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Inter-industry and intra-industry mobility of labour in Poland in 1994-1998[1]

1. Introduction

The Polish economy's transformation towards a market economy and its integration into the European Union imply a necessity of deep changes in the economic structure in Poland. Necessary are changes in ownership structures, growth in the role of the service sector and a faster development of modern industries. This entails a necessity of reallocation of labour from the hitherto inefficient areas of the economy to more efficient uses. These processes are not indifferent to the situation in the labour market. Deep structural changes are usually connected with growth of unemployment at least in transitional periods. The costs of these structural changes in the form of unemployment, however, are not a fully exogenous determinant from the viewpoint of the labour market. They are largely dependent on the degree of flexibility of the labour market. A more flexible labour market permits decreasing the costs of structural adjustments in the form of unemployment.

By flexibility of the labour market we understand its capability of fast adjustments to changes in the market conditions and technology (Adnett, 1996, p. 12). It covers several components such as elasticity of employment, elasticity of wages, elasticity of working hours and mobility of labour. By labour

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mobility we understand the ability of labour to change jobs, qualifications, industry, a workplace and a place of residence. Thus there are different kinds of labour mobility, and industrial mobility is one of them. In the framework of industrial mobility we can distinguish inter-industry mobility designating a flow of labour from one branch of industry to another and intra-industry mobility designating a flow of labour between enterprises belonging to the same industry. All the above-mentioned kinds of mobility are of importance for the course of structural adjustments of the economy and especially for the costs of these adjustments in the form of unemployment.

The subject of the paper is the problem of industry mobility of labour in Poland in the years 1994-1998. The basic goal of the analyses undertaken in it is to identify the tendencies of change in inter- and intra-industry mobility occurring in Poland at that time and to specify the main factors determining the degree of this mobility.

The analyses undertaken in the paper are based on aggregate and individual data coming from the population's economic activity surveys (BAEL) conducted in the years 1994-1998. The data allow defining the position of persons in the labour market and in particular stating whether the surveyed persons remained in the same workplace in the consecutive quarters, moved to another workplace in the same branch, moved to another industry or moved to the pool of unemployed or inactive persons. The BAEL data permit defining the inter-industry and intra-industry mobility of labour.

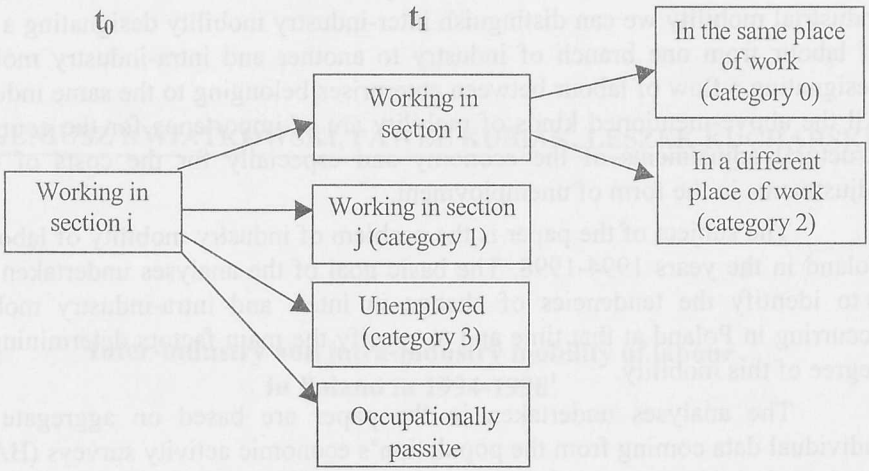
The statistical analyses conducted in the paper are based on a non-parametric method and on a parametric method. The latter method consists in using a multinomial logit model.

The paper consists of six sections. Section 2 is devoted to the concept and measures of industry mobility. Section 3 analyses the tendencies of change in industry mobility in Poland in 1994-1998. Section 4 undertakes the problem of industry mobility in selected groups of labour force. Section 5 analyses labour mobility on the basis of the multinomial logit model. Section 6 contains a summing-up and conclusions.

2. Concept and measures of industry mobility

In our analysis we shall deal with flows of employed individuals between different sections and subsections of the European Classification of Activities (ECA) and between enterprises included in the same section. The pattern of all flows is shown in figure 1.

Fig. 1. Flows of labour in the labour market



We assume that a given person is inter-industrially mobile when he/she worked in section i in period t_o and moved to employment in section j (where $i \neq j$) in the period between t_o and t_1 (see Fig. 1 - category 1). A person is intra-industrially mobile if he/she worked in one of the enterprises belonging to section i in period t_o and moved to employment in other enterprises belonging to the same section in the period between t_o and t_1 (see Fig. 1 - category 2).

Considering the issue of importance of inter- and intra-industry mobility it is worth noting the following elements. Firstly, industry mobility is of much importance for adjustments of the structure of labour supply to the changing structure of demand for labour. Higher industry mobility facilitates structural adjustments of the demand for and supply of labour. This is particularly important with a view to Poland's prospective integration into the EU. Secondly, industry flows facilitate flows of experience from branch to branch. Their knowledge, experience and ideas flow together with people. This may contribute to growth in productivity in the host industry (especially when the flow occurs between industries of which one was e.g. a supplier of semi-manufactures for the other). Thirdly, industry flows increase the adjustment of persons to workplaces. Persons dissatisfied with work in a given place can pursue their professional aspirations by changing their workplace.

We shall use relative measures in the analysis of inter- and intra-industry mobility. One of the indicators used in our analysis is the inter-industry mobility index (wmg) described by equation (1):

$$wmg_t = \frac{\sum_{i=1}^{n} \sum_{j=1, i \neq j}^{n} O_{ijt}}{L_t} \cdot 100\% \qquad \text{where: } i, j = 1,2,...,n \text{ and } t = 1,...,17 \qquad (1)$$

where:

O_{ijt} – outflows from employment in section i to employment in section j,
t – number of the sample (cf. Annex - table A1),
L_t – number of working persons in the examined sample in period t.

The same co-efficient is used in our analysis of intra-industry mobility. In formula (1) we replace outflow from section i to employment in section j (O_i) with flows between enterprises belonging to the same section.

A higher value of index (wmg) means that in the analysed period more persons flew from employment in section i to employment in section j, otherwise we can say that inter-industry flows of labour were diminished.[2] This index is estimated for the particular quarters. Quarterly estimation of this index for the particular ECA sections and sub-sections could pose difficulties in presenting and interpreting these indices. That is why we use annual average inter-industry mobility indices for the particular ECA sections and subsections. Thus we do not estimate intra-industry mobility indices according to the ECA sections and subsections because of too low a value of intra-industry flows in the particular ECA sections and subsections.

The above index (wmg) shows persons' inter-industry mobility from the side of outflows from employment in one section to employment in other sections. However, the phenomenon of inter-industry flows can be analysed from two points of views. The first consists in observing what part of employment in a given section flows to other sections of the economy. This variable can be interpreted in terms of labour outflow from a given section. The second point of view consists in observing how many persons move from any section of the economy to the examined section. This variable is interpreted in terms of labour inflow to the section. For the needs of our analysis we shall use the annual average size of the index. The annual average mobility index according to outflow from a section can be described with formula (2):

[2] By analogy, in the case of intra-industry flows we can say that the higher the value of this index is the higher the intra-industry flows in a given section were in the analysed period.

$$mg(sio) = \frac{\sum_{t=1}^{4} \sum_{j=1, i \neq j}^{n} O_{ijt}}{\bar{L}_i} \cdot 100\% \quad \text{where } :i, j = 1,2,..., n \tag{2}$$

where:

O_{ijt} - outflows from employment in section i to employment in section j,

$\bar{L}_i$ - average number of persons working in section i in a year,

t - quarter (t=1,2,3,4)[3].

On the other hand, the average annual inter-industry mobility index for a certain section based on the number of inflowing persons can be described with formula (3):

$$mg(sii) = \frac{\sum_{t=1}^{4} \sum_{j=1, i \neq j}^{n} I_{ijt}}{\bar{L}_i} \cdot 100\% \quad \text{where } : i, j = 1,2,..., n \tag{3}$$

where:

I_{ijt} – inflows of persons employed in section j (j=1,2,..n) to employment in section i,

$\bar{L}_i$ - average number of persons working in section i in a year,

t – quarter (t=1,2,3,4).

By means of indices mg(sio) and mg(sii) it is possible to construct measures showing rotation of individuals working in section i. The index of rotation of employees in section i (W_{ri}) can described with formula (4):

$$W_{ri} = mg(sio) + mg(sii) \tag{4}$$

The higher the value of the index, the higher the rotation of the working pool in a given section.

Another index showing the rotation of individuals is the replacement index (Wzi) described with equation (5):

$$W_{zi} = 0{,}5[mg(sii) + mg(sio) - |mg(sii) - mg(sio)|] = \min\{mg(sii), mg(sio)\} \tag{5}$$

[3] Number 1 means a survey of the population's economic activity conducted in February of a given year, number 2 - a survey in May, 3 - in August and 4 - in November.

A higher value of this index means that the employment pool in a given section is characterised by higher inter-industry rotation, i.e. more persons flow into and out of this section in comparison with other sections.

Dividing the persons employed in the national economy into three sectors (agriculture, industry and services) we can estimate inter-industry and intra-industry mobility indices for each sector. The inter-industry mobility indices for the sectors are counted on the basis of formula (6)[4]:

$$wmg(Sn) = \frac{\sum_{i_a=1}^{n_a} \sum_{j=1, i \neq j}^{n} O_{i_a j t}}{\bar{L}_a} \cdot 100\% \qquad \text{where : } i, j = 1,2,..., n; \quad a = 1,2,3 \tag{6}$$

where:

$O_{i_a j t}$ – outflows from employment in section i belonging to sector "a" to employment in section j,

$\bar{L}_a$ - average number of employees working in sector a in a year,

t – quarter (t=1,2,3,4).

Inter- and intra-industry mobility can be estimated for groups of labour distinguished according to such criteria as sex, age, education, marital status, and region of residence. Inter-industry mobility indices for the particular labour groups were estimated according to the following formula:

$$wmg\ (A) = \frac{\sum_{t=1}^{4} \sum_{i=1}^{n} \sum_{j=1, i \neq j}^{n} O_{A\, ij\, t}}{\bar{L}_A} \cdot 100\ \% \qquad \text{where : } i, j = 1,2,..., n \tag{7}$$

where:

O_{Aijt} – outflows of persons belonging to category A to employment in section j (j=1,2,...,n),

$\bar{L}_A$ - average number of employees in group A in a year,

t – quarter (t=1,2,3,4).

A – labour categories singled out on the basis of such criteria as sex, age, education, marital status, type of region.

