
76	Telecommunications machinery and equipment	18 429	51 505	130 876	222 103	1205.18
77	Electrical machinery and equipment	381 918	468 629	767 965	929 978	243.50
78	Road vehicles	641 968	673 778	1 039 555	1 212 561	188.88
79	Other transport equipment	436 862	333 843	760 323	674 579	154.41
	Section 8 Other industrial products	**2 277 958**	**2 800 273**	**3 920 103**	**4 231 180**	**185.74**
81	Construction machinery and equipment Sanitary and plumbing equipment and fixtures	38 269	48 903	90 002	113 667	297.02
82	Furniture	492 130	712 584	1 081 334	1 237 235	251.40
83	Travelling articles, handbags	16 538	18 371	25 185	21 847	132.10
84	Clothing	1 421 296	1 653 145	2 150 967	2 193 904	154.36
85	Footwear	133 086	128 849	177 879	176 667	132.75
87	Control equipment and instruments	28 300	56 177	64 522	68 085	240.58
88	Cameras, optical equipment, clocks and watches	2 357	1 183	4 524	10 164	431.23
89	Other industrial products	145 982	181 061	325 692	409 611	280.59

Source: Calculated on the basis of official data of the Central Statistical GUS, Warsaw.

Table 8a. Commodity structure of Polish exports to the European Union, 1993-1996 (in %)

SITC section		1993	1994	1995	1996
	Total	**100.00**	**100.00**	**100.00**	**100.00**
	Total sections 5-8	**971.25**	**78.72**	**80.97**	**81.83**
	Section 5 Chemicals and related products	**4.95**	**4.99**	**5.71**	**5.14**
51	Organic chemicals	1.21	1.45	1.90	1.46
52	Inorganic chemicals	0.80	1.07	0.94	0.77
53	Dyeing, tanning materials	0.15	0.19	0.18	0.17
54	Pharmaceuticals	0.35	0.29	0.24	0.30
55	Base oils and scents	0.11	0.08	0.15	0.16
56	Manufactured products	0.88	0.96	1.09	1.24
57	Plastics, not processed	0.85	0.56	0.83	0.64
58	Plastics, processed	0.10	0.09	0.11	0.14
59	Chemicals and products not classified elsewhere	0.50	0.29	0.26	0.26
	Section 6 Basic manufactures	**25.98**	**29.22**	**29.24**	**26.34**
61	Skins, hides, tanned	0.68	0.70	0.73	0.72
62	Rubber products	0.79	0.88	0.92	1.02
63	Products of wood and cork (without furniture)	2.84	3.35	3.42	3.35
64	Paper, paperboard and products of pulp	0.96	1.21	1.68	1.48
65	Wool yarn and fabrics	2.07	2.19	2.22	2.25
66	Products of non-metal materials	3.23	3.49	2.98	3.02
67	Iron and steel	3.27	4.35	4.64	3.21
68	Non-ferrous metals	7.22	7.55	6.56	5.00
69	Metal products	4.90	5.51	6.10	6.29
	Section 7 Machinery and transport equipment	**20.26**	**18.26**	**21.58**	**24.32**
71	Power engineering machinery and equipment	0.78	0.80	1.10	1.32
72	Specialised equipment	1.07	1.34	1.44	1.55
73	Metal working machinery	0.23	0.20	0.28	0.35
74	Other industrial equipment	1.54	1.48	1.82	2.08
75	Office machinery and electronic data processing equipment	0.09	0.11	0.12	0.31
76	Telecommunications machinery and equipment	0.21	0.48	0.82	1.37
77	Electrical machinery and equipment	4.27	4.39	4.79	5.72
78	Road vehicles	7.18	6.32	6.48	7.46
79	Other transport equipment	4.89	3.13	4.74	4.15
	Section 8 Other industrial products	**25.47**	**26.25**	**24.44**	**26.04**
81	Construction machinery and equipment Sanitary and plumbing equipment and fixtures	0.43	0.46	0.56	0.70

Table 8a. Commodity structure of Polish exports to the European Union, 1993-1996 (in %) [cont.]

SITC section		1993	1994	1995	1996
82	Furniture	5.50	6.68	6.74	7.61
83	Travelling articles, handbags	0.18	0.17	0.16	0.13
84	Clothing	15.89	15.50	13.41	13.50
85	Footwear	1.49	1.21	1.11	1.09
87	Control equipment and instruments	0.32	0.53	0.40	0.42
88	Cameras, optical equipment, clocks and watches	0.03	0.01	0.03	0.06
89	Other industrial products	1.63	1.70	2.03	2.52

Source: Calculated on the basis of data in table 8.

The products with the highest import growth rates exceeding the level of 250% included the following groups: transport equipment (755%), artificial fertilisers (438%), paper, paperboard and pulp products (375%), products of wood and cork (359%), iron and steel (319%), products of non-metal materials (287%) and metal products (272%), non-ferrous metals (268%), plastics (267%) (cf. Table 9).

Table 9. Industrial imports from the European Union to Poland, 1993-1996

SITC section		1993	1994	1995	1996	1996/1993
		in thousands of US dollars				growth rate in %
	Total	**10 755 322**	**12 097 408**	**18744470**	**23 739 197**	**220.72**
	Total sections 5-8	**8 931 829**	**10 328 951**	**16 358 102**	**20 385 622**	**228.24**
	Section 5 Chemicals and related products	**1 664 129**	**1 997 816**	**3 007 160**	**3 580 330**	**215.15**
51	Organic chemicals	198 718	244 770	366 182	353 391	177.84
52	Inorganic chemicals	46 254	43 871	77 796	93 564	202.28
53	Dyeing, tanning materials	168 440	200 925	311 750	378 449	224.68
54	Pharmaceuticals	413 933	474 218	634 763	744 091	179.76
55	Base oils and scents	207 085	210 749	275 206	372 404	179.83
56	Manufactured products	8 588	18 225	21 172	37 609	437.93
57	Plastics, not processed	181 708	256 781	461 020	535 199	294.54
58	Plastics, processed	199 388	252 035	438 432	531 663	266.65
59	Chemicals and products not classified elsewhere	240 015	296 242	420 840	533 960	222.47
	Section 6 Basic manufactures	**2 453 463**	**2 926 815**	**4 972 989**	**5 768 621**	**235.12**
61	Skins, hides, tanned	64 356	81 601	124 860	158 372	246.09
62	Rubber products	101 573	109 185	175 252	226 085	222.58
63	Products of wood and cork (without furniture)	29 885	36 759	72 182	107 318	359.10
64	Paper, paperboard and products of pulp	246 406	294 114	799 158	925 181	375.47
65	Wool yarn and fabrics	1 149 805	1 371 862	1 815 262	1 867 595	162.43
66	Products of non-metal materials	213 413	263 954	468 110	613 267	287.36
67	Iron and steel	243 042	266 795	650 899	776 411	319.46
68	Non-ferrous metals	101 056	104 685	219 561	271 265	268.43
69	Metal products	303 056	397 860	647 705	823 127	271.61

Table 9. Industrial imports from the European Union to Poland, 1993-1996 [cont.]

SITC section		1993	1994	1995	1996	1996/1993
		in thousands of US dollars				growth rate in %
	Section 7 Machinery and transport equipment	**3 668 715**	**4 155 787**	**6 550 385**	**8 860 759**	**241.52**
71	Power engineering machinery and equipment	200 533	259 972	432 231	486 671	242.69
72	Specialised equipment	607 730	780 161	1 096 688	1 446 346	237.99
73	Metal working machinery	100 976	136 827	203 933	245 251	242.88
74	Other industrial equipment	775 891	916 639	1 524 004	1 967 954	253.64
75	Office machinery and electronic data processing equipment	219 078	217 299	349 072	427 498	195.14
76	Telecommunications machinery and equipment	269 217	250 744	414 189	588 152	218.47
77	Electrical machinery and equipment	648 754	749 936	1 169 677	1 562 516	240.85
78	Road vehicles	834 785	817 402	1 318 519	2 048 914	245.44
79	Other transport equipment	11 571	26 807	42 072	87 457	755.83
	Section 8 Other industrial products	**1 145 522**	**1 248 533**	**1 827 568**	**2 175 912**	**189.95**
81	Construction machinery and equipment Sanitary and plumbing equipment and fixtures	63 536	83 908	150 983	199 990	314.77
82	Furniture	76 035	78 093	135 218	169 997	223.58
83	Travelling articles, handbags	7 222	5 328	5 879	4 509	62.43
84	Clothing	136 335	122 005	183 941	199 348	146.22
85	Footwear	41 339	46 036	69 123	97 870	236.75
87	Control equipment and instruments	220 144	226 583	344 003	393 431	178.72
88	Cameras, optical equipment, clocks and watches	73 926	61 892	73 326	85 272	115.35
89	Other industrial products	526 985	624 688	865 095	1 025 495	194.60

Source: Calculated on the basis of official data of the Central Statistical GUS, Warsaw.

