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Macroeconomic Effects of Active Labour Market Policies in Poland

1. Introduction¹

Transition to a market economy initiated at the end of 1989 resulted in significant changes in the Polish labour market. Unemployment rate and U/V ratio increased sharply, especially between 1990 and 1991, meaning large excesses of labour supply. The fast increase of unemployment was commonly regarded as a main social cost of transition. Since the very begining of transition unemployment has become an important issue of political debate. Economic policy measures directed at combating unemployment have been closely connected with the hierarchy of macroeconomic policy goals and macroeconomic performance of the economy. As fighting inflation has been one of the priority goals of economic policy, macroeconomic expansive policy could not be used to combat unemployment between 1990 and 1991 when GDP was decreasing. Active labour market policies remained then a main tool to improve the situation in the Polish labour market. Since 1992 the situation has changed due to a positive economic growth. The effects of active labour market policies could be strenghtened by macroeconomic development.

The paper is focused on the operation and effects of active labour market policies in Poland in the period of transition. Five main active labour market

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schemes are considered: training, intervention works, public works, start-up loans to unemployed and loans to enterprises to create new jobs. Those schemes are first of all analysed from the point of view of their legal regulations and their labour market effects. As to the effects of the schemes we look at the outflows from unemployment to employment using a matching function approach.

The impact of ALMPs on labour market flows in Poland have already been analysed in the literature. Puhani and Steiner (1996) explored whether regional expenditures on public works, intervention works and training have had any impact on the inflows into unemployment and outflows from unemployment and they concluded that the schemes did not seem to increase outflows from unemployment significantly. Lehmann (1995) analysed the effects of participation in training on the outflows from unemployment to regular jobs and came to the conclusion that they were insignificant. Boeri (1995) used an augmented matching function to analyse impacts of participation in public works and intervention works on total outflow from unemployment to employment and found positive effects.

In the paper we try to answer the question whether expenditures on particular ALMPs have any impact on outflows from unemployment to employment (i.e. to regular jobs and jobs created under ALMPs). We use a version of the augmented matching function to consider this question.

The paper is organized as follows. Section 2 presents stylized facts of the labour market developments in Poland in transition. In section 3 particular ALMPs introduced in Poland are discussed, mainly from the point of view of their legal regulations, number of participants and expenditures on those schemes. Data and variables used in the analysis of the paper are undertaken in section 4. Section 5 presents econometric results and section 6 concludes.

2. Labour Market Developments in Transition

The past period of economic system transformation in Poland (1990-1996) was not homogenous from the labour market perspective. Three subperiods can be distinguished:

- 1) drastic deterioration of the situation on the labour market in the years 1990-1991;
- 2) improvement of the macroeconomic indicators and relatively slow growth of unemployment in the years 1992-1993, and

Macroeconomic Effects of Active Labour Market Policies in Poland

 relatively strong economic recovery and declining unemployment trend in the years 1994-1996.

The programme of liberalisation and stabilisation of the economy launched at the end of 1989 was important in terms of 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 in relation to the 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 sort of combination of the reduced aggregate demand for commodities and credit squeeze (Blanchard, Commander, Coricelli, 1994). As a result the industrial output and GDP dropped heavily (see Table 1).

Indicators	1990	1991	1992	1993	1994	1995	1996
GDP	-11.6	-7.0	2.6	3.8	5.0	7.0	6.1 ²
Industrial output	-24.2	-11.9	3.9	6.2	11.9	9.4	8.7
Consumer price inflation	585.8	70.3	43.0	35.3	32.2	28.0	19.9
Employment	-4.2	-4.3	-2.7	1.6	1.1	1.0	3.4
Unemployment rate ¹	6.1	11.4	13.6	15.7	16.0	14.9	13.6
U/V ratio ¹	20.8	74.0	97.2	102.4	112.5	128.2	170.9

Table 1. Macroeconomic indicators in Poland, 1990 - 1996 (% changes pro annum).

1 - data at the end of years,

2 - preliminary data,

Source: Sytuacja społeczno-gospodarcza Polski w latach 1990-1994, "Gospodarka Narodowa", 1995, nr 6 and Mały Rocznik Statystyczny 1997, GUS, Warszawa 1997.

The drastic fall of production in the first years of the transition had to result in some adjustment of employment. Indeed, in the Polish economy it was dropping in the years 1990-1992 (see Table 1). It is interesting, however, that the drop of employment was much weaker than the collapse of production, which implies a drop of labour productivity in that period. Such trends translate into a growth of the 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 deterioration of the situation on the labour market did not result from 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 retirement) other than dismissals (see Kwiatkowski, 1993). Some confirmation of these trends

can be found in Figure 1 that shows, amongst others, a relatively low level of group layoffs in relation to total unemployment.

A significant role in shaping the situation on the Polish labour market was played by the growth of labour supply, occurring throughout the period 1990-1996. 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. Secondly, some role was played by the increased economic activity rates at the beginning of the transition period. Estimations carried out by the GUS, Warsaw, revealed that in the years 1988-1996 the activity rate declined from 65.3 to 58.2% (Kwartalna informacja ..., 1996), whereas the period 1990-1991 was marked by some growth of this rate. The latter trend was probably related to the secondary workers entering the labour market, which was due to the drop of real incomes, and the building up registrations as unemployed of persons that had not worked before. 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 persons who had not worked before.



Figure 1. Registered unemployed, group layoffs and vacancies, March 1990 - December 1996 (in thousands).

Source: Registered Unemployment in Poland, CSO, Warsaw, 1996.

Beside the growth of labour supply and drop of labour demand, an important factor in the deterioration of the labour market situation was the structural mismatches on the labour market, especially in terms of occupations, qualifications and regions. Regional indices of structural mismatches between unemployed persons and vacant jobs amounted in the years 1990-1991 to approximately 40% (Kwiatkowski, Tokarski, 1995, p. 11). This means that the same percentage of the jobless would have had to change their place of residence

to produce a perfect structural match by regions. Two factors may be sought behind the widening structural mismatches between demand and supply. Firstly, the introduction of market economy led to substantial changes in the structure of production and demand for labour, especially in terms of the branches of industry, occupations, qualifications, forms of ownership and regions. As a result of the above modifications in the structure of the labour demand the structural mismatches between labour demand and supply surfaced. Secondly, the structural mismatches on the labour market grew because of the weak structural adjustments on the labour demand side, that is, a relatively low mobility of the labour force. Especially, we mean here low mobility in terms of low rates of changed occupations and qualifications (resulting from the inflexible system of education and underdeveloped system of training), as well as low geographical mobility of the labour force being due to the shortage of housing stock and lacking housing policy.

As a result of operation of the above factors the situation on the labour market substantially worsened, which was reflected in the fast growth of unemployment in the years 1990-1991 and a very low level of vacancies (see Figure 1). Consequently, the rate of unemployment reached 11.4% and the U/V ratio was shaped at the level of 74 (see Table 1).

Since 1992 we have been observing distinct changes in the situation on the labour market in Poland which is unquestionably due to the growth of industrial output and GDP. In the period 1992-1993 the upward trends in production were accompanied by the downward or slightly