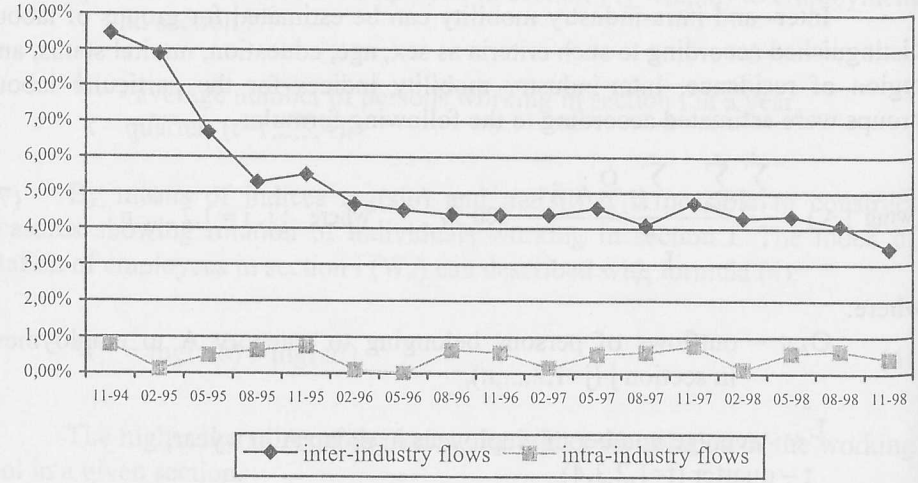
[4] Putting into equation (6) flows between employment in enterprises belonging to the same industry in a given sector instead of outflows from employment in section i belonging to sector "a" we get the index of intra-industry mobility for a given sector.

A higher value of the wmg(A) index means that a given group of labour is characterised by a higher inter-industry mobility in comparison with the remaining groups of individuals. The intra-industry mobility index is estimated analogously. In the numerator of formula (7) we replace outflows of persons in category A from section i to employment in section j (j=1,2,...,n) with the size of flows of persons belonging to category A between enterprises included in the same section.

3. Industry mobility in the economy

In this part of our paper we undertake an attempt to define the scale of the phenomenon of industry flows of labour in the Polish economy and in the particular sectors, sections and sub-sections of the ECA in the years 1994-1998.

Fig. 2. Industry mobility indices (wmg) in Poland, 1994-1998 (in %)



Source: Labour Force Surveys, Central Statistical Office, and our own calculations.

Figure 2 shows the tendencies in the quarterly inter-industry and intra-industry mobility indices (wmg) in Poland in 1994-1998 (the characteristics of the examined samples are given in table A1 in the Annex). As it follows from the figure, a declining trend occurred in the inter-industry mobility indices in the

analysed period. A certain stabilisation of the indices is observed in the period February 1996 - November 1997. The reasons for a decline in inter-industry mobility in the analysed period can be seen in the slackening of the rate of restructuring of the Polish economy. A high restructuring rate means that many persons lose jobs but also many people get employment. Of course, some of the dismissed find new jobs. A slower restructuring rate results in a reduction in rotation of the working pool. The intra-industry mobility coefficients remained at a steady (low) level throughout the analysed period (despite certain seasonal fluctuations). It is also necessary to note that in the entire analysed period, decisively more persons opted for a change of section than for flow between enterprises belonging to the same section. A low level of intra-industry mobility coefficients means that a small fraction of the employed decided to change workplace, i.e. to move from one enterprise to another enterprise belonging to the same section. This results from the fact that employees in Poland still reluctantly decide to change workplace. The stereotype that one's professional career proceeds in a single place of work still operates. It should be expected that in the longer perspective, a change of one's place of employment, migration for higher wages or a change of occupation will become a common norm and not an exception.

Figure 3 shows tendencies in quarterly inter- and intra-industry mobility indices in the sectoral cross-section. Part (a) shows inter-industry mobility indices (wmg(Sn)) in 3 sectors: agriculture, industry and services and part (b) presents the levels taken by intra-industry mobility indices (wmg(Sn)).

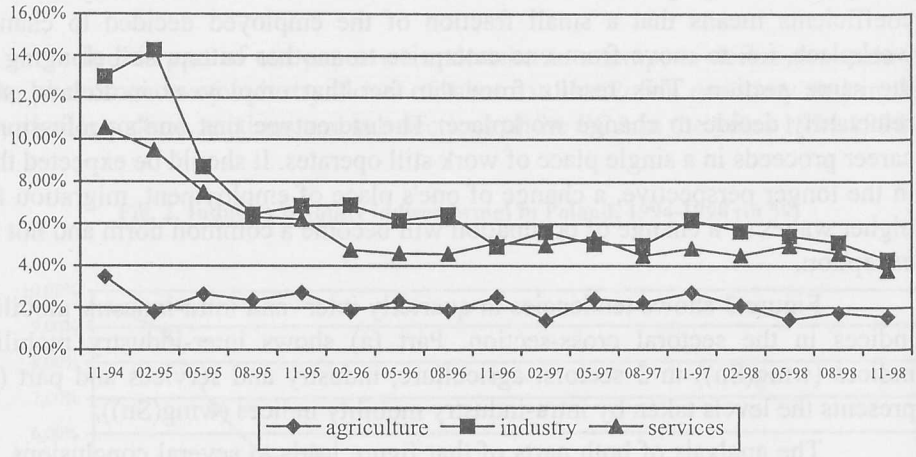
The analysis of both parts of that figure leads to several conclusions. A declining tendency in inter-industry mobility can be observed in industry and services in the entire surveyed period. On the other hand, the inter-industry mobility index in agriculture remained at a relatively steady (very low) level. The declining trend in inter-industry mobility in industry and services results most probably from the decelerated rate of restructuring the industrial enterprises in the years 1995-1997 and from lack of cheap apartments to rent (because a change of the workplace usually requires changing the place of residence). The stable and low level of inter-industry mobility in agriculture results from lack of transformations in that sector and from very low qualifications of persons working in that sector which are not attractive for employers in other sectors.

Throughout the analysed period of time, intra-industry mobility indices remained at a low level in the industrial, service and agricultural sectors. The indices recorded fairly considerable seasonal fluctuations. The lowest mobility was characteristic of persons working in agriculture. This group's low mobility results from the ownership structure in the agricultural sector. Individual

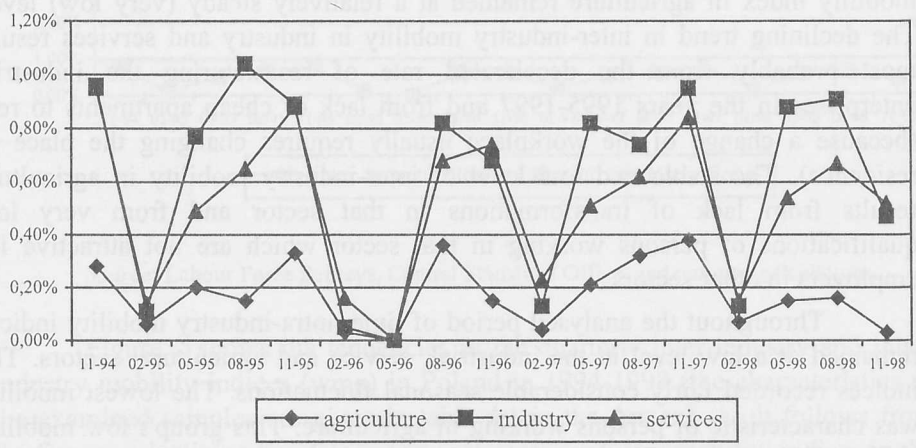
(i.e. privately-owned) farms prevail in that sector. It should also be underlined that persons working in industry and services were characterised by a similar intra-industry mobility level. The low intra-industry mobility level in industry and services results from the continuation of the traditional view held by the working persons on form of work. They prefer to be employed under contracts of indefinite duration and to work 8 hours a day as well as regular, fixed working hours.

Fig. 3. Indices of industry mobility (wmg(Sn) by sector in Poland, 1994-1998 (in %)

(a) inter-industry mobility



(b) intra-industry mobility



Source: as for fig. 2.

Let us now move on to analysis of inter-industry mobility indices according to the ECA sections and subsections in Poland. Owing to a small number of intra-industry flows, our analysis is confined to inter-industry flows in the ECA sections and subsections.

Table 1 contains data on sections characterised by the highest inter-industry mobility indices in Poland in 1994-1998. The symbols of the sections and subsections of the ECA are given in table A2 enclosed in the Annex.

Table 1. Sections with highest values of the inter-industry mobility index in Poland, 1995-1998 (in %)

1995		1996		1997		1998	
Inter-industry mobility index by outflow (mg(sio))							
K	51.86	DI	36.92	K	34.09	DC	33.92
DH	59.36	J	38.16	DL	37.17	J	40.18
DL	59.48	K	40.67	H	38.61	DL	44.00
J	67.00	DL	45.08	J	45.45	DF	44.94
O	92.82	O	46.59	DN	50.39	DN	46.46
DN	109.32	P and Q	60.00	O	52.70	P and Q	48.00
P and Q	188.57	DN	72.90	P and Q	76.19	O	49.46
Inter-industry mobility index by inflow (mg(sii))							
H	53.83	H	38.25	K	40.79	DI	36.02
DI	62.38	O	40.41	O	43.20	O	36.18
O	64.09	DL	44.26	DL	44.44	K	39.86
DL	65.52	K	44.48	J	45.45	DH	40.70
K	84.02	DH	46.67	DN	48.50	DL	46.40
P and Q	97.14	DN	57.69	DI	48.66	J	48.29
DN	112.42	P and Q	60.00	P and Q	95.24	DF	67.42
Inter-industry rotation index (mg(sio) + mg(sii))							
DH	113.07	DI	71.11	K	74.89	DI	67.54
J	120.59	DH	81.33	DI	77.28	K	69.39
DL	125.00	K	85.15	DL	81.62	DN	73.09
K	135.88	O	87.00	J	90.91	O	85.63
O	156.91	DL	89.34	O	95.91	J	88.48
DN	221.74	P and Q	120.00	DN	98.90	DL	90.40
P and Q	285.71	DN	130.59	P and Q	171.43	DF	112.36

Source: as for fig. 2.

Throughout the analysed period, the group with the highest values of inter-industry mobility indices (mg(sio)) by outflow included the following sections: P and Q (households hiring employees and international organisations and teams), DN (other manufacture), O (other communal, social and individual services), J (financial services), DI (manufacture of electrical and optical equipment). Section K (servicing of real estate and firms) occurred three times in the group with the highest inter-industry mobility indices by outflow. It is also worth noting that in 1998 there occurred a reduction in the differences of mobility indices by outflow in the group with the highest values of this index in comparison with the years 1995-1997. This might be a result of the slackening of economic activity in the Polish economy. Thus it can be said that the most persons flew out of employment in sections belonging to the service and industrial sectors (which were undergoing restructuring - the glass and furniture industries, cement plants).

As it follows from table 1, throughout the analysed period, the group with the highest mobility indices by inflow included three sections: O (other communal, social and individual services), Dl (manufacture of electrical and optical equipment) and K (servicing of real estate and firms). The mobility index mg(sii) for section K was characterised by a downward trend in the entire period. Sections P and Q (households hiring employees and international organisations and teams), DI (manufacture of products of other non-metal materials) and DN (other manufacturing) occurred three times in the group with the highest indices by inflow. This group was also dominated by sections from the service and industrial sectors (high technology - manufacture of computers and other information-processing equipment and industries subjected to restructuring and privatisation). Sections with the highest inter-industry mobility indices by outflow and inflow were also characterised by the highest inter-industry rotation.