Table 9a. Commodity structure of Polish imports from the European Union, 1993-1996 (in %)

SITC section		1993	1994	1995	1996
	Total	**100.00**	**100.00**	**100.00**	**100.00**
	Total sections 5-8	**83.05**	**85.38**	**87.27**	**85.87**
	Section 5 Chemicals and related products	**15.47**	**16.51**	**16.04**	**15.08**
51	Organic chemicals	1.85	2.02	1.95	1.49
52	Inorganic chemicals	0.43	0.36	0.42	0.39
53	Dyeing, tanning materials	1.57	1.66	1.66	1.59
54	Pharmaceuticals	3.85	3.92	3.39	3.13
55	Base oils and scents	1.93	1.74	1.47	1.57
56	Manufactured products	0.08	0.15	0.11	0.16
57	Plastics, not processed	1.69	2.12	2.46	2.25
58	Plastics, processed	1.85	2.08	2.34	2.24
59	Chemicals and products not classified elsewhere	2.23	2.45	2.25	2.25
	Section 6 Basic manufactures	**22.81**	**24.19**	**26.53**	**24.30**
61	Skins, hides, tanned	0.60	0.67	0.67	0.67
62	Rubber products	0.94	0.90	0.93	0.95
63	Products of wood and cork (without furniture)	0.28	0.30	0.39	0.45
64	Paper, paperboard and products of pulp	2.29	2.43	4.26	3.90
65	Wool yarn and fabrics	10.69	11.34	9.68	7.87
66	Products of non-metal materials	1.98	2.18	2.50	2.58
67	Iron and steel	2.26	2.21	3.47	3.27
68	Non-ferrous metals	0.94	0.87	1.17	1.14
69	Metal products	2.82	3.29	3.46	3.47
	Section 7 Machinery and transport equipment	**34.11**	**34.35**	**34.95**	**37.33**
71	Power engineering machinery and equipment	1.86	2.15	2.31	2.05
72	Specialised equipment	5.65	6.45	5.85	6.09
73	Metal working machinery	0.94	1.13	1.09	1.03
74	Other industrial equipment	7.21	7.58	8.13	8.29
75	Office machinery and electronic data processing equipment	2.04	1.80	1.86	1.80
76	Telecommunications machinery and equipment	2.50	2.07	2.21	2.48
77	Electrical machinery and equipment	6.03	6.20	6.24	6.58
78	Road vehicles	7.76	6.76	7.03	8.63
79	Other transport equipment	0.11	0.22	0.22	0.37
	Section 8 Other industrial products	**10.65**	**10.32**	**9.75**	**9.17**
81	Construction machinery and equipment Sanitary and plumbing equipment and fixtures	0.59	0.69	0.81	0.84
82	Furniture	0.71	0.65	0.72	0.72
83	Travelling articles, handbags	0.07	0.04	0.03	0.02
84	Clothing	1.27	1.01	0.98	0.84

Table 9a. Commodity structure of Polish imports from the European Union, 1993-1996 (in %) [cont.]

SITC section		1993	1994	1995	1996
85	Footwear	0.38	0.38	0.37	0.41
87	Control equipment and instruments	2.05	1.87	1.84	1.66
88	Cameras, optical equipment, clocks and watches	0.69	0.51	0.39	0.36
89	Other industrial products	4.90	5.16	4.62	4.32

Source: Calculated on the basis of data from Table 9.

3.4. Changes in the commodity structure of Poland's trade with the European Union

In the period 1992-1996, the structure of Polish exports to the EU was characterised by prevalence of labour-intensive products (a share of 45%) mainly such as textiles and clothing, furniture and other products of wood, wool yarn and fabrics, products of wood and cork, rubber products, leather and leather products with an upward trend of this commodity group in total exports to the EU from 29% in 1992 to 45% in 1996. The second group of products with high shares in export to the EU included resource-intensive products such as coal, iron and steel and non-ferrous metals. This group, however, showed a downward trend in exports to the EU from 31% in 1992 to 16.5% in 1996. The group of goods whose share in exports to the EU began to rise in 1995 included products at a higher processing and technological level such as telecommunications equipment, electrical machinery and equipment, office equipment electronic data processing equipment, pharmaceuticals, optical equipment (cf. Tables 8a and 10).

Table 10. Commodity and geographical structure by intensity of use of factors of production, 1992-1996 (in %)

Group of products	Year	World-Total	European Union	
		Commodity structure	Geographical structure	Commodity structure
Export -total	1992	100.00	72.00	100.00
	1993	100.00	75.16	100.00
	1994	100.00	75.34	100.00
	1995	100.00	75.08	100.00
	1996	100.00	71.81	100.00
I Resource-intensive products	1992	32.67	69.69	31.13
	1993	25.22	75.23	23.73
	1994	24.12	71.52	21.42
	1995	22.53	64.67	18.26
	1996	21.02	60.85	16.53

Table 10. Commodity and geographical structure by intensity of use of factors of production, 1992-1996 (in %) [cont.]

Group of products	Year	World-Total	European Union	
		Commodity structure	Geographical structure	Commodity structure
II Labour-intensive products	1992	23.60	85.93	29.45
	1993	31.62	90.28	40.13
	1994	33.84	88.75	42.56
	1995	35.67	85.95	43.12
	1996	36.79	82.22	44.76
III Capital-intensive products	1992	20.42	69.16	20.46
	1993	21.38	66.11	18.84
	1994	21.07	69.89	19.53
	1995	19.59	73.27	19.21
	1996	18.61	67.13	17.59
IV Technology-intensive products, easy to imitate	1992	7.05	65.24	6.00
	1993	5.90	54.89	4.10
	1994	5.71	58.21	4.36
	1995	6.31	62.20	5.08
	1996	6.37	59.83	5.19
IV Technology-intensive products, easy to imitate	1992	15.73	61.42	12.26
	1993	15.83	64.65	13.16
	1994	15.19	65.44	12.06
	1995	15.86	72.75	14.26
	1996	17.16	72.42	15.88

Note: Types of products: ***(1) RESOURCE-INTENSIVE PRODUCTS***: food and live animals SITC 0, non-edible crude materials except textile materials SITC 2-26, fuels and lubricants excl. electricity SITC 3-35, edible oils and fats SITC 4, artificial fertilisers SITC 56; ***(2) LABOUR-INTENSIVE PRODUCTS***: textile crude materials SITC 26, manufactured products at a lower processing level excl. rubber products, iron, steel and non-ferrous metals SITC 6-(62, 67, 68), other manufactured products excl. specialised equipment, lighting and optical equipment SITC (Rev.) 8-86, SITC (Rev. 2) 8-(87,88), SITC (Rev. 3) 8-(87,88); ***(3) CAPITAL-INTENSIVE PRODUCTS***: beverages and tobacco SITC 1, electricity SITC 35, dyes and tans SITC 53, essential oils and scent substances SITC 55, rubber products SITC 62, iron and steel SITC 67, non-ferrous metals SITC 68, road vehicles SITC, Rev. 732, 733, SITC (Rev. 2) 78, SITC (Rev. 3) 78; ***(4) TECHNOLOGY-INTENSIVE PRODUCTS, EASY TO IMITATE***: organic chemicals SITC 51, inorganic chemicals SITC (Rev.) 51, SITC (Rev. 2) 52, SITC (Rev. 3) 52, pharmaceutical and medicinal products SITC 54, resins, plastics SITC (Rev.) 58, SITC (Rev. 2) 58, SITC (Rev. 3) 57, 58, other chemical products SITC (Rev.) 59, SITC (Rev. 2) 59, SITC (Rev. 3) 59-593, office machines and computers SITC (Rev.) 714, SITC (Rev. 2) 75, SITC (Rev. 3) 75, telecommunications machines and equipment SITC (Rev.) 724, SITC (Rev. 2) 76, SITC (Rev. 3) 76; ***(5) TECHNOLOGY-INTENSIVE PRODUCTS, HARD TO IMITATE***: explosives and pyrotechnic materials SITC (Rev. 2) 57, SITC (Rev. 3) 593, transport machinery and equipment excluding office machines and computers, telecommunications machines and equipment and road vehicles SITC (Rev.) 7-(714, 724, 732, 733), SITC (Rev. 2) 7-(75, 76, 78), SITC (Rev. 3) 7-(75, 76, 78), specialised equipment, optical equipment, clocks and watches SITC (Rev.) 86, SITC (Rev. 2) *87, 88, SITC (Rev. 3) 87, 88.*

Source: Calculated on the basis of official data of the Central Statistical Office.

In 1996, the structure of Polish imports from the EU was characterised by dominance of labour-intensive products with a high input of less qualified labour (27%) such as paper, paperboard and products of pulp, wool yarn and fabrics (chiefly for IPT) as well as products representing a higher processing level and a higher input of technology and capital such as electrical machinery and equipment, road vehicles - cars, metalworking machinery and other industrial, specialised machinery, telecommunications machinery and equipment (cf. Tables 9a and 11).

Table 11. Commodity and geographical structure of Polish imports, 1992-1996 (in %)

Group of products	Year	World - Total	European Union	
		Commodity structure	Commodity structure	Geographical structure
Import -total	1992	100.00	100.00	53.15
	1993	100.00	100.00	57.26
	1994	100.00	100.00	57.51
	1995	100.00	100.00	53.68
	1996	100.00	100.00	57.40
I Resource-intensive products	1992	31.67	20.21	33.92
	1993	26.60	15.84	34.09
	1994	23.97	13.36	32.04
	1995	22.14	12.58	30.50
	1996	22.11	12.46	32.33
II Labour-intensive products	1992	17.38	17.30	52.91
	1993	23.00	27.22	67.77
	1994	24.70	29.04	67.61
	1995	24.72	30.74	66.74
	1996	23.36	26.67	65.53
III Capital-intensive products	1992	12.14	14.00	61.30
	1993	13.10	15.83	69.22
	1994	12.78	14.26	65.77
	1995	14.00	16.68	63.92
	1996	15.29	17.81	66.84
IV Technology-intensive products, easy to imitate	1992	15.78	17.84	60.08
	1993	16.48	16.40	56.98
	1994	16.89	16.69	56.82
	1995	17.39	18.45	56.95
	1996	16.62	16.26	56.17
IV Technology-intensive products, hard to imitate	1992	21.84	28.69	69.82
	1993	20.55	24.50	68.28
	1994	21.17	25.97	70.54
	1995	21.42	27.72	69.49
	1996	22.29	26.09	68.62

Classification of commodity groups and source as for Table 10.

3.5. Revealed comparative advantage in Polish industrial exports to the European Union

The analysis of competitiveness of Polish industrial exports to the European Union was conducted on the basis of the revealed comparative advantage index showing a relative advantage which a given country has in exports of product *i* to the market of country/region *j* in relation to the share of its total exports in world exports to that country/region. This index can be written as follows:

$$RCA = \frac{X_{ij}}{\sum_{i=1}^{n} X_{ij}} : \frac{X_{ij}}{\sum_{i=1}^{n} X_{mw}},$$

where:

X_{ij} – value of export of product *i* from a given country to country/region *j*;

$\sum_{i=1}^{n} X_{ij}$ – total value of global export of product *i* to country/region *j*;

X_{mj} - value of total industrial export from the given country to country/region *j*;

$\sum_{i=1}^{n} X_{mw}$ – value of global industrial export to country/region *j*.

This index has no upper limit whereas value equal to 0 is its lower limit. Values higher than 1 recorded by particular products or groups of products mean the revealing of competitive advantage. This index can be used not only for examining the revealed comparative advantage over other countries or regions but also in relation to changes in its position in world trade. Then it takes the form of a relation of the share of a given country in export of product *i* to its share in total world export. Its value above 1 shows that a relative share of the examined country in export of product *i* is greater than its share in total world export, or that its comparative advantage was revealed in export of that product.

The creator of the revealed comparative advantage index is B. Balassa. (Balassa, B. 1965, 1977).

Table 12 shows revealed comparative advantages recorded by Poland in the EU markets in the period 1989-1996.

Table 12. Revealed comparative advantage in Polish industrial exports to the European Union, 1989-1996

SITC section		1989	1992	1993	1995	1996
5	**Chemicals and related products**	0.85	0.85	0.42	0.62	0.58
51	Organic chemicals	0.69	0.88	0.47	0.71	0.62
52	Inorganic chemicals	2.13	1.53	0.87	1.11	0.94
53	Dyeing, tanning materials	0.35	0.44	0.18	0.39	0.36
54	Pharmaceuticals	0.08	0.23	0.20	0.14	0.15
55	Base oils and scents	0.10	0.10	0.06	0.36	0.38
56	Manufactured products	2.80	6.71	2.28	2.59	3.14
57	Plastics, not processed	0.71	0.84	0.35	0.73	0.66
58	Plastics, processed	0.18	0.32	0.26	0.22	0.29
59	Chemicals and products not classified elsewhere	1.79	0.82	0.47	0.28	0.27
6	**Basic manufactures**	1.60	1.98	1.60	1.82	1.77
61	Skins, hides, tanned	0.29	2.35	2.02	1.55	1.53
62	Rubber products	0.89	0.93	0.80	1.33	1.41
63	Products of wood and cork (without furniture)	3.14	5.63	5.65	4.28	4.46
64	Paper, paperboard and products of pulp	0.44	0.45	0.43	1.54	1.44
65	Wool yarn and fabrics	0.69	0.66	0.56	0.82	0.84
66	Products of non-metal materials	1.06	2.04	1.57	1.02	1.04
67	Iron and steel	1.97	2.00	0.97	2.29	1.96
68	Non-ferrous metals	3.62	4.91	3.27	2.04	1.91
69	Metal products	1.76	2.41	2.70	2.88	2.99
7	**Machinery and transport equipment**	0.48	0.53	0.61	0.58	0.63
71	Power engineering machinery and equipment	0.61	0.72	0.51	0.39	0.43
72	Specialised equipment	0.46	0.61	0.40	0.70	0.75
73	Metal working machinery	0.89	0.60	0.26	0.35	0.41
74	Other industrial equipment	0.52	0.57	0.36	0.60	0.63
75	Office machinery and electronic data processing equipment	0.02	0.02	0.01	0.01	0.04
76	Telecommunications machinery and equipment	0.35	0.07	0.04	0.21	0.32
77	Electrical machinery and equipment	0.71	0.81	0.85	0.51	0.62
78	Road vehicles	0.55	0.53	0.75	1.35	1.50
79	Other transport equipment	0.48	0.85	1.58	2.01	1.70
8	**Other industrial products**	1.59	1.13	1.66	1.32	1.34
81	Construction machinery and equipment	0.86	1.02	3.49	1.67	2.08
82	Sanitary and plumbing equipment and fixtures	4.03	4.30	7.00	7.23	7.46
83	Furniture	2.29	0.63	0.81	0.33	0.27
84	Travelling articles, handbags	3.47	1.70	1.88	2.03	1.93
85	Clothing	2.34	1.25	1.60	1.00	0.87
87	Footwear	0.23	0.27	3.16	0.17	0.17
88	Control equipment and instruments	0.03	0.03	0.03	0.02	0.03
89	Cameras, optical equipment, clocks and watches	2.06	0.40	0.91	0.42	0.50
	Other industrial products					

Source: Calculated on the basis of data of the OECD and CSO - for appropriate years.

Their analysis leads to the following conclusions:

In 1989 Poland scored comparative advantages (expressed in RCA indices >1) in exports of the following sections of goods (see Table 12):

a) SITC section 5 - chemicals: inorganic chemicals, fertilisers, chemical materials and products,
b) SITC section 6 - basic manufactured goods: cork and wood manufactures, textile yarn and fabrics, non-metallic mineral manufactures, iron and steel, non-ferrous metals, manufactures of metal.
c) SITC section 8 - miscellaneous manufactured articles: furniture, travel goods, handbags, clothing and footwear.

In 1992, section 5 recorded an increase in comparative advantage in the case of fertilisers and a decline in the case of inorganic articles as well as the disappearance of comparative advantage in exports of chemical materials and other products.

As regards exports of products belonging to SITC section 6, increased comparative advantage was recorded for all the commodities exported to the EC, in which it was revealed in 1989.

There was no comparative advantage in section 7 (machinery and transport equipment).

SITC section 8 covering manufactured goods at a higher processing level in comparison with section 6 recorded an increase in the RCA index only in exports of furniture, and the index lowered in the case of clothing and footwear exports and disappeared in exports of travel goods and handbags. In 1992, comparative advantage was revealed in exports of construction equipment and sanitary, heating and lighting equipment.