Table 2 contains data on sections characterised by the lowest inter-industry mobility in Poland in 1995-1998. Throughout the analysed period, the group with the lowest mobility indices by outflow included 5 sections, namely AR (individual farms), CA (mining of energy carriers), N (health protection and social care), M (education) and L (public administration and national defence). What may account for low outflows from employment in individual farming to employment in other sectors is the fact that persons running farms are simultaneously owners of these farms and even in the case of a bad financial situation they do not decide to change their workplace. This is primarily the issue of mentality of Polish farmers. Moreover, a vast majority of persons working in agriculture have primary and vocational education, which most certainly hinders (or outright precludes) their change of employment (change

of section). Low outflows form section CA (mining of energy carriers) result first of all from the inconsistent application of the rule of tight budgetary constraints on mining and from the strong position of the trade unions. As a result of the centralised, from-above programmes of coal-mining restructuring, the regulations process was seized by the interested units (especially boards of coal companies who are not interested in fast and deep restructuring of the sector) (see Błaszczyk, Cylwik, 1999, p. 29). Miners have no motivation to leave collieries owing to high wages and social benefits. Moreover, miners' low qualifications are a barrier to their outflows from mining.

Table 2. Sections with lowest values of the inter-industry mobility index in Poland, 1995-1998 (in %)

1995		1996		1997		1998	
Inter-industry mobility index by outflow (mg(sio))							
AR	7.97	DF	4.04	CA	5.99	CA	4.86
N	12.37	AR	7.32	DC	7.23	AR	5.59
CA	14.50	CA	7.88	N	7.30	N	7.62
B	14.55	N	8.00	AR	7.53	DB	8.72
M	15.85	CB	8.23	M	11.00	M	10.11
L	18.16	M	10.05	DB	12.16	L	11.69
DA	18.25	L	14.88	L	14.40	DA	13.04
Inter-industry mobility index by inflow (mg(sii))							
AR	5.48	B	0.00	AR	5.66	AR	4.70
CA	10.09	CA	3.77	M	7.00	CA	5.24
M	12.92	AR	4.95	CA	7.11	N	8.43
N	14.69	N	9.29	N	9.47	M	9.36
DF	14.93	M	10.17	B	10.81	DA	10.70
DB	16.93	DF	12.12	DB	14.07	L	11.37
DA	19.95	L	12.40	L	14.08	DB	12.02
Inter-industry rotation index (mg(sio) + mg(sii))							
AR	13.45	CA	11.65	CA	13.10	CA	10.10
CA	24.59	AR	12.28	AR	13.19	AR	10.29
N	27.06	DF	16.16	N	16.77	N	16.05
M	28.77	N	17.28	M	18.01	M	19.46
DB	35.27	M	20.22	DB	26.24	DB	20.74
B	36.36	B	21.05	DC	27.71	L	23.06
DA	38.20	L	27.27	L	28.48	DA	23.74

Source: as for fig. 2.

The reason for weak inter-industry mobility of persons working in sections M (education) and N (health protection and social care) is the lack of any structural transformations in them in the entire analysed period. The education and health protection reforms introduced in 1999 will certainly cause an increase in outflows. Growth can also be expected in inter-industry mobility of persons employed in education and health protection and social care. Low outflows from section N (public administration and national defence) result most probably from the fact that average wages in this section were higher than in the other sections throughout the period (with the exception of mining, financial services and supply of water, electricity and gas).

As it follows from table 2, all through the analysed period the group with the lowest inter-industry mobility indices by inflow included sections AR (individual farms), CA (mining of energy carriers), M (education) and N (health protection). Sections L (public administration and national defence) and DB (manufacture of fabrics and textile products) occurred three times among sections with the lowest inter-industry mobility by inflow. Sections AR (individual farms), CA (mining of energy carriers), M (education) and N (health protection) were also characterised by the lowest inter-industry rotation indices in the entire examined period.

As it was mentioned in section 2, a certain measure of inter-industry mobility is the replacement index. A higher value of this index for section i means that the pool of employment is characterised by higher rotation and thus it can be said that inter-industry flows are higher. The data on replacement indices for all ECA sections and subsection in Poland in 1995-1998 are given in table 3[5]. As it follows from table 3, replacement indices show tendencies similar to the inter-industry mobility indices analysed earlier in that part of the paper. A drop occurred in replacement indices in all the ECA sections in 1996. In 1997, a further drop occurred in 16 sections in comparison with 1996, and in 1998 replacement indices dropped in 20 sections in comparison with the previous year. It is also worth underlining that section DB (manufacture of fabrics and textiles), DJ (manufacture of metals and products thereof), DK (manufacture of machinery and equipment), DM (manufacture of transport equipment), DN (other manufacture), F (construction), G (wholesale and retail and maintenance), K (real estate and firm-servicing) recorded a downward trend in replacement indices in the entire analysed period. This means that the inter-industry mobility of the employees declined in these sections from year to year.

[5] This index cannot be estimated for intra-industry flows owing to difficulties in identifying inflows to a given enterprise in section i from all the remaining enterprises belonging to this section.

Table 3. Annual average replacement indices by ECA section and sub-section in Poland, 1995-1998 (in %)

Sections	1995	1996	1997	1998
AP	23.63	21.17	14.86	16.03
AR	5.48	4.95	5.66	4.70
B	14.55	0.00	10.81	19.51
CA	10.09	3.77	5.99	4.86
CB	36.52	8.23	23.53	14.51
DA	18.25	14.44	15.50	10.70
DB	16.93	14.89	12.16	8.72
DC	29.04	21.75	7.23	22.61
DD	35.73	21.61	24.78	19.21
DE	36.46	22.56	21.05	21.78
DF	14.93	4.04	18.39	44.94
DG	37.61	15.94	18.85	19.09
DH	53.71	34.67	21.75	26.74
DI	46.78	34.19	28.62	31.52
DJ	40.71	31.99	27.50	27.39
DK	45.03	27.90	23.96	21.78
DL	59.48	44.26	37.17	44.00
DM	39.62	23.18	19.16	13.04
DN	109.32	57.69	48.50	26.63
E	23.79	15.86	18.04	17.09
F	34.89	23.95	22.67	19.10
G	21.56	17.58	15.29	13.32
H	35.43	27.23	32.58	23.63
I	25.60	16.59	19.26	18.50
J	53.60	31.73	45.45	40.18
K	51.86	40.67	34.09	29.53
L	18.16	12.40	14.08	11.37
M	12.92	10.05	7.00	9.36
N	12.37	8.00	7.30	7.62
O	64.09	40.41	43.20	36.18
P and Q	97.14	60.00	76.19	16.00

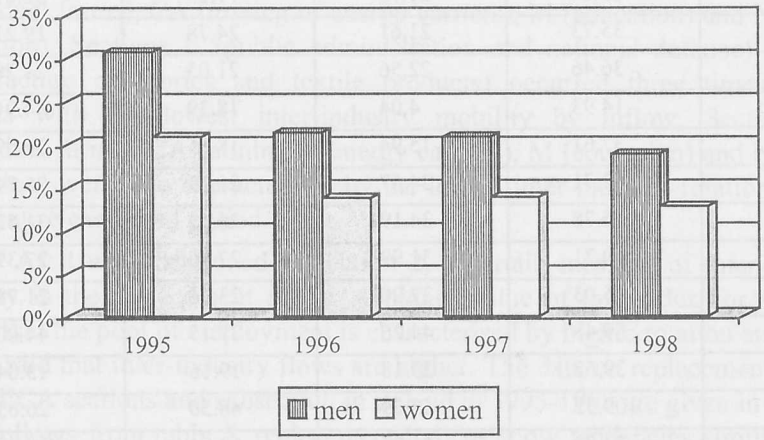
Source: as for fig. 2.

4. Mobility in selected labour groups

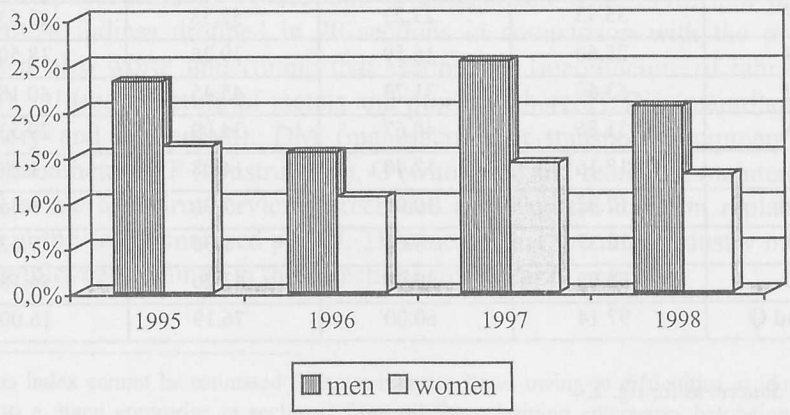
This part will focus on analysis of the differentiation in industry mobility in different cross-sections allowing for selected features of the examined individuals such as sex, education, marital status, age, type of region. This analysis allows identifying the most mobile groups and groups with the lowest industry mobility.

Figure 4. Inter-industry and intra-industry mobility (wmg(A)) by sex in Poland in 1995-1998 (in %)

(a) inter-industry mobility



(b) intra-industry mobility



Source: as for fig. 2.

Let's look into differentiation in inter- and intra-industry mobility in the sex cross-section in 1995-1998. The tendencies in the inter- and intra-industry mobility indices (wmg(A)) among men and women are shown in figure 4.

From both parts of fig. 4 it follows that throughout the surveyed period the inter- and intra-industry mobility indices were decisively higher among men. It seems that men's higher inter- and intra-industry mobility results from the following reasons. Firstly, men have a prevalent share in employment in such industries as mining, metallurgy, shipbuilding and machine-building. They are the industries in which the restructuring process is carried on. Secondly, as the researches show, women declare satisfaction with current work more often than men (see E. Kryńska, 200, p.100). Accordingly, the following hypothesis can be put forward: owing to being treated worse by employers, women have smaller expectations with respect to working conditions and remuneration level. Hence they have smaller propensity to change their jobs. Thirdly, in the entire analysed period a declining trend occurred in inter-industry mobility coefficients both among women and men. It seems that the decline in the inter-industry mobility indices in the sex cross-section could be related to the weakening of the rate of restructuring of the Polish economy. It should also be noted that inter-industry mobility indices in the sex cross-section were characterised by a changing tendency. Fourthly, in the entire period the intra-industry mobility indicators were decidedly lower than inter-industry mobility indicators.

Table 4. Annual average inter-industry mobility indices (wmg(A)) by education in Poland, 1995-1998 (in %)

Education level	1995	1996	1997	1998
Higher	30.8	21.6	19.3	18.3
Post-secondary	25.0	15.8	17.8	16.2
Secondary vocational	28.2	19.3	19.5	18.4
Secondary	32.1	16.6	18.6	20.6
Vocational	30.1	20.1	19.3	15.9
Primary and incomplete primary	15.8	12.3	12.2	11.1
Arithmetic average	**27.0**	**17.62**	**17.95**	**16.75**
Standard deviations	**5.49**	**3.09**	**2.64**	**2.97**

Source: as for fig. 2.

Let us now look into differentiation of inter- and intra-industry mobility indices in the education cross-section. Table 4 contains data on inter-industry mobility indices (wmg(a)) depending on education levels in 1995-1998 and table 5 gives data on intra-industry mobility indices (calculated according to the same formula).