A general conclusion can be formulated that the greatest comparative advantage in Polish exports to the EC was characteristic of basic manufactured goods. This section (i.e. section 6) also recorded an improvement in the RCA index level for all the commodity subgroups.

On the other hand, section 8 covering manufactured goods at a higher processing level (in comparison with those in section 6) recorded a drop in the RCA index in the case of all the subgroups (excepting furniture) in which comparative advantage occurred in 1989.

A similar tendency can be observed also in SITC section 5, in which a fall in the RCA index level was recorded in the examined period with the exception of manufactured fertilisers.

In 1992 - as in 1989 - the lack of comparative advantage in exports to the EC markets was most conspicuous in section 7 (machinery and transport

equipment), in which none of the commodity subsections had a comparative advantage.

In 1993, two tendencies of change in the comparative advantage of exports were recorded in comparison with 1992.

The first is concerned with an increased value of the index for exports of manufactured goods at a higher processing level covered by SITC section 8. A clear improvement took place in the level of this index for all the subsections with the exception of subsection 88 comprising cameras, optical equipment, clocks and watches. A special improvement occurred in exports of furniture, travel goods and handbags, building equipment, sanitary fixtures, control instruments and equipment. This tendency is positive because it means increased comparative advantage of exports of manufactured goods at a higher processing level.

The second tendency was concerned with the level of comparative advantage in group 5 covering chemicals. In 1993, all the subsections recorded an average decline of about 50% in the RCA index. Comparative advantage (index >1) continued only in exports of industrial fertilisers (subsection 56).

On the other hand, a positive fact was the occurrence of comparative advantage in SITC section 7, more specifically in subsection 79 covering other transport equipment. This section which covers goods at an advanced technological level had no such advantage before. The RCA index for subsection 79 amounted to 1.58 in 1993.

In the period 1995-1996, Polish industrial exports to the EU had comparative advantage in the following commodity groups:

- in SITC section 5, subsection 56 comprising artificial fertilisers recorded an increase in the RCA index from 2.59 to 3.13,
- in SITC section 6 - in all the subsections from 61 to 69 with the exception of 65 covering wool yarn and fabrics. The highest RCA indices (above 2) were scored by products of wood and cork (without furniture) - SITC 63 and metal products - SITC 69; it should be noted that both an improvement in the RCA level was recorded in both these cases in 1995-1996,
- in SITC section 7, the index rose from 1.32 to 1.50 in subsection 78 covering road vehicles and lowered from 2.01 to 1.70 in subsection 79 comprising other transport equipment, chiefly ships,
- in SITC section 8, the RCA index rose in subsection 81 covering construction machinery and equipment and sanitary fixtures (from 1.67 to 2.08) and in subsection 82 covering furniture (from 7.23 to 7.46) and went down in SITC 84 comprising clothing (from 2.03 to 1.93).

3.6. Changes in "import penetration" of the Polish market in the period of integration into the European Union

The import penetration level of the Polish industrial market measured in the share of imports in domestic sales was at the level of 40% for industry as a whole and it rose slightly - by 1% compared with 1994. (Karpiński, A., Paradysz, S., 1996) It was related to a large degree to the liberalisation of access of EU industrial products to the Polish market and to a smaller degree with the growing access of products coming from the EFTA and CEFTA.

The sectors of industry subjected to the highest (above the average) and dynamically growing import penetration included also those areas which are characterised by a higher share of lowly qualified labour such as:

- knitting and hosiery,
- fur and leather clothing and other products,
- clothing,
- bast fibres,
- silk products,
- tannery,
- haberdashery,
- cotton ,
- fish and potato products,
- toys.

as well industries turning out products at a higher processing level and involving modern technology and human capital such as:

- musical instruments and cameras,
- computer systems and electronic calculating equipment,
- optical equipment,
- medical instruments and equipment,
- measuring equipment,
- machinery and equipment for chemical processes,
- motorcycles and bicycles,
- communications equipment,
- electronic products,
- power engineering equipment,
- industrial automation equipment,
- pharmaceutical products,
- aviation equipment.
- auto equipment,
- equipment for the light industry,
- craning equipment,

- tools,
- machinery for mineral processing,
- road work machinery,
- machinery and equipment for the food industry,
- rolling bearings,
- machine tools (Karpiński, A., Paradysz, S., 1996)

Most of the cases presented above recorded very high import penetration indices of over 70%.

3.7. Conclusions

- The so-called labour-intensive products recorded the highest increase in the share in Polish export to the European Union (from about 30% to 45%), which resulted from Poland's revealed comparative advantage related to lower labour costs than in the EU countries. A particularly high export growth rate (almost 150% in 1993-1996) was recorded by clothing exported in over 80% to the EU under the so-called IPT and by products of wood (chiefly furniture). Polish exporters of these commodity groups registered a particularly high improvement in their competitive position mainly in the German market which accounted for almost 40% of Polish industrial exports to the EU.
- The biggest drop in the share of Polish exports to the EU in the period 1992-1996 was shown by resource-intensive products - from 31% to 16%.
- 1995 was the first year when technologically advanced products revealed a slight increase (by 4 percentage points) in their share in exports, to which exports by companies with foreign participation contributed in a large measure (almost in half).
- Imports from the EU recorded a drop in the share of resource-intensive products (by 8 percentage points) and technology-intensive products (by about 4 percentage points) in the analysed period of time.
- The share of imports from the EU based on a considerable input of lowly qualified labour rose by about 10 percentage points, and imports with big capital intensity went up by 2 percentage points.

The presented commodity structure of Poland's foreign trade with the European Union and the growth rate of this trade allow formulating the following conclusions and research hypotheses for development of the labour market in Poland:

- in the near future Poland will still be a considerable exporter of labour-intensive products to the EU market, which will involve a large pool of less qualified labour and will have a significant impact on development of the

labour market in Poland. These exports consist mainly of exports under the so-called IPT and also exports by firms with foreign participation. Owing to the trends towards a small wage increase in the sector of labour-intensive products observed in 1992-1996[6] there is a chance that the comparative advantage resulting from relatively low labour costs in Poland will not go down significantly and there will be no shift in orders under IPT e.g. to the Commonwealth of Independent States.

Because of the rising growth rate of exports of products at a higher processing and technology level, the demand for staff with higher qualifications may rise especially in the case of exports by companies with foreign capital participation, for they at present account for over 50% of total Polish exports of technologically advanced goods. These chances are feasible when these products will "hit" the areas with the highest increments in world demand.

A large degree of import penetration in Poland will in turn have a reducing effect on employment opportunities, eliminating enterprises and branches with lower competitive indices i.e. those not having or losing cost competitiveness (comparative advantage). The menace here is a very high import growth rate exceeding considerably the export growth rate and a deficit in trade especially with the EU.

4. Foreign direct investment by the European Union in Poland and the labour market

4.1. Characteristics of foreign direct investment in Poland. Comparative Aspects

Poland has been recording an increased inflow of foreign capital in the form of foreign direct investment (FDI) since 1992 (cf. Table 13).

[6] In the period 1992-1996, the real wage growth rate in labour-intensive industries was as follows: 116% in fabrics, 101.6% in clothing and furriery, 116.8% in knitted products, 117.2% in leather and leather products, 142.9% in cellulose and paper. For comparison, the wage growth rate in the entire industry was 126.5% and even higher in technologically advanced industries, namely 139.7% in office machinery and computers, 135.3% in specialised machinery and equipment and 139.9% in motor vehicles. Calculated on the basis data in the Statistical Yearbook, 1997, Central Statistical Office, Warsaw, p. 153.

Table 13. Stock capital of foreign direct investment in Poland, 1989-1997 (USD million)

Year [a]	FDI stock capital		Annual FDI flows	
	according to UN data	according to PAIZ data [b]	according to UN data	according to PAIZ data [b]
1989	231 [c]	.	11	.
1990	320	.	89	.
1991	611	.	291	.
1992	1289	1702.4	678	.
1993	3004	3041.0	1717	1338,6
1994	4879	4321.0	1875	1280,0
1995	7389	6832.0	3659	2511,0
1996	13516	12027.7	5196 [d]	5195,7
1997	.	17705.4	.	5677,7

Notes: a) Data for the year end.
b) The PAIZ data cover investment projects above USD 1 million.
c) The stock capital of FDI in Poland was estimated at USD 220 million.
d) Estimates.

Source: World Investment Report 1995. Transnational Corporations and Competitiveness UN, New York and Geneva, 1995, p. 99; World Investment Report 1996. Investment, Trade and International Policy Arrangements, UN, New York and Geneva, 1996, p. 64; World Investment Report 1997. Transnational Corporations, Market Structure and Competition Policy, UN, New York and Geneva 1997, p. 307; Lists of Major Investors, PAIZ, Warsaw 1992 - 1997.

However, it was not until 1996 that this inflow was sizeable enough (about USD 5.2 billion) to put Poland before Hungary and the Czech Republic in terms of annual FDI flow size. In 1997, about USD 6.6 billion flew into Poland, and USD 5.7 billion in the form of investment projects exceeding 1 million dollars. Consequently the estimated total value of FDI stock capital amounted to USD 20.6 billion at the end of 1997 (PAIZ, 1997). According to the PAIZ estimates, about USD 1.5 billion flew into Poland in the first quarter of 1998, that is much more that in the same period of the previous year.

A measure of importance of foreign capital in the form of FDI for economic development of the host country is its share in GDP and a ratio of annual FDI flows to total investment outlays. In Poland, the share of FDI stock capital in GDP rose from a negligible level of 0.3% in 1991 to 10% in 1996[7]. And the share of annual FDI flows in total investment spendings rose from 1.8% in 1991 to 20.3% in 1996[8].

The geographical structure of FDI in Poland underwent changes in the course of the process of transformation and implementation of the Europe

[7] Calculated on the basis of the data of the Central Statistical Office and the PAIZ.

[8] As above.

Agreement. At the end of 1997, over 54% of stock capital of FDI in Poland came from the EU countries, 22.5% from the USA and 9.3% of the total invested capital was termed as international capital. A mere 0.4% of the capital came from Japan (PAIZ, 1997; see also Table 14). The share of investment flowing from the EU in total FDI in Poland doubled in the analysed period of time. In 1992 it amounted to 27.2% only. This result was influenced both by the growing interest shown by European firms in investing in Poland after the Europe Agreement came into life in 1994 and by the expansion of the EU after the new members' accession in 1995, which entailed changes in statistics. In absolute terms, stock capital of FDI coming from the EU countries rose steadily in the examined period of time, i.e. from the level of about USD 0.5 billion in 1992 up to USD 9.6 billion in 1997 (cf. Table 14). Among the investors from the EU, German firms were prevalent, with a share of 11.9% of total FDI in Poland in 1997. They were followed by Italian, French and Dutch firms with respective shares of 9.2%, 9.1% and 6.9% in total FDI in Poland.

It should be underlined that the share of US investment in total FDI in Poland was more than halved in the years 1992-1997, i.e. from 48.4% in 1992 down to 22.5% in 1997. In absolute terms, however, US investment rose by 4.8 times in the analysed period and was greater than investment by any other country. The reason for interest in investing in Poland was - as can be gathered from questionnaire researches (Witkowska, J., Wysokińska, Z.,1997) - the existence of a potentially absorptive sales market and relatively low production costs as well as stabilisation of the economic and political situation in Poland under the influence among others of the signing and implementation of the Europe Agreement.

The involvement of Japanese investors in Poland continued unchanged - in relative terms - in comparison with the early nineties. On the other hand, firms from South Korea showed a rising interest in investing in Poland in the examined period of time. Their share in total foreign investment in Poland rose from 0.2% in 1993 to 6.1% in 1997. The entry into the Polish market in the form of FDI seems to be a way in which these firms can bypass customs barriers to their expansion on to the EU market.

Table 14. Geographical structure of major investors in Poland, 1992-1997

	1992		1993		1994		1995		1996		1997	
	USD million	%	USD million	%	USD million	%	USD million	%	USD million	%	USD million	%
Total	**1702**	**100.0**	**2828.0**	**100.0**	**4402.9**	**100.0**	**6832.0**	**100.0**	**12027.7**	**100.0**	**17705.4**	**100.0**
European Union	**463.4**[a)]	**27.2**	**1038.8**	**36.7**	**1568.0**[a)]	**35.4**	**3261.0**	**47.7**	**6368.9**	**53.0**	**9558.9**	**54.0**
Germany	58.2	3.4	212.0	7.5	414.6	9.4	683.0	10.0	524.4	12.7	2104.9	11.9
Italy	214.8	12.6	270.0	9.5	365.8	8.3	459.0	6.7	1223.8	10.2	1636.3	9.2
France	74.7	4.4	177.0	6.3	268.1	6.1	574.0	8.4	899.9	7.5	1614.0	9.1
Netherlands	79.5	4.7	233.0	8.2	250.4	5.6	408.0	6.0	951.7	7.9	1213.6	6.9
United Kingdom	31.0	1.8	68.0	2.4	112.2	2.6	368.0	5.4	509.0	4.2	1002.0	5.7
Austria	122.9	7.2	195.0	6.9	159.7	3.6	248.0	3.6	315.3	2.6	660.3	3.7
Sweden	44.0	2.6	71.0	2.5	86.7	2.0	179.0	2.6	361.3	3.0	565.8	3.2
Denmark	-	-	24.0	0.8	60.2	1.4	124.0	1.8	238.2	2.0	306.8	1.7
Ireland	-	-	7.0	0.2	7.0	0.2	47.0	0.7	105.7	0.9	191.2	1.1
Finland	6.1	0.4	18.0	0.6	21.9	0.5	38.0	0.6	92.9	0.8	137.9	0.8
Belgium	-	-	-	-	38.3	0.9	41.0	0.6	46.5	0.4	115.2	0.7
Spain	5.2	0.3	43.0	1.5	47.0	1.1	88.0	1.3	94.3	0.8	5.0	0.03
Greece	-	-	2.0	0.1	2.1	0.1	2.0	0.03	3.6	0.03	3.6	0.02
Luxembourg	-	-	2.0	0.1	2.3	0.1	2.0	0.03	2.3	0.02	2.3	0.01
USA	824.8	48.4	1028.0	36.4	1457.6	33.1	1698.0	24.9	2965.6	24.7	3981.8	22.5
International capital	163.4	9.6	290.0	10.3	808.3	18.4	1101.1	16.1	1493.0	12.4	1654.0	9.3
South Korea	-	-	5.0	0.2	5.0	0.1	69.0	1.0	184.5	1.5	1077.8	6.1
Japan	1.6	0.1	8.0	0.3	13.8	0.3	33.0	0.5	32.5	0.3	69.5	0.4
Other	**249.2**	**14.6**	**180.0**	**6.4**	**289.1**	**6.4**	**670**	**9.8**	**983.2**	**8.2**	**1363.4**	**11.6**

Note: [a)] European Union with 12 member states.

Source: Lists of Major Foreign Investors in Poland, PAIZ, Warsaw 1992-1997.

According to the PAIZ statistical base which includes data on investment projects exceeding USD 1 million, the branch structure of cumulated stock capital of FDI from the EU in Poland looked as follows (cf. also Table 15):

- FDI coming from the EU was located mostly in industry, and this share recorded a steady fall in the analysed period of time (from 93.3% in 1992 down to 60% in 1997); in comparison with the branch structure of total FDI in Poland, the share of FDI coming from the EU in industry was slightly lower;
- the second most attractive area for investors from the EU was finance (14% in 1997 compared with a negligible level of 1.2% in 1993), which conformed with the general trend in the structure of total FDI; a particularly high growth rate of FDI flowing from the EU was observed in 1995-1997, when FDI increased its stock capital in the finance sector by more than four times;
- FDI in trade, telecommunications and construction reached respective shares of 5.6%, 4.8% and 4% of total FDI coming from the EU; it should be noted that unlike total FDI, the share of FDI in trade was rising in the entire examined period; FDI in telecommunications rose in absolute terms but its share in FDI coming from the EU fell by three times in 1997 compared with 1993; and FDI in construction showed considerable oscillations in the examined period although investment of this kind rose in absolute terms.

A more detailed analysis of European investors' involvement in the Polish industry shows that investments in the electrical machinery industry are prevalent (21.2% of total FDI coming from the EU in 1997), covering both a group of capital-intensive industries turning out undifferentiated products and a group of technology-intensive industries. The resource-intensive industries covering wood and paper, the mineral industry, fuels and energy accounted for 20.2% of total FDI stock capital of FDI from the EU. Labour-intensive industries recorded an inflow of 11.3% of stock capital of FDI from the EU (9.5% of that capital was located in the food industry and only 1.8% in the light industry). Furthermore, the chemical industry recorded an inflow of 7.2% of total FDI from the EU, and products turned out by it can be included in capital-intensive industries with undifferentiated products and in part into resource-intensive industries.