From the analysis of the data in table 4 it follows that the education level had a significant impact on individuals' inter-industry mobility level. However, the situation in inter-industry mobility differed in time. People with primary and incomplete primary education had the lowest chances of outflow. This results from the fact that these persons have small qualifications. Taking into account the economic motive for changing the workplace, persons with low education have no greater chance to obtain higher wages in a new place. And thus they are not prone to seek jobs in other sections. Moreover, having a choice between educated persons and those with primary education, employers prefer to employ the former. If the transfer of persons with high skills from one branch to another is advantageous for the employing firm (owing to e.g. transfer of new ideas or technology), then the transfer of a person with low skills does not contribute any benefits to the firm hiring such a persons. It can be said that unqualified persons are not substitutes for qualified individuals.

In the years 1995-1998, the highest average inter-industry mobility index is recorded in the group of persons with higher education (22.5%). This means that on average 22.5% of the employed with higher education changed their place of work (section of the economy) in a year. For comparison, in the entire analysed period the average mobility index in the group of persons with primary education amounts to 12.85% only. More educated persons usually have greater requirements with regard to working conditions. That is why they are characterised by higher inter-industry mobility. It is also worth noting that the differentiation of inter-industry mobility indices in the education cross-section was diminishing until 1997.

Table 5. Annual average intra-industry mobility indices (wmg(A)) by education in Poland, 1995-1998 (in %)

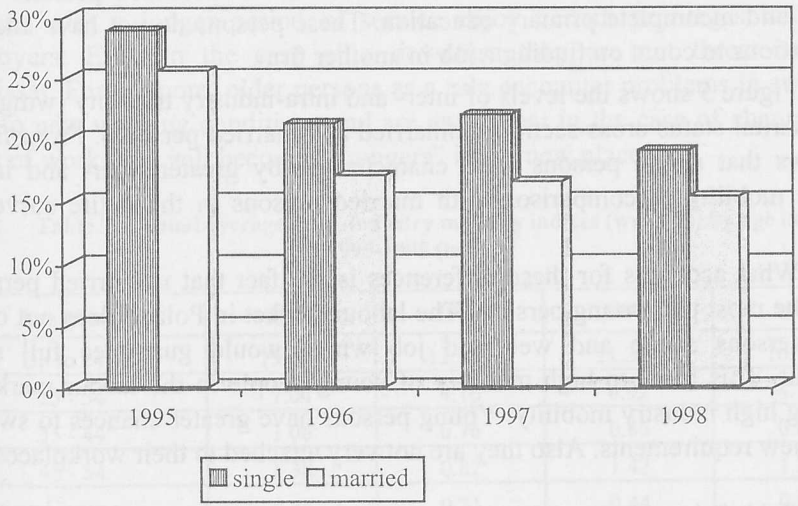
Education level	1995	1996	1997	1998
Higher	2.51	1.02	1.79	1.64
Post-secondary	2.06	1.13	2.35	1.41
Secondary vocational	1.60	1.13	1.60	1.70
Secondary	1.80	1.09	2.21	1.03
Vocational	2.66	2.06	2.78	2.03
Primary and incomplete primary	1.29	0.63	1.38	1.46
Arithmetic average	**1.99**	**1.18**	**2.02**	**1.54**
Standard deviations	**0.48**	**0.43**	**0.48**	**0.31**

Source: as for fig. 2.

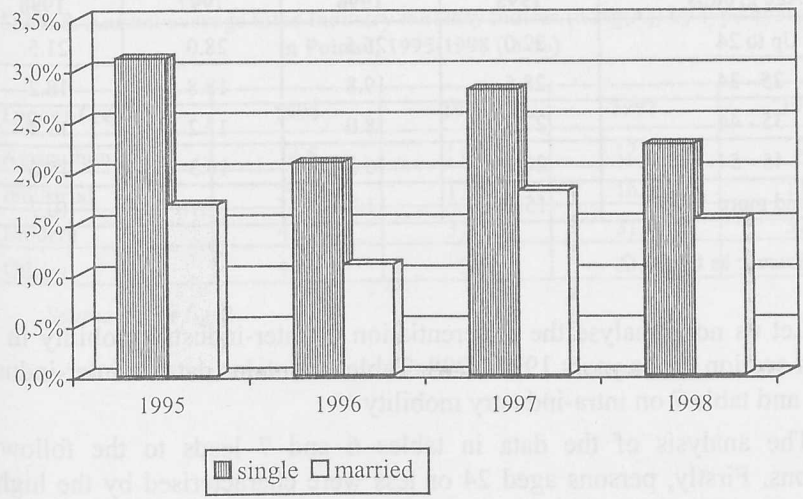
From table 5 it follows that in the entire analysed period, persons with basic vocational education were characterised by the highest intra-industry mobility.

Figure 5. Annual average industry mobility indices (wmg(A)) by marital status in Poland

(a) **inter-industry flows**



(b) **intra-industry flows**



Source: as for fig. 2.

The reasons for such high mobility shown by persons with basic vocational education should be seen in the level of wages and working conditions. From the researches it follows that persons from that group (excepting persons with primary and incomplete primary education) are the least satisfied with working conditions (see E. Kryńska, 200, pp.100-101). A hypothesis can thus be put forward that in a large measure this mobility is forced by economic conditions as well as by the threat of loss of employment. The lowest propensity to move between enterprises included in the same section characterised persons with primary and incomplete primary education. These persons do not have enough qualifications to count on finding a job in another firm.

Figure 5 shows the levels of inter- and intra-industry mobility (wmg(A)) in the marital-status cross-section (unmarried and married persons). From fig. 5 it follows that single persons were characterised by greater inter- and intra-industry mobility in comparison with married persons in the entire surveyed period.

What accounts for these differences is the fact that unmarried persons are for the most part young persons. The labour market in Poland does not offer young persons stable and well-paid job which would guarantee full self-fulfilment. This leads to high mobility of young people in the labour market - including high industry mobility. Young persons have greater chances to switch over to new requirements. Also they are not very attached to their workplaces.

Table 6. Annual average inter-industry mobility indices (wmg(A)) by age in Poland, 1995-1998 (in %)

Age groups	1995	1996	1997	1998
Up to 24	32.0	25.5	28.0	21.5
25 - 34	28.5	19.8	18.8	18.2
35 - 44	27.3	18.0	17.2	15.4
45 - 54	26.1	16.5	16.3	15.6
55 and more	15.6	11.3	11.7	10.7

Source: as for fig. 2.

Let us now analyse the differentiation of inter-industry mobility in the age cross-section in the years 1995-1998. Table 6 contains data on inter-industry mobility and table 7 on intra-industry mobility.

The analysis of the data in tables 6 and 7 leads to the following conclusions. Firstly, persons aged 24 or less were characterised by the highest inter-industry and intra-industry mobility throughout the analysed period.

As it was mentioned earlier on, young persons are more mobile. They try to find better working and pay conditions. It is also easier for them to change their qualifications. Secondly, as we expected, the lowest inter- and intra-industry mobility was characteristic of persons in the age groups 45-54 and 55 and more. The reasons for such low inter-industry mobility of persons aged 45 and more can be explained as follows. Older people do not seek employment in other sections owing to their attachment to their current places of work. These are not only emotional reasons but also financial considerations (e.g. seniority pay). Persons with a longer period of service enjoy certain privileges with their employers. Even in the case of a downturn they are not threatened with dismissal. Furthermore, older persons as a rule encounter problems in switching over to new working conditions and are aware that in the case of changing the place of work they will become "strangers" in the new place.

Table 7. Annual average intra-industry mobility indices (wmg(A)) by age in Poland, 1995-1998 (in %)

Age groups	1995	1996	1997	1998
Up to 24	19.87	12.57	21.38	16.97
25 - 34	7.04	4.16	6.92	4.73
35 - 44	1.06	0.76	0.86	0.82
45 - 54	1.30	0.82	1.42	1.29
55 and more	0.28	0.21	0.44	0.84

Source: as for fig. 2.

Table 8. Annual average inter-industry mobility indices (wmg(A)) by type of region in Poland, 1995-1998 (in %)

Types of regions	1995	1996	1997	1998
Agricultural	14.5	11.0	12.0	9.3
Industrial	25.3	17.1	16.1	14.0
Modern	47.7	31.8	31.0	32.0
Others	14.6	9.5	11.0	8.1

Source: as for fig. 2.

Table 9. Annual average intra-industry mobility indices (wmg(A)) by type of region in Poland, 1995-1998 (in %)

Types of regions	1995	1996	1997	1998
Agricultural	1.60	0.76	1.64	1.08
Industrial	1.98	1.34	2.13	1.99
Modern	2.69	2.09	2.22	2.07
Others	1.64	1.12	2.76	1.34

Source: as for fig. 2.

Let us now look at the differentiation of inter-sector and intra-sector mobility in the regional cross-section. Tables 8 and 9 provide data on inter-industry flow indices (wmg(A)) and on intra-industry flows in the different types of regions. Four types of regions were distinguished, namely modern, agricultural, industrial and other[6].

As it follows from table 8, persons residing in modern areas had the biggest chances of flowing to employment in other sections. This results from the specificity of the employment structure in regions of this type. Modern regions cover voivodships with the highest share of employment in services. Persons working in services do not require any special training adjusting them to the requirements of a new workplace. The lowest inter-industry mobility was typical of persons living in agricultural and other regions. Persons working in agriculture have special qualifications which are not useful in other sections. As a rule, these qualifications are low, which additionally does not favour flows from agriculture to other sections. Hence even if these persons are willing to change their workplace they do not find employers willing to hire them.

Similar conclusions follow from the analysis of the data in table 9. Persons residing in modern regions had the greatest chances of changing employment between enterprises belonging to the same section. The lowest intra-industry mobility was characteristic of persons living in agricultural regions. It is necessary to note that intra-industry mobility indicators were decidedly lower than intra-industry mobility indicators.

[6] Regions were distinguished on the basis of classification made by E.Kwiatkowski, H.Lehman and M.Schaffer (see E.Kwiatkowski, H.Lehman and M.Schaffer, 1991).

5. Econometric analysis

5.1. Multinomial logit model

Let us consider a set of persons observed at two moments of time t and $t+1$. This set was singled out in such a way that all persons belonging to it at moment t belonged to the working pool. Each individual may behave in a different way (cf. fig. 1). Each manner of behaviour will be treated as a separate event. Firstly, a respondent may stay in the same workplace at time $t+1$ (category 0). In the second case, he/she may change workplace by moving from one section of the economy to another (category 1). The third possible event is a change of workplace within the section in which the respondent has worked hitherto (category 2). The last possible event is the passage into unemployment by a person who was employed at time t (category 3).

For respondent i and for category k we define a dummy variable f_{ik} which takes two values: $f_{ik} = 1$ if respondent i qualifies for category k and $f_{ik} = 0$ in the reverse case (cf. Pindyck, Rubinfeld, 1991, p. 280; Chow, 1995, p. 316, Gruszczyński, 1996, pp. 107-108.). We define the probability of occurrence of event $f_{ik} = 1$ as P_k (k = 0, 1, 2, 3). These probabilities meet condition:

$$\sum_{k=0}^{3} P_{ik} = 1$$

We shall explain the ratio of chances of occurrence of a given category in the group of events containing exclusively categories: a given one and category recognised as the base one (category 0). We assume that this quotient depends on exogenous variables creating a vector of characteristics x_i and on vectors of unknown parameters β. As a rule it is assumed that the kind of relation F connecting the linear combination of vectors x_i and β_i with the quotient of probabilities is known. Thus we analyse the following quotients of probabilities:

$$\frac{P_{i1}}{P_{i0} + P_{i1}} = F(x_i \beta_1)$$

$$\frac{P_{i2}}{P_{i0} + P_{i2}} = F(x_i \beta_2)$$

$$\frac{P_{i3}}{P_{i0} + P_{i3}} = F(x_i \beta_3)$$

From the above it follows that:

$$\frac{P_{ik}}{P_{i0}} = \frac{F(x_i\beta_k)}{1-F(x_i\beta_k)} = H(x_i\beta_k) \qquad k = 1,2,3 \tag{8}$$

It is worth noting that:

$$\sum_{k=1}^{3}\frac{P_{ik}}{P_{i0}} = \frac{1}{P_{i0}} - 1$$

or:

$$\sum_{k=1}^{3} H(x_i\beta_k) = \frac{1}{P_{i0}} - 1$$

Determining the probability of occurrence of base category P_{i0} from the above equation we get:

$$P_{i0} = \left[1+\sum_{k=1}^{3} H(x_i\beta_k)\right]^{-1} \tag{9}$$

From equations (8) and (9) we get:

$$P_{ik} = \frac{H(x_i\beta_k)}{1+\sum_{k=1}^{3} H(x_i\beta_k)} \qquad k = 1,2,3 \tag{10}$$

As a form of function F, we assume the logistic distribution function, or:

$$F(x_i\beta_k) = \frac{1}{1+e^{-x_i\beta_k}} = \frac{e^{x_i\beta_k}}{1+e^{x_i\beta_k}}$$

hence:

$$H(x_i\beta_k) = \frac{\dfrac{e^{x_i\beta_k}}{1+e^{x_i\beta_k}}}{1-\dfrac{e^{x_i\beta_k}}{1+e^{x_i\beta_k}}} = e^{x_i\beta_k}$$

As a result, equations (9) and (10) can be written as:

$$P_{i0} = \frac{1}{1+\sum_{k=1}^{3} e^{x_i\beta_k}} \tag{11}$$

and:

$$P_{ik} = \frac{e^{x_i \beta_k}}{1 + \sum_{k=1}^{3} e^{x_i \beta_k}} \qquad k = 1,2,3 \tag{12}$$

The model described by equations (11), (12) is usually called a multinomial logit model. Assuming that $\beta_0 = 0$, model (11)-(12) can be written as:

$$P_{ik} = \frac{e^{x_i \beta_k}}{\sum_{k=0}^{3} e^{x_i \beta_k}} \qquad k = 0,1,2,3 \tag{13}$$

This model consists of 4 equations. We determine the structural parameters of the model by means of the maximum likelihood method. For this purpose we construct a likelihood function of the sample, using the dummy variable defined earlier:

$$L = \prod_{i=1}^{n} P_{i0}^{f_{i0}} P_{i1}^{f_{i1}} P_{i2}^{f_{i2}} P_{i3}^{f_{i3}} \tag{14}$$

After finding the logarithm, we maximise function (14) by means of the Newton-Raphson iteration procedure (see Chow, 1995, pp. 316-317). Let us note that f_{ik} is the observed frequency with which individual i chooses possibility k and P_{ik} is the theoretical frequency obtained on the basis of the logit model with variables x_i as explanatory variables. As a result of estimation of model (13) we get 3 vectors of parameters, one for each category with the exclusion of the base category. On the basis of the estimated parameters of the model we can forecast the probability of occurrence of each of the examined events to any person with known characteristics.

5.2. Results of logit analysis

This part of our paper will present the outcomes of estimations of the multinomial logit models described by equation (13). On the basis of their results we shall single out a set of features having an impact on industry mobility.

We shall use a set of explanatory variables in the logit models. The variables include sex, age, education, marital status, occupation, place of residence, type of region and time of staying out of employment. The variables concerning the type of region in which the respondent is residing are introduced to observe the impact of external determinants on respondents' attitudes.

The regions of Poland were divided according to three classifications. The first is based on speed of restructuring in the years 1990-1996 (see Kwiatkowski, Kubiak, 1998, pp. 714-717; Kwiatkowski, Kubiak, 1999, p. 24). On its basis we distinguished regions in which the restructuring processes run the fastest and those in which restructuring proceeds the slowest. We are putting forward a hypothesis that intensification of restructuring processes forces out greater mobility of labour.

The second classification of voivodships is based on the level of social and economic development (see Kwiatkowski, Kubiak, 1998, pp. 710-714; Kwiatkowski, Kubiak, 1999, p. 18). On its basis we again singled out voivodships with the highest and lowest socio-economic development levels. On the basis of this variable we want to answer the question of whether higher labour mobility is connected with a higher level of socio-economic development.

The third manner of classification is based on structure of employment (cf. Kwiatkowski, Lehman and Schaffer, 1992). In this classification, the voivodships are divided into four types: modern, industrialised, agricultural and others). The question which we raise is whether occupational mobility is differentiated depending on types of employment structure occurring in the respondent's place of residence.

Table 10 shows estimations of the multinomial logit model on the basis of the entire examined sample. As it follows from the data in table 10, the behaviour in the labour market is differentiated in the sex cross-section. Women show lower inter-industry mobility than men. At the same time women more rarely go into unemployment. Considering the occupational cross-section it is necessary to note a very low mobility level of farmers, forest workers and fishermen. Low mobility is shown by persons from the group called employees in personal services and shop assistants. At the same time this group is characterised by the highest intra-industry mobility. Inter-industry flows occur most often in the lowest occupational groups (groups 8 and 9). It is also the employees in these groups that are most threatened with unemployment. The employed in the state-owned sector are characterised with low inter-industry mobility and very low intra-industry mobility. As regards size of employment in enterprises, the lowest mobility is shown by employees of the largest enterprises. Higher inter-industry mobility is related with a higher level of restructuring and socio-economic development and with a modern employment structure. None of these factors differentiates intra-industry mobility. Inhabitants of rural areas do not show any significant differences in inter-industry mobility in comparison with inhabitants of towns, and simultaneously they more rarely change places of work within a section.

Table 10. Estimations of parameters of the multinomial logit model

Specification of variables (base category in brackets)	Inter-industry flow		Intra-industry flow		Flow to unemployment	
	ROR	t-value	ROR	t-value	ROR	t-value
Sex (male)	0.71	-14.465	0.67	-5.394	0.89	-2.817
Age (35 - 44 years)						
Up to 24 years	1.24	5.723	2.30	8.000	2.23	14.189
25 – 34 years	1.06	2.011	1.41	4.012	1.33	5.802
45 – 54 years	0.92	-2.785	0.75	-2.723	0.70	-5.944
55 and more	0.90	-2.357	0.45	-3.820	0.32	-8.577
Education (vocational)						
Higher	*1.08*	*1.667*	*1.13*	*0.830*	0.58	-3.852
Secondary	1.14	4.582	0.71	-3.826	0.86	-3.098
Primary	*0.95*	*-1.457*	*0.96*	*-0.354*	1.22	4.108
Marital status (single)						
Married	0.90	-4.078	0.89	-1.479	0.71	-7.782
Size of place of residence (village)						
Town above 100,000	0.94	-1.940	1.53	4.671	1.05	0.956
Other towns	0.99	-0.340	1.19	2.052	1.26	5.365
Speed of restructuring of the region (average)						
Voivodships with high dynamics	1.10	3.696	1.12	1.385	1.06	1.137
Voivodships with low dynamics	0.76	-7.116	0.93	-0.627	0.91	-1.749
Level of socio-economic development (average)						
Voivodships with high level	1.21	6.793	0.93	-0.806	0.66	-7.776
Voivodships with low level	0.89	-2.438	0.83	-1.264	1.04	0.551
Type of region by employment structure (industrialised)						
Modern	1.56	15.392	1.08	0.766	1.23	3.552
Agricultural	0.93	-1.954	0.89	-0.995	0.95	-0.801
Others	0.68	-6.799	0.84	-1.160	1.06	0.806
Occupation (industrial workers and craftsmen; group 7)						
Parliamentarians, officials, managers and specialists (groups 1 and 2)	0.92	-1.944	0.79	-1.707	0.29	-10.816
Technicians and medium level staff (group 3)	0.79	-5.636	1.05	0.327	0.49	-7.601
Office workers (group 4)	1.00	-0.096	0.87	-0.846	0.70	-4.031

Table 10. Estimations of parameters of the multinomial logit model [Cont.]

Specification of variables (base category in brackets)	Inter-industry flow		Intra-industry flow		Flow to unemployment	
	ROR	t-value	ROR	t-value	ROR	t-value
Employees in personal services and shop assistants (group 5)	0.61	-11.272	1.25	2.144	1.00	0.077
Farmers, gardeners, forest workers and fishermen (group 6)	0.37	-21.255	0.25	-9.243	0.26	-17.420
Machine and equipment operators and fitters, workers doing simple jobs (groups 8 and 9)	1.24	5.664	1.06	0.459	2.04	13.601
Ownership forms (communal, co-operative, etc.)						
State-owned	0.71	-13.222	0.44	-8.682	0.62	-9.348
Private	0.76	-4.944	0.76	-1.585	1.43	4.704
Size of firms (by persons employed) (from 6 to 100 persons)						
Up to 5 persons	1.00	0.137	1.13	1.482	1.09	1.807
More than 100 persons	0.91	-3.544	0.53	-6.431	0.48	-13.070

Shaded values are statistically insignificant at level $\alpha = 0.05$
Number of observations: 198229; chi2(84) = 7537.92;
Log likelihood =-59727.272; Pseudo R2 = 0.0594

Allowing for the differentiation of labour we made estimations of the multinomial logit models on the basis of sub-samples distinguished according to sex and occupation. The first of the models is estimated on the basis of a sample consisting of women only. The second covers only men. Another model is estimated on the basis of a sample comprising persons doing manual jobs. The last model covers persons in non-manual jobs. In this way we got deepened information on the impact of a given feature on a person's mobility. Full estimations of each model are given in tables A3-A6 in the Annex. In the paper we use tables compiling the estimations of selected parameters from different models.

Industry mobility and flows into unemployment are connected to respondents' age (cf. table 11). Persons aged 24 and less show the highest inter-industry mobility. The chance of flows after 35 years of age is not differentiated any more in the case of men. A drop of the chance of inter-industry flow is observed in the case of women aged between 45 and 54. Considering the occupational cross-section, it should be underlined that inter-industry mobility is not determined by age in the case of persons in manual jobs. Intra-industry mobility is even stronger related to age. This relation is observed primarily in the

occupational cross-section. Persons from non-manual occupational groups have heightened intra-industry mobility until 34 years of age. In the group of manual jobs, the passage to another age group means a decline in this mobility. Women aged 24 or less have a 2.7 times higher chance to change their workplace within the section than women in the 35-44 age group. High mobility also characterises women from the next age group. The youngest men in the labour market are characterised by twice as high mobility as persons in the base category. Furthermore, mobility declines considerably with men's age.