Table 15. Branch structure of direct investment [a] from the European Union in Poland, 1992-1997 (USD million, %)

	1992[b]		1993[b]		1994[b]		1995[c]		1996[c]		1997[c]	
	USD million	%	USD million	%	USD million	%	USD million	%	USD million	%	USD million	%
Industry - total	**432.2**	**93.3**	**779.0**	**75.0**	**1059.2**	**67.6**	**2086.5**	**64.0**	**3846.8**	**60.4**	**5733.8**	**60.0**
of which												
fuels and energy	-	-	19.5	1.9	22.6	1.4	54.9	1.7	175.5	2.8	588.1	6.1
metallurgy	34.8	7.5	34.8	3.4	34.8	2.2	68.8	2.1	66.9	1.1	96.1	1.0
electrical machinery industry	281.4	60.7	347.9	33.5	548.4	35.0	670.6	20.6	1478.4	23.2	2027.9	21.2
chemical industry	38.2	8.2	142.3	13.7	118.7	7.6	315.1	9.7	384.5	6.0	685.9	7.2
mineral industry	26.0	5.6	54.3	5.2	93.1	5.9	363.4	11.1	722.3	11.3	786.6	8.2
wood and paper industry	10.9	2.4	19.8	1.9	21.1	1.3	143.9	4.4	167.1	2.6	467.0	4.9
light industry	3.1	0.7	6.9	0.7	10.3	0.7	47.3	1.5	132.2	2.1	174.5	1.8
food industry	37.8	8.2	153.5	14.8	210.2	13.4	422.5	13.0	719.9	11.3	907.7	9.5
Construction	4.0	0.9	61.3	5.9	128.0	8.2	147.9	4.5	175.2	2.8	383.3	4.0
Agriculture	-	-	-	-	-	-	-	-	2.9	0.05	16.0	0.2
Transport	-	-	2.6	0.3	10.8	0.7	12.9	0.4	38.0	0.6	69.8	0.7
Telecommunications	5.2	1.1	138.8	13.4	159.8	10.2	179.1	5.5	369.1	5.8	462.5	4.8
Trade	-	-	17.9	1.7	57.9	3.7	140.6	4.3	300.1	4.7	531.9	5.6
Communal services	-	-	-	-	20.4	1.3	22.8	0.7	24.8	0.4	45.0	0.5
Finance	-	-	12.5	1.2	49.5	3.2	323.3	9.9	854.3	13.4	1335.5	14.0
Insurance	-	-	4.0	0.4	4.0	0.3	12.1	0.4	25.7	0.4	36.9	0.4
Unclassified	22.0	4.7	21.9	2.1	78.4	5.0	335.8	10.3	732.0	11.5	944.2	9.9
Total FDI from EU in Poland	463.4	100.0	1038.0	100.0	1568.0	100.0	3261.0	100.0	6368.9	100.0	9558.9	100.0

Notes: [a] Analysis covers investment projects exceeding USD 1 million, which are estimated to account for about 80 % of total foreign direct investment in Poland.

[b] European Union comprising 12 member countries.

[c] European Union comprising 15 member countries.

Source: Calculated on the basis of the PAIZ data.

4.2. Impact of foreign direct investment on the labour market in Poland

The hitherto involvement of foreign capital in the form of FDI in the Polish economy results in a steady increase in the number of employees working in firms with foreign capital participation and in an increase of their share in the total work force in Poland. In 1996, the number of employees in firms with foreign capital participation amounted to 525,900 persons, i.e. 3.4% of total employment in Poland (cf. Table 16).

Table 16. Number of employees in firms with foreign capital participation in Poland, 1992-1996

Year	No of employees in thousands	Share in total number of employees (%)	Growth rate (previous year=100)
1992	230.0	1.5	-
1993	310.2	2.1	134.9
1994	373.9	2.5	120.5
1995	495.3	3.3	132.5
1996	525.9	3.4	106.2

Source: Data of the Central Statistical Office and own calculations.

The growth rate indices confirm relatively big increments in the number of employees in 1993-1995, although the growth rate of the number of employees showed big vacillations (this index was 34.9% in 1993, 20.5% in 1994 and 32.5% in 1995). In 1996 the growth rate of the number of employees slowed down clearly (6.2%).

The above data show that direct impact of total FDI on growth in workplaces in the Polish economy is relatively small. It is necessary to bear in mind that some FDI is related to privatisation, which implies the "take-over" of the existing workplaces rather than creation of new ones from the scratch. Investors as a rule undertake to keep the employment level in the enterprises taken over for several years and then they rationalise employment. In turn, the so-called greenfield investment leads to a direct increment in the number of workplaces. The balance sheet of workplaces created and liquidated in this way is however difficult to estimate for lack of appropriate statistics.

In addition to direct effects on the labour market discussed above, the inflow of FDI produces also indirect effects, both positive and negative. The positive indirect influence is observed when the inflow of FDI results in the creation of workplaces in companies co-operating with firms with foreign capital participation. It can be estimated that such effects occur in Poland in the case of

production of transport vehicles (in the auto industry) where Polish firms are joined into the co-operation networks.

Moreover, foreign investors as rule have a large contribution to the creation of the so-called human capital, especially in a less developed country. This takes place through preparation of employees to perform new tasks more complex than the ones performed hitherto through permanent upgrading of qualifications of employees. Migration of employees between firms places trained stuff at the disposal of local firms without the necessity of incurring their own outlays on retraining. Also the environment in which firms act is modified, as local firms adopt behavioural patterns of foreign firms.

The negative indirect effects of the inflow of FDI into the Polish labour market occur when the competitive pressure on the part of foreign investors and their increased imports substituting for domestic production result in pushing domestic firms out of the home market and in liquidation of workplaces in this way. This effect is also difficult to estimate but it cannot be excluded when account is taken of the behaviour of some foreign investors after their entry into the market. Also a high and steadily rising share of imports by firms with foreign capital participation in total Polish imports (49.9% in 1997; according to Durka, B., 1998, p. 46) seems to corroborate the thesis of the possibility of occurrence of the above effects in Poland.

The above analysis pertains to the total of FDI flowing into Poland, including FDI coming from the EU. When estimating the direct, quantitative effects of the inflow of FDI coming from the EU on the labour market in Poland it is necessary to bear in mind the fact that these investments accounted for 54% of total FDI flowing into Poland in 1997 (cf. p. 1) and were concentrated to a greater degree in technology- and resource-intensive industries than in labour-intensive branches. Moreover, modern services with highly qualified labour such as finance, telecommunications and insurance attracted almost twice as much FDI from the EU as the traditional, labour-intensive branches with less qualified labour force such as construction, trade, communal services. This means that the estimated direct quantitative effects of the inflow of FDI from the EU into Poland on employment may be weaker than it could follow from their share in total FDI. Accordingly, there arises a hypothesis that the impact of FDI coming from the EU on the creation of workplaces in Poland is relatively small - smaller than it would follow from the share of that FDI in GDP.

It should be underlined, however, that Poland's situation in this respect does not constitute a particular exception in the world economy. From the empirical researches conducted so far in selected groups of countries in specified time ranges it follows that the estimated number of persons employed as a result of international companies' activities and their FDI constituted about 10%-15% of

total employment in the world economy (Ghertmann, M., Allen, M., 1982; Julius, D. A., 1990: World Investment Directory, 1993). Corresponding with the concentration of FDI flows between developed economies, the role of international enterprises was considerably greater in this respect in the case of OECD countries (about 15.3% of total employment) than in the case of less developed countries (2.3% of total employment). The employment generated by transnational corporations both in developed and developing economies was concentrated in the manufacturing industry.

The research conducted at the end of the eighties and beginning of the nineties for five developed economies (the USA, Germany, the UK, Japan and France) points out that the indices in questions do not show any essential differences and amount to 4% in the USA (a ratio of employment resulting from foreign investors' involvement to employment in the entire industry), 8% in Germany, 0.4% in Japan and 13% in the UK (ratio of employment resulting from foreign investors' involvement to employment in the manufacturing industry) and 20% in France (ratio of the employment in question to employment in the manufacturing industry) (Julius, D.A., 1990, p. 45).

The UN data on developing countries show that in the 1980s, the ratio of employment resulting from international companies' involvement to the number of active work force was below 1% (World Investment Report, 1992). This index is not expected to grow in developing countries. Such a conclusion is justified by the observation of the relations between the size of employment and increments in assets and turnover in foreign branches of US corporations operating on a global scale in the years 1982-1989. Their employment size did not change in the analysed period (6.6 million of employees) whereas the assets of these branches rose by 78% and their turnover by 34% (World Investment Report, 1992). It should be underlined, however, that international companies have a sizeable share in the creation of workplaces in these countries in the manufacturing industry at a more technologically advanced level (25% of total employment in the manufacturing industry in developing countries was generated by foreign branches of transnational corporations).

5. Econometric analysis

5.1. Introduction

The purpose of this section is an attempted analysis of foreign direct investment's (from EU) and the total export volume's as well as net export with the EU countries on employment in the Polish industry in the 1992-1996 period.

Estimations of employment function also include such determinants as: volume of sold production in the domestic market (as a demand-side factor) as well, ratio of domestic investment to sold production and real wages (as supply-side factors).

The analysis is based on cross-section time-series sample data concerning following industry branches: fuel and power, food, light, wood and paper, chemical, mineral, metallurgical and electroengineering in the 1992-1996 period.

Data concerning foreign direct investment come from Państwowa Agencja Inwestycji Zagranicznych (PAIZ – State Agency for Foreign Investment). The source of data describing export in each industry branch are Foreign Trade Statistical Yearbooks (GUS, Warsaw, different editions from the 1992-1997 period). The rest of data comes from Industry Statistical Yearbooks (GUS, Warsaw, different editions from the 1992-1997 period).

Moreover, we analyse the influence of FDI and net export (from the EU countries only) on the level of employment in 6 branches of Polish industry in the 1993-1996 period. The goal of this analysis is showing effect of the polish trade cooperation with the EU countries on the situation of the labour market in Poland. The source of the statistical data in this part of analysis is the same as in the previous one.

5.2. Results of statistical analyses

Let us start with the following employment function concerning the Polish industry in the 1992-1996 period:

$$\ln(L_{ij}) = A + \phi_1 \ln(YS_{ij} - Ex_{ij}) + \phi_2 \ln(Ex_{ij}) - \gamma \ln(w_{ij}) + \varphi_1 \frac{I^d_{ij}}{YS_{ij}} + \varphi_2 \frac{I^f_{ij}}{YS_{ij}} + \varepsilon_{ij} \quad (1)$$

$$\ln(L_{ij}) = A + \phi_1 \ln(YS_{ij} - Ex_{ij}) + \phi_2 \ln(Ex_{ij}) - \gamma \ln(w_{ij}) - \gamma_1 d_{dp} \ln(w_{ij}) + \varphi_1 \frac{I^d_{ij}}{YS_{ij}} + \varphi_2 \frac{I^f_{ij}}{YS_{ij}} + \varepsilon_{ij} \quad (2)$$

$$\ln(L_{ij}) = A + \phi_1 \ln(YS_{ij} - Ex_{ij}) + \phi_2 \ln(Ex_{ij}) - \gamma \ln(w_{ij}) - \gamma_1 d_{dp} \ln(w_{ij}) + \varphi_1 \frac{I^d_{ij}}{YS_{ij}} + \varphi_2 (1 - d_{min} - d_{em}) \frac{I^f_{ij}}{YS_{ij}} + \varphi_3 d_{min} \frac{I^f_{ij}}{YS_{ij}} + \varphi_4 d_{em} \frac{I^f_{ij}}{YS_{ij}} + \varepsilon_{ij} \quad (3)$$

where:

L_{ij} - employment in period i (i=1, 2, 3, 4, 5; years 1992, 93, 94, 95, 96) in branch j (j=1, 2, ..., 8);

Ys_{ij} - sold production in branch j in period i deflated with PPI;

Ex_{ij} - export in branch j in period i deflated with PPI;

w_{ij} - average real wages in branch j in period i j (nominal wages are deflated with PPI);

I^d_{ij}, I^f_{ij} - domestic and foreign (from EU countries) investment in branch j in period i (deflated with PPI; foreign investment was expressed in PLN, calculations were based on the yearly average USD exchange rate published by NBP);

d_{dp}, d_{min} and d_{em} - dummy variables; 1 for (respectively) wood and paper, mineral, electroengineering branch, 0 for remaining branches;

ε_{ij} - random error term;

A, ϕ_1, ϕ_2, γ, γ_1, φ_1, φ_2, φ_3 and φ_4-structural parameters of equations (1-3).

The $-\gamma_1 d_{dp} \ln(w_{ij})$ component in equations (2-3) modifies labour demand elasticity with respect to real wages in the wood and paper branch (juxtaposed with other branches). The above mentioned elasticity in remaining branches equals $-\hat{\gamma}$ (sign like $\hat{\alpha}$ stands for estimator of α parameter) and in wood and paper branch $-(\hat{\gamma}+\hat{\gamma}_1)$. Described modification in equation (1) was required because estimation of the equation resulted in quite big residuals (in absolute value) for wood and paper industry.

The $\varphi_2\left(1-d_{min}-d_{em}\right)\frac{I^f_{ij}}{YS_{ij}}+\varphi_3 d_{min}\frac{I^f_{ij}}{YS_{ij}}+\varphi_4 d_{em}\frac{I^f_{ij}}{YS^d_{ij}}$

component was necessary for two reasons. The foreign investment to sold production rate was statistically insignificant and foreign to domestic investment ratio in mineral and electroengineering industries exceeded (on average) 50%, whereas in other branches was below 27%. The ratio was disaggregated into mineral, electroengineering and remaining branches to check whether in sectors with high I^f/YS ratio its effect on employment is statistically significant.

The estimations of structural parameters of functions (1-3) are presented in Table 17. During calculations the ordinary least squares method was used.

Estimations of functions (1-3) showed in Table 17 lead to following statistical conclusions:

- Variances of the dependent variables are explained by exogenous variables used in above mentioned equations in approximately 79.2-88.8% (see adjusted R^2).
- Domestic demand (YS-Ex) statistically significantly, positively affected employment. Moreover, 1% growth of sold production led to about 0.32-0.47% increase of employment in particular industry branch (this and following statistical conclusions require *ceteris paribus* assumption).

- Volume of export statistically significantly influenced employment in each branch. 1% rise of export increased employment by approximately 0.58-0.69%.
- Real wages had statistically significant, negative impact on dependent variable in equations (1-3). 1% increase of real wages caused about 2.17-2.27% reduction in employment. Besides, elasticity of employment with respect to real wages in wood and paper industry was higher (in absolute value) than in remaining branches by approximately 0.08 [see estimated parameters in equations (2-3)].
- Domestic investment rate (I^d/YS) in the analysed sample statistically significantly affected employment. Its every additional percentage point led to about 11.6-12.0% increase of employment growth rate.
- Foreign investment to sold production ratio (I^f/YS) had no statistically significant influence on employment in different branches of industry (authors try to explain it in the last section of this article). However, disaggregating the investment rate into mineral, electroengineering and remaining branches suggests statistically significant (at 5% significance level) impact of foreign investment in electroengineering industry on employment in this branch. It is worth mentioning, that this effect is almost twice weaker than the influence of domestic investment.

Table 17. Estimated parameters of the employment function

Exogenous variables:	Estimated parameters (t-values)		
cons.	8.732** (5.561)	9.162** (7.553)	10.283** (6.858)
ln(YS-Ex)	0.467** (6.259)	0.346** (5.535)	0.315** (4.882)
ln(Ex)	0.668** (8.513)	0.689** (11.375)	0.575** (7.540)
ln(w)	-2.267** (-6.388)	-2.168** (-7.907)	-2.170** (-7.588)
d_{dp}ln(w)	-	-0.0833** (-4.927)	-0.0871** (-4.990)
I^d/YS	11.604** (7.147)	11.738** (9.387)	11.947** (8.737)
I^f/YS	1.325 (1.012)	0.207 (0.198)	-

Table 17. Estimated parameters of the employment function [cont.]

Exogenous variables:	Estimated parameters (t-values)		
$(1-d_{min}-d_{em})\ I^f/YS$	-	-	2.870 (0.550)
$d_{min}\ I^f/YS$	-	-	-1.180 (-1.010)
$d_{em}\ I^f/YS$	-	-	5.824* (2.0746)
R^2	0.819	0.896	0.911
adjusted R^2	0.792	0.877	0.888
DW statistic	2.174	1.895	1.634
F statistic	30.731 [0.000]	47.182 [0.000]	39.533 [0.000]
H. White heteroskedasticity test:			
F statistic	1.257 [0.299]	0.885 [0.572]	1.055 [0.443]
obs*R^2 statistic	12.093 [0.279]	11.290 [0.504]	16.931 [0.390]
G.C. Chow breakpoint test[a]:			
F statistic	1.341 [0.272]	1.818 [0.126]	1.006 [0.464]
LR statistic[b]	10.106 [0.102]	15.933 [0.026]	13.785 [0.130]
no. of observations	40	40	40

In [ ] parenthesis is a critical level of rejecting null hypothesis of given test; ** (*) indicates variables statistically significant at 1% (5%) significance level; a-in the Chow breakpoint test sample was divided into 2 subsamples 20 observation each; b-version of Chow breakpoint test based on log likelihood ratio.