Table 11. Estimations of parameters for age groups

Specification of variables (base category: 35-44 years of age)	Inter-industry flow		Intra-industry flow		Flow to unemployment	
	ROR	t-value	ROR	t-value	ROR	t-value
WOMEN						
Up to 24 years	1.25	3.610	2.68	5.685	2.66	11.254
25 – 34 years	1.02	0.539	1.83	4.159	1.49	5.174
45 – 54 years	0.87	-3.049	0.87	-0.780	0.63	-4.812
55 and more	0.84	-1.914	0.48	-1.603	0.24	-4.931
MEN						
Up to 24 years	1.24	4.492	2.07	5.535	1.86	8.253
25 – 34 years	1.08	2.183	1.22	1.894	1.20	2.859
45 – 54 years	0.96	-1.038	0.71	-2.697	0.77	-3.466
55 and more	0.93	-1.391	0.42	-3.701	0.33	-7.120
MANUAL JOBS						
Up to 24 years	1.35	6.177	1.99	4.964	2.14	11.102
25 – 34 years	1.14	3.705	1.26	1.973	1.29	4.392
45 – 54 years	0.93	-1.914	0.72	-2.267	0.68	-5.487
55 and more	0.78	-3.865	0.32	-3.730	0.22	-8.625
NON-MANUAL JOBS						
Up to 24 years	1.10	1.502	2.77	6.478	2.52	9.095
25 – 34 years	0.96	-0.939	1.58	3.683	1.45	4.164
45 – 54 years	0.91	-2.324	0.79	-1.531	0.77	-2.433
55 and more	1.04	0.638	0.65	-1.529	0.71	-1.583

Source: Tables A3 – A6 in the Annex, our own calculations.

The analysis of the estimations of parameters accompanying the education variables (table 12) leads to a conclusion about a slight impact of this feature on industry mobility. Women with secondary education are characterised

by 12% higher inter-industry mobility. Women's intra-industry mobility is not differentiated with respect to education. Also the risk of going into unemployment does not show any significant differences in this cross-section with the exclusion of women with higher education whose risk is 40 % lower. A markedly higher inter-industry mobility is recorded in the case of men with secondary and higher education. Men with secondary education have a 35% lower chance of changing their workplace within the same section in comparison with the remaining education levels. In the occupation cross-section, higher and secondary education determines higher inter-industry mobility in the group of manual jobs. In he case of non-manual jobs education has no impact on inter-industry mobility. In both groups, secondary education is related to lower intra-industry mobility.

Table 12. Estimations of parameters for education levels

Specification of variables (base category: vocational)	Inter-industry flow		Intra-industry flow		Flow to unemployment	
	ROR	t-value	ROR	t-value	ROR	t-value
WOMEN						
Higher	1.00	0.041	0.91	-0.363	0.60	-2.508
Secondary	1.12	2.174	0.83	-1.278	0.96	-0.552
Primary	0.98	-0.353	0.74	-1.410	1.00	0.054
MEN						
Higher	1.15	2.277	1.32	1.488	0.57	-2.897
Secondary	1.15	3.932	0.65	-3.781	0.77	-3.865
Primary	0.94	-1.465	1.06	0.491	1.37	5.270
MANUAL JOBS						
Higher	1.67	3.170	0.33	-1.114	0.42	-1.504
Secondary	1.21	5.342	0.64	-3.378	0.98	-0.355
Primary	0.95	-1.340	0.97	-0.254	1.22	3.702
NON-MANUAL JOBS						
Higher	0.98	-0.319	1.19	1.018	0.55	-3.881
Secondary	1.06	1.174	0.78	-2.017	0.74	-3.826
Primary	1.19	1.828	0.87	-0.543	1.41	2.644

Source: Tables A3 – A6 in the Annex, our own calculations.

Respondents' marital status has no influence on their inter-industry mobility. Only men and persons in manual jobs record higher inter-industry mobility in the group of unmarried persons (cf. the Annex).

Inter-industry mobility of residents in rural and urban areas does not differ much. The only visible difference in this respect is an 8% lower chance of flows in the case of inhabitants of the largest towns doing manual jobs. Inhabitants of villages are characterised by lower inter-industry mobility than dwellers of the largest towns. Women living in the other towns in Poland also have a greater chance of intra-industry flows than women living in the country. Such dependence is not noticed in the case of men for whose the fact of residing in the other towns does not change the chance of flows in comparison with residents in rural areas. The place of residence plays a bigger role in the case of intra-industry mobility shown by persons in manual jobs. For persons doing manual jobs, there are significant differences between villagers and small town dwellers (cf. table 13).

Table 13. Estimations of parameters for groups according to place of residence

Specification of variables (base category: village)	Inter-industry flow		Intra-industry flow		Flow to unemployment	
	ROR	t-value	ROR	t-value	ROR	t-value
WOMEN						
Town above 100,000	0.93	-1.427	1.60	2.972	1.16	1.783
Other towns	0.94	-1.312	1.34	2.010	1.28	3.442
MEN						
Town above 100,000	0.94	-1.543	1.55	3.921	1.03	0.386
Other towns	1.02	0.634	1.14	1.283	1.30	4.777
MANUAL JOBS						
Town above 100,000	0.92	-2.120	1.39	2.676	0.97	-0.370
Other towns	1.04	1.082	1.13	1.078	1.25	4.331
NON-MANUAL JOBS						
Town above 100,000	0.93	-1.572	1.76	3.943	1.21	1.984
Other towns	0.97	-0.790	1.38	2.318	1.33	3.487

Source: Tables A3 – A6 in the Annex, our own calculations.

In the estimated models we allowed for a number of variables in order to identify the impact of external factors on labour's industry mobility. The estimated parameters are given in table 14. The general conclusion following from the analysis of these estimations is that the speed of restructuring and the development level have a significant influence on inter-industry mobility. High mobility is also connected with a modern employment structure.

Table 14. Estimations of parameters for groups residing in different types of regions

Specification of variables (base category: 35-44 years)	Inter-industry flow		Intra-industry flow		Flow to unemployment	
	ROR	t-value	ROR	t-value	ROR	t-value
WOMEN						
Speed of restructuring of the region (average)						
Voivodships with high dynamics	1.14	3.192	1.16	1.119	1.10	1.246
Voivodships with low dynamics	0.68	-5.848	0.85	-0.844	0.85	-1.826
Level of socio-economic development (average)						
Voivodships with high level	1.27	5.267	1.06	0.437	0.67	-4.846
Voivodships with low level	0.85	-1.895	0.79	-0.846	0.95	-0.425
Type of region by employment structure (industrialised)						
Modern	1.61	10.190	0.87	-0.893	1.16	1.570
Agricultural	0.93	-1.029	0.78	-1.218	0.98	-0.187
Others	0.64	-4.572	0.51	-2.223	1.03	0.267
MEN						
Speed of restructuring of the region (average)						
Voivodships with high dynamics	1.07	2.064	1.10	0.927	1.03	0.472
Voivodships with low dynamics	0.81	-4.548	0.99	-0.108	0.95	-0.656
Level of socio-economic development (average)						
Voivodships with high level	1.18	4.603	0.86	-1.398	0.66	-5.888
Voivodships with low level	0.91	-1.658	0.84	-1.014	1.09	1.012
Type of region by employment structure (industrialised)						
Modern	1.52	11.405	1.23	1.716	1.28	3.233
Agricultural	0.92	-1.778	0.96	-0.318	0.93	-0.975
Others	0.70	-5.157	1.04	0.234	1.07	0.677
MANUAL JOBS						
Speed of restructuring of the region (average)						
Voivodships with high dynamics	0.98	-0.533	1.07	0.615	1.01	0.165
Voivodships with low dynamics	0.84	-3.849	0.92	-0.618	0.86	-2.228
Level of socio-economic development (average)						
Voivodships with high level	1.08	1.953	0.81	-1.707	0.63	-6.962
Voivodships with low level	0.96	-0.665	0.81	-1.130	1.10	1.147

Table 14 Estimations of parameters for groups residing in different types of regions [Cont.]

Specification of variables (base category: 35-44 years)	Inter-industry flow		Intra-industry flow		Flow to unemployment	
	ROR	t-value	ROR	t-value	ROR	t-value
Type of region by employment structure (industrialised)						
Modern	1.45	9.204	1.10	0.681	1.32	3.906
Agricultural	0.84	-3.557	0.89	-0.800	0.94	-0.875
Others	0.68	-5.388	0.85	-0.821	1.17	1.829
NON-MANUAL JOBS						
Speed of restructuring of the region (average)						
Voivodships with high dynamics	1.20	5.045	1.16	1.269	1.14	1.540
Voivodships with low dynamics	0.61	-7.119	0.96	-0.224	1.05	0.454
Level of socio-economic development (average)						
Voivodships with high level	1.37	7.450	1.08	0.618	0.70	-3.834
Voivodships with low level	0.74	-3.296	0.86	-0.616	0.90	-0.749
Type of region by employment structure (industrialised)						
Modern	1.65	12.053	1.03	0.204	1.04	0.429
Agricultural	1.06	0.835	0.87	-0.722	0.98	-0.194
Others	0.68	-4.290	0.83	-0.841	0.80	-1.491

Source: Tables A3 – A6 in the Annex, our own calculations.

Comparing the estimated parameters for women and men it is worth noting that even though the directions of impact are the same in both cases, yet stronger changes are observed in the case of women. Women living in voivodships at a high restructuring level have 14% higher chances of flows than women living in voivodships at a medium level. In the same group for men, these chances are only 7% higher. This is even more conspicuous in the case of indices concerning voivodships with the lowest restructuring rate. This group records 32% lower chances of flow for women and 19% lower for men. Similar differences are seen with respect to the development level and employment structure. The external situation has a stronger imprint on inter-industry mobility among white-collar workers than blue-collar workers. This last group revealed a statistically significant difference between agricultural and industrialised regions in favour of the latter. None of the proposed classifications has an impact on intra-industry mobility.

Occupation is the next examined feature. From the estimations it follows that this variable differentiates industry mobility significantly. The lowest inter-industry mobility is shown by women and men in agricultural jobs. It is 63%

lower than the base category. The highest mobility characterised persons doing jobs in groups 8 and 9 (machine and equipment operators and fitters, workers doing simple jobs). Comparing the estimations of parameters we notice that inter-industry mobility is more differentiated in the occupation cross-section in the case of men than women. The practised occupation plays a smaller part in differentiating intra-industry mobility. The highest intra-industry mobility is recorded in group of employees in personal services and shop assistants. Men doing jobs from groups 1 and 2 show a 3.5 lower intra-industry mobility than persons in the base category (cf. table 15).