Beside already shown estimations of factors affecting employment in the eight above mentioned industry branches a following employment function was analysed (to take under consideration the influence of direct investment and foreign trade with the EU):

$$\ln(L_{ij})=\alpha_0+\alpha_1\ln(YS_{ij})-\alpha_2\ln(W_{ij})+\alpha_3 I^d ij+\alpha_3 I^f_{ij}+\alpha_4 X_{ij}/YS_{ij}+\varepsilon_{ij} \qquad (4)$$

where:

$\alpha_0 \in \Re$, α_1, α_2, α_3, $\alpha_4 \geq 0$ are structural parameters of equation (4);

L_{ij}, YS_{ij}, I^d_{ij}, I^f_{ij} - as in equations (1-3);

X_{ij} - net export (export minus import) of industry branches to EU;

ε_{ij} - random error term in this equation.

The equation (4) was estimated using the sample of 6 (the rest of data was

not available) industry branches: light, wood and paper, chemical, mineral, metallurgical and electroengineering in the 1993-1996 period.

In the estimated equation net export was used because in analysed sample as well as in the whole economy the correlation between employment and volume of import (both total and from the EU) is positive. Coefficients of correlation between the EU import and employment in the analysed sample and whole economy in the 1993-1996 period amounted to approximately 0.81 and about 0.60 respectively. This phenomenon may be caused by merely indirect impact of import on labour market situation (this effect is exerted through the reduction of demand for goods and services). In Poland in the analysed period other aggregate demand components in the domestic market (especially consumption and, to a lesser degree, investment) were rising faster than import (it was reflected in increasing GDP and employment). Therefore it is not easy to show import influence on industry employment in one equation with such a small sample. That is why in equation (4) net export was used (exactly net export to sold production ratio) to explain import effect on labour market in analysed branches of Polish industry.

The estimators of equation (4) parameters are presented in Table 18.

Table 18. Estimated parameters of function (4)

Exogenous variable	Coefficient	Standard error	T-value
cons.	11.598	4.994	2.322
ln(YS)	0.940	0.162	5.795
ln(w)	-2.485	0.744	-3.338
I^d	0.000119	0.000377	0.315
I^f	0.000548	0.000147	3.731
X/YS	0.814	0.359	2.267
R^2 =0.833	Adj. R^2 =0.787	DW=1.831	no.obs.=24

Estimators of employment function (4) parameters shown in Table 18 lead to following statistical conclusions:

- Exogenous variables specified in equation (4) explain the variance of dependent variable in approximately 79% (see adjusted R^2).
- Among specified in the above mentioned equation exogenous variables only domestic investment has no statistically significant impact on employment in Polish industry in the 1993-1996 period.
- 1% increase of demand on goods market (measured by sold production in industry branches) led to about 0.94% rise in labour demand and employment.
- 1% growth in real wages (deflated with PPI) decreased employment by

approximately 2.49% [the last two conclusions are similar to those reached during (1-3) employment functions analysis basing on previously used cross-section time-series sample].

- Increase of foreign direct investment by PLN 100 million (1993 prices; PLN 100 millions was equal to over USD 55 millions – calculated using nominal NBP exchange rate) caused an about 5.5% employment growth.
- Every additional percentage point of net export (to the EU) to sold production ratio (that is X/YS) increased employment by approximately 0.81%.

5.3. Conclusions

Presented statistical analyses seem to lead to following conclusions:

- The main factors determining the level of employment in Polish industry in the period 1992-1996 (as well as in 1993-1996 period) are sold production (demand side factor) and gross wages (supply side factor). Moreover, the influence of export on the employment seems to be more important then the influence of production on domestic market [see elasticities of employment in functions (1-3) with respect to YS-Ex and Ex in Table 17]. It implies that in the future branches with fast growing export will be demanding more labour than branches producing mainly for domestic market.
- The analysis of influence of net export to the EU on the level of employment based on the 6 branches sample in the period 1993-1996 leads to following conclusions. Firstly, there is positive correlation between the level of employment and the volume of import in the analysed sample as well as in the whole economy. The source of this apparent paradox seems to be very simple. In the analysed period GDP growth was faster than the growth of import because of the big increase in domestic consumption and investment. It means that (despite of increasing import) in the period 1994-1996 the Polish economy experienced growth of employment. Secondly, there is positive influence of net export on the employment in the analysed sample. It suggests that impact of export on level of employment is positive and the influence of import is indirectly negative. This means that if import increases, net export is declining. So the increase of import leads to the some decrease of net export and a reduction of employment.
- The influence of domestic investment on the employment is statistically significant only in the wider sample (containing 8 branches in the period 1992-1996), but is statistically insignificant in the other one. It can be result of very low rate of foreign /domestic investment in the 8 branches sample. It means that the main role in increase of capital labour ratio, increase of productivity,

demand for labour and employment in this sample is played by domestic investment. In the 6 branches sample relation of foreign/domestic investment is much higher and influence of FDI from the EU countries on labour market is statistically significant but influence of domestic investment is insignificant.

6. Final remarks

1. In the transition period so far the situation on the Polish labor market have undergone significant modifications. After a period of a dynamic increase in unemployment in the years 1990-1993 a clear, although not so fast, decline in unemployment took place in the years 1994-1997. The source of these changes was a variety of economic and social factors. Worth underscoring are those connected with the change in the economic conditions and a structural mismatch between labor demand and supply, reflected in the significant variation of unemployment rates that characterize labor force. Also institutional factors exercised some impact on change trends in unemployment, especially those related to laws regulating the labor market policy.
2. The European Agreement has contributed to substantial changes in the foreign trade between Poland and the EU. Poland's comparative advantage in the field of labour intensive goods (due to lower labour cost) resulted in the fast increase of shares of these goods in the Polish exports to the EU countries between 1993 and 1996. One must mention here clothing products and wood products (especially furniture). The fast increase of Polish exports in these branches translated in positive effects in employment. It is worth noting that the share of raw material-intensive goods in the Polish exports to the EU has declined substantially between 1992 and 1996 when the European Agreement was in operation. Although this tendency had negative employment effects in those branches, it can also be interpreted as a sign of modernisation of the Polish exports. Such interpretation is supported by some increase in the Polish export of high-tech goods to the EU countries after 1995.
3. Substantial changes also occured in the Polish imports from the EU countries. Two groups of products declined significantly their shares in the Polish imports: raw material intensive goods and high-tech goods. The fast increase of imports took place in the field of goods with high input of unskilled labour and with high intensity of capital.
4. Taking into account the presented tendencies in the Polish exports and imports one can expect that Poland will be an important exporter of labour intensive goods and some high-tech goods to the EU market. In this connection one can see favourable employment perspectives in these branches. Since raw material

and heavy industries still play an important role in the Polish economy, the declines in exports in these branches will have negative short-term employment consequences. Negative employment effects are also created by the Polish trade deficit with the EU countries. The overcoming of this deficit will be of crucial importance for the improvement in the labour market performance.

5. One must notice a fast increase of foreign direct capital to Poland in the 1990's. The share of the EU in this inflow was also increasing and amounted to 54% in 1997. The foreign direct investment (FDI) was mainly located in industry (especially electromachinery and other capital intensive and raw material intensive industries), finance, trade telecommunication and building. The inflow of foreign capital had positive effects for employment. The direct effects concerning the creation of new jobs are rather insignificant. A part of FDI is connected with the privatisation of firms meaning that jobs are rather maintained than created. There are also indirect effects which influence upon employment in two opposite directions. Positive effects are connected with the creation of jobs in the firms which cooperate with the firms with forign capital and the pressure of the forign firms to increase of skills of labour force. Such effects can be seen in Poland. On the other hand there are also negative effects resulted from crowding out domestic producers by the firms with the foreign capital. In sum, the employment effects of the inflow of FDI are rather not significant.
6. The econometric analysis allows to draw the following conclusions. Firstly, there is evidence that there is positive influence of net export with the EU countries upon on the Polish industrial employment. This implies that the industries with high shares of net exports can expected positive tendencies in employment. Secondly, we found positive effect concerning the influence of FDI from the EU countries on the Polish industrial employment, although this effect is not too high.

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