Table 15. Estimations of parameters for occupational groups

Specification of variables (base category: industrial workers and craftsmen; group 7)	Inter-industry flow		Intra-industry flow		Flow to unemployment	
	ROR	t-value	ROR	t-value	ROR	t-value
WOMEN						
Parliamentarians, officials, managers and specialists (groups 1 and 2)	1.02	0.220	1.05	0.174	0.32	-6.580
Technicians and medium level staff (group 3)	0.87	-1.829	0.91	-0.371	0.42	-6.079
Office workers (group 4)	1.09	1.259	0.65	-1.613	0.62	-3.763
Employees in personal services and shop assistants (group 5)	0.64	-6.185	1.36	1.617	1.05	0.472
Farmers, gardeners, forest workers and fishermen (group 6)	0.37	-10.836	0.21	-4.917	0.31	-8.584
Machine and equipment operators and fitters, workers doing simple jobs (groups 8 and 9)	1.14	1.941	0.92	-0.324	1.93	6.646
MEN						
Parliamentarians, officials, managers and specialists (groups 1 and 2)	0.88	-2.499	0.62	-2.610	0.27	-7.953
Technicians and medium level staff (group 3)	0.73	-5.831	1.11	0.638	0.58	-4.227
Office workers (group 4)	0.82	-2.673	1.17	0.744	0.80	-1.515
Employees in personal services and shop assistants (group 5)	0.62	-7.771	1.00	0.028	0.83	-1.953
Farmers, gardeners, forest workers and fishermen (group 6)	0.37	-17.933	0.28	-7.518	0.24	-14.688
Machine and equipment operators and fitters, workers doing simple jobs (groups 8 and 9)	1.31	5.705	1.20	1.282	2.20	12.562

Source: Tables A3 – A6 in the Annex, our own calculations.

Table 16. Estimations of parameters for persons according to ownership forms and employment size in the enterprise

Specification of variables (base category in brackets)	Inter-industry flow		Intra-industry flow		Flow to unemployment	
	ROR	t-value	ROR	t-value	ROR	t-value
WOMEN						
Ownership forms (communal, co-operative, etc.)						
State-owned	0.71	-8.128	0.39	-5.692	0.58	-6.733
Private	0.66	-5.024	0.82	-0.829	0.96	-0.314
Size of firms (by persons employed) (from 6 to 100 persons)						
Up to 5 persons	0.96	-0.779	1.18	1.171	1.13	1.545
More than 100 persons	1.02	0.534	0.54	-3.470	0.59	-6.041
MEN						
Ownership forms (communal, co-operative, etc.)						
State-owned	0.71	-9.917	0.47	-6.411	0.68	-5.710
Private	0.90	-1.368	0.65	-1.644	1.93	6.953
Size of firms (by persons employed) (from 6 to 100 persons)						
Up to 5 persons	1.02	0.508	1.09	0.890	1.05	0.845
More than 100 persons	0.84	-4.979	0.52	-5.295	0.42	-11.962
MANUAL JOBS						
Ownership forms (communal, co-operative, etc.)						
State-owned	0.85	-4.309	0.42	-6.046	0.68	-6.327
Private	1.02	0.318	0.71	-1.273	1.69	5.970
Size of firms (by persons employed) (from 6 to 100 persons)						
Up to 5 persons	1.07	1.546	1.37	2.870	1.01	0.112
More than 100 persons	0.77	-6.988	0.48	-5.168	0.42	-13.076
NON-MANUAL JOBS						
Ownership forms (communal, co-operative, etc.)						
State-owned	0.59	-13.903	0.43	-6.332	0.52	-6.951
Private	0.59	-6.604	0.77	-1.185	0.96	-0.291
Size of firms (by persons employed) (from 6 to 100 persons)						
Up to 5 persons	0.91	-2.168	0.94	-0.532	1.21	2.353
More than 100 persons	1.03	0.849	0.61	-3.451	0.67	-3.884

Source: Tables A3 – A6 in the Annex, our own calculations.

The analysis of the estimations concerning ownership forms leads to a conclusion that the lowest inter-industry mobility characterises persons working in the state-owned and private sectors. Such a relation is observed in the case of women and persons in non-manual jobs. Men and persons in manual

jobs employed in the state-owned sector are characterised by lower mobility. In all the estimations, intra-industry mobility is lower in the case of the state-owned sector. The size of the firm measured in the number of employees also affects the respondents' industry mobility. Generally speaking, employees of large firms show lower mobility in the labour market (cf. table 16).

6. Conclusions

The conducted analyses lead to the following conclusions:

1. The levels taken by inter-industry mobility in Poland were not very high in 1994-1998. In this period, a declining trend occurred in inter-industry mobility indices. The reasons for the decline in inter-industry mobility can be seen in a drop in the rate of restructuring of the Polish economy. The downward tendency occurred in industry and services. The inter-industry mobility index remained at a relatively stable level in agriculture. No transformations aimed at improvement in efficiency were carried out in that sector.
2. In the entire analysed period, intra-industry mobility indices remained at a very low level. Differently from countries with developed market economies, the same stereotype of professional persists in Poland, consisting in tying the entire professional career with a single company. As in the case of inter-industry mobility, the highest intra-industry mobility characterised persons working in services. Throughout the entire period, the lowest intra-industry mobility occurred in the agricultural period.
3. In the entire examined period, the group with the highest values of inter-industry mobility (mg(sio)) by outflow comprised sections belonging to the service and industrial sectors (which were undergoing restructuring and privatisation - the glass and furniture industry and cement plants). The group with the highest mobility indices by inflow was dominated by sections from the service and industrial sectors (representing high tech - manufacture of computers and other information-processing equipment and industries subjected to restructuring and privatisation). Sections with the highest inter-industry mobility by outflow and inflow were also characterised by the highest inter-industry rotation.
4. The group of sections with the lowest mobility indices by outflow is made up by individual farms, mining, health protection and social care, education, public administration and national defence. The group of sections with the lowest mobility indices by inflow has a similar composition. Thus it can be

said that sections in which there was no restructuring are characterised by the lowest inter-industry mobility.

5. The analyses show that industry mobility indices were decisively higher among men throughout the examined period. Women constitute a group treated worse by employers and consequently they have decidedly lower expectations with regard to working and pay conditions. The other features which differentiate industry mobility - in the light of our analysis - are education and age. Persons with higher education are characterised by higher inter-industry mobility in comparison with people in other education groups. In the entire period, persons with basic vocational education constituted the most intra-industrially mobile group. The lowest inter- and intra-industrial mobility characterises persons with primary and incomplete primary education. Persons with low education have no greater chances to get higher wages in a new place of work - this does not induce them to seek jobs in other sections. It can also be said that for employers, persons with low education are not substitutes for persons having higher or secondary education. As regards age the coefficient of mobility is a decreasing function of age: the youngest have the highest mobility. There are several arguments for this tendency. One can pay attention to such factors as: (1) older people are more experienced and that is why they are the least to be fired, (2) younger people are more risky in searching jobs, (3) younger people are better educated and that is why it is easier for them to find new jobs. Our conclusions concerning the impact of age and educational attainment on the mobility of labour are also confirmed by the parametric analysis.
6. Marital status is of significant importance for the mobility of labour. Both parametric and non-parametric analysis indicate to higher mobility of single persons. To some extent it can be explained by young age of such persons but the main reason is their higher propensity to change places of work and places of residence.
7. The parametric analysis confirms a remarkable variation of mobility in the Polish regions. First of all mobility is higher in the modern regions than in the industrialized ones. On one hand there are more diversified job offers in the modern regions and on the other people are better educated in those regions and that is why their propensity to change is higher.
8. Our analysis leads to the conclusion that labour mobility is higher in the highly developed regions. These regions have modern economic structure which creates good economic conditions for mobility. Moreover labour mobility is higher in the regions where dynamics of restructuring is higher. It is no surprising because mobility of labour is forced in such regions by reallocation of labour.

9. Industrial mobility of labour is connected with the occupation. The lowest mobility is among farmers and agricultural workers, the highest among salesmen and people employed in personal services.
10. The size of firms in which people are employed is important for the level of labour mobility. People employed in big firms (with the staff higher than 100 persons) are less mobile than those employed in smaller firms. This can be partly explained by the fact, the big firms have stronger market position and that is why they are more stable (and more stable is employment).
11. Our analysis shows that there are no significant differences in the mobility of labour between private and public sectors. One can say that due to the transformation process both types of firms operate similarly in the economy and exert the same influence upon the labour mobility.

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Annex

Table A1. Characteristics of the samples

	Examined pairs		Numerical force of sample
	beginning	end	
1	Aug. 1994	Nov.1994	12480
2	Nov.1994	Feb.1995	12438
3	Feb.1995	May 1995	12429
4	May 1995	Aug.1995	12870
5	Aug.1995	Nov.1995	12941
6	Nov.1995	Feb.1996	12598
7	Feb. 1996	May 1996	12449
8	May 1996	Aug.1996	12720
9	Aug.1996	Nov.1996	12997
10	Nov.1996	Feb.1997	12687
11	Feb.1997	May 1997	12461
12	May 1997	Aug.1997	12962
13	Aug.1997	Nov.1997	13229
14	Nov.1997	Feb.1998	12840
15	Feb.1998	May 1998	12550
16	May 1998	Aug.1998	13125
17	Aug.1998	Nov.1998	13085

Table A 2. Symbols of sections and subsections according to the European Classification of Activities (ECA)

Symbol of section or subsection	Name of section or subsection
AR	Individual farms
AP	Other agriculture
B	Sea and inland fisheries
CA	Mining of energy carriers
CB	Mining of other raw materials
DA	Manufacture of food
DB	Manufacture of fabrics and textiles
DC	Manufacture of leather and products of leather
DD	Manufacture of wood and products of wood
DE	Manufacture of cellulose and paper, printing and publishing
DF	Manufacture of coke, petroleum products and derivatives
DG	Manufacture of chemicals and chemical products
DH	Manufacture of products of rubber and plastic
DI	Manufacture of products of other non-metal materials
DJ	Manufacture of metals and products of metals
DK	Manufacture of machinery and equipment
DL	Manufacture of electrical and optical equipment
DM	Manufacture of transport equipment
DN	Other manufacture
E	Supply of electricity, gas and water
F	Construction
G	Wholesale and retail trade and repairs
H	Hotels and restaurants
I	Transport, storage and communication
J	Financial brokerage
K	Servicing of real estate and firms
L	Public administration and national defence
M	Education
N	Health protection and social care
O	Other communal, social and individual services
P	Households hiring employees
Q	International organisations and teams

Table A3. Estimations of parameters of the multinomial logit model for women

Specification of variables (base category in brackets)	Inter-industry flow		Intra-industry flow		Flow to unemployment	
	ROR	t-value	ROR	t-value	ROR	t-value
Age (35 - 44 years)						
do 24 years	1.25	3.610	2.68	5.685	2.66	11.254
25 – 34 years	1.02	0.539	1.83	4.159	1.49	5.174
45 – 54 years	0.87	-3.049	0.87	-0.780	0.63	-4.812
55 and more	0.84	-1.914	0.48	-1.603	0.24	-4.931
Education (vocationsl0						
Higher	1.00	0.041	0.91	-0.363	0.60	-2.508
Secondary	1.12	2.174	0.83	-1.278	0.96	-0.552
Primary	0.98	-0.353	0.74	-1.410	1.00	0.054
Marital status (single)						
Married	0.96	-1.023	0.85	-1.195	0.77	-3.728
Size of place of residence (village)						
Town above 100,000	0.93	-1.427	1.60	2.972	1.16	1.783
Other towns	0.94	-1.312	1.34	2.010	1.28	3.442
Speed of restructuring of the region (average)						
Voivodships with high dynamics	1.14	3.192	1.16	1.119	1.10	1.246
Voivodships with low dynamics	0.68	-5.848	0.85	-0.844	0.85	-1.826
Level of socio-economic development						
Voivodships with high level	1.27	5.267	1.06	0.437	0.67	-4.846
Voivodships with low level	0.85	-1.895	0.79	-0.846	0.95	-0.425
Type of region by employment structure (industrialised)						
Modern	1.61	10.190	0.87	-0.893	1.16	1.570
Agricultural	0.93	-1.029	0.78	-1.218	0.98	-0.187
Others	0.64	-4.572	0.51	-2.223	1.03	0.267
Occupation (industrial workers and craftsmen; group 7)						
Parliamentarians, officials, managers and specialists (groups 1 and 2)	1.02	0.220	1.05	0.174	0.32	-6.580
Technicians and medium level staff (group 3)	0.87	-1.829	0.91	-0.371	0.42	-6.079
Office workers (group 4)	1.09	1.259	0.65	-1.613	0.62	-3.763
Employees in personal services and shop assistants (group 5)	0.64	-6.185	1.36	1.617	1.05	0.472

Table A3. Estimations of parameters of the multinomial logit model for women [Cont.]

Specification of variables (base category in brackets)	Inter-industry flow		Intra-industry flow		Flow to unemployment	
	ROR	t-value	ROR	t-value	ROR	t-value
Farmers, gardeners, forest workers and fishermen (group 6)	0.37	-10.836	0.21	-4.917	0.31	-8.584
Machine and equipment operators and fitters, workers doing simple jobs (groups 8 and 9)	1.14	1.941	0.92	-0.324	1.93	6.646
Ownership form (communal, co-operative, etc.)						
State-owned	0.71	-8.128	0.39	-5.692	0.58	-6.733
Private	0.66	-5.024	0.82	-0.829	0.96	-0.314
Size of firms (by persons employed) (from 6 to 100 persons)						
Up to 5 persons	0.96	-0.779	1.18	1.171	1.13	1.545
More than 100 persons	1.02	0.534	0.54	-3.470	0.59	-6.041

Shaded values are statistically insignificant at the level $\alpha = 0.05$
Number of observations: 88497; chi2(81) = 3092.13; Log likelihood = -22927.032;
Pseudo R2 = 0,063

Table A4. Estimations of parameters of the multinomial logit model for men

Specification of variables (base category in brackets)	Inter-industry flow		Intra-industry flow		Flow to unemployment	
	ROR	t-value	ROR	t-value	ROR	t-value
Age (35 - 44 years)						
do 24 years	1.24	4.492	2.07	5.535	1.86	8.253
25 – 34 years	1.08	2.183	1.22	1.894	1.20	2.859
45 – 54 years	0.96	-1.038	0.71	-2.697	0.77	-3.466
55 and more	0.93	-1.391	0.42	-3.701	0.33	-7.120
Education (vocationsl0						
higher	1.15	2.277	1.32	1.488	0.57	-2.897
secondary	1.15	3.932	0.65	-3.781	0.77	-3.865
primary	0.94	-1.465	1.06	0.491	1.37	5.270
Marital status (single)						
Married	0.87	-3.842	0.92	-0.828	0.65	-7.355
Size of place of residence (village)						
Town above 100,000	0.94	-1.543	1.55	3.921	1.03	0.386
Other towns	1.02	0.634	1.14	1.283	1.30	4.777
Speed of restructuring of the region (average)						
Voivodships with high dynamics	1.07	2.064	1.10	0.927	1.03	0.472
Voivodships with low dynamics	0.81	-4.548	0.99	-0.108	0.95	-0.656
Level of socio-economic development						
Voivodships with high level	1.18	4.603	0.86	-1.398	0.66	-5.888
Voivodships with low level	0.91	-1.658	0.84	-1.014	1.09	1.012
Type of region by employment structure (industrialised)						
Modern	1.52	11.405	1.23	1.716	1.28	3.233
Agricultural	0.92	-1.778	0.96	-0.318	0.93	-0.975
Others	0.70	-5.157	1.04	0.234	1.07	0.677
Occupation (industrial workers and craftsmen; group 7)						
Parliamentarians, officials, managers and specialists (groups 1 and 2)	0.88	-2.499	0.62	-2.610	0.27	-7.953
Technicians and medium level staff (group 3)	0.73	-5.831	1.11	0.638	0.58	-4.227
Office workers (group 4)	0.82	-2.673	1.17	0.744	0.80	-1.515
Employees in personal services and shop assistants (group 5)	0.62	-7.771	1.00	0.028	0.83	-1.953

Table A4. Estimations of parameters of the multinomial logit model for men [Cont.]

Specification of variables (base category in brackets)	Inter-industry flow		Intra-industry flow		Flow to unemployment	
	ROR	t-value	ROR	t-value	ROR	t-value
Farmers, gardeners, forest workers and fishermen (group 6)	0.37	- 17.933	0.28	-7.518	0.24	-14.688
Machine and equipment operators and fitters, workers doing simple jobs (groups 8 and 9)	1.31	5.705	1.20	1.282	2.20	12.562
Ownership form (communal, co-operative, etc.)						
State-owned	0.71	-9.917	0.47	-6.411	0.68	-5.710
Private	0.90	-1.368	0.65	-1.644	1.93	6.953
Size of firms (by persons employed) (from 6 to 100 persons)						
Up to 5 persons	1.02	0.508	1.09	0.890	1.05	0.845
More than 100 persons	0.84	-4.979	0.52	-5.295	0.42	-11.962

Shaded values are statistically insignificant at the level $\alpha = 0.05$
Number of observations: 109732; chi2(81) = 4296,82; Log likelihood = -36660.773;
Pseudo R2 = 0.055

Table A5. Estimations of parameters of the multinomial logit model for manual jobs

Specification of variables (base category in brackets)	Inter-industry flow		Intra-industry flow		Flow to unemployment	
	ROR	t-value	ROR	t-value	ROR	t-value
Sex (man)	0.66	-12.059	0.54	-5.085	0.81	-4.111
Age (35 - 44 years)						
do 24 years	1.35	6.177	1.99	4.964	2.14	11.102
25 – 34 years	1.14	3.705	1.26	1.973	1.29	4.392
45 – 54 years	0.93	-1.914	0.72	-2.267	0.68	-5.487
55 and more	0.78	-3.865	0.32	-3.730	0.22	-8.625
Education (vocationsl0						
Higher	1.67	3.170	0.33	-1.114	0.42	-1.504
Secondary	1.21	5.342	0.64	-3.378	0.98	-0.355
Primary	0.95	-1.340	0.97	-0.254	1.22	3.702
Marital status (single)						
Married	0.88	-3.561	0.87	-1.275	0.71	-6.442
Size of place of residence (village)						
Town above 100,000	0.92	-2.120	1.39	2.676	0.97	-0.370
Other towns	1.04	1.082	1.13	1.078	1.25	4.331
Speed of restructuring of the region (average)						
Voivodships with high dynamics	0.98	-0.533	1.07	0.615	1.01	0.165
Voivodships with low dynamics	0.84	-3.849	0.92	-0.618	0.86	-2.228
Level of socio-economic development						
Voivodships with high level	1.08	1.953	0.81	-1.707	0.63	-6.962
Voivodships with low level	0.96	-0.665	0.81	-1.130	1.10	1.147
Type of region by employment structure (industrialised)						
Modern	1.45	9.204	1.10	0.681	1.32	3.906
Agricultural	0.84	-3.557	0.89	-0.800	0.94	-0.875
Others	0.68	-5.388	0.85	-0.821	1.17	1.829
Occupation (industrial workers and craftsmen; group 7)						
Farmers, gardeners, forest workers and fishermen (group 6)	0.35	-19.964	0.21	-9.657	0.28	-15.216
Machine and equipment operators and fitters, workers doing simple jobs (groups 8 and 9)	1.24	5.574	1.13	0.928	2.04	13.129
Ownership form (communal, co-operative, etc.)						
State-owned	0.85	-4.309	0.42	-6.046	0.68	-6.327
Private	1.02	0.318	0.71	-1.273	1.69	5.970
Size of firms (by persons employed) (from 6 to 100 persons)						
Up to 5 persons	1.07	1.546	1.37	2.870	1.01	0.112
More than 100 persons	0.77	-6.988	0.48	-5.168	0.42	-13.076

Shaded values are statistically insignificant at the level $\alpha = 0.05$
Number of observations: 111763; chi2(72) = 4720.44; Log likelihood =-34754.127;
Pseudo R2 = 0.0636

Table A6. Estimations of parameters of the multinomial logit model for non-manual jobs

Specification of variables (base category in brackets)	Inter-industry flow		Intra-industry flow		Flow to unemployment	
	ROR	t-value	ROR	t-value	ROR	t-value
Sex (male)	0.81	-6.533	0.80	-2.280	1.10	1.339
Age (35 - 44 years)						
do 24 years	1.10	1.502	2.77	6.478	2.52	9.095
25 – 34 years	0.96	-0.939	1.58	3.683	1.45	4.164
45 – 54 years	0.91	-2.324	0.79	-1.531	0.77	-2.433
55 and more	1.04	0.638	0.65	-1.529	0.71	-1.583
Education (vocationsl0						
Higher	0.98	-0.319	1.19	1.018	0.55	-3.881
Secondary	1.06	1.174	0.78	-2.017	0.74	-3.826
Primary	1.19	1.828	0.87	-0.543	1.41	2.644
Marital status (single)						
Married	0.95	-1.193	0.95	-0.426	0.73	-4.063
Size of place of residence (village)						
Town above 100,000	0.93	-1.572	1.76	3.943	1.21	1.984
Other towns	0.97	-0.790	1.38	2.318	1.33	3.487
Speed of restructuring of the region (average)						
Voivodships with high dynamics	1.20	5.045	1.16	1.269	1.14	1.540
Voivodships with low dynamics	0.61	-7.119	0.96	-0.224	1.05	0.454
Level of socio-economic development						
Voivodships with high level	1.37	7.450	1.08	0.618	0.70	-3.834
Voivodships with low level	0.74	-3.296	0.86	-0.616	0.90	-0.749
Type of region by employment structure (industrialised)						
Modern	1.65	12.053	1.03	0.204	1.04	0.429
Agricultural	1.06	0.835	0.87	-0.722	0.98	-0.194
Others	0.68	-4.290	0.83	-0.841	0.80	-1.491
Occupation (office workers; group 4)						
Parliamentarians, officials, managers and specialists (groups 1 and 2)	0.98	-0.483	0.98	-0.094	0.43	-6.158
Technicians and medium level staff (group 3)	0.83	-3.959	1.22	1.129	0.74	-2.666
Employees in personal services and shop assistants (group 5)	0.62	-8.623	1.66	2.977	1.29	2.554
Ownership form (communal, co-operative, etc.)						
State-owned	0.59	-13.903	0.43	-6.332	0.52	-6.951
Private	0.59	-6.604	0.77	-1.185	0.96	-0.291
Size of firms (by persons employed) (from 6 to 100 persons)						
Up to 5 persons	0.91	-2.168	0.94	-0.532	1.21	2.353
More than 100 persons	1.03	0.849	0.61	-3.451	0.67	-3.884

Shaded values are statistically insignificant at the level $\alpha = 0.05$
Number of observations: 86466; chi2(75) = 3021.02; Log likelihood =-24755.248;
Pseudo R2 = 0.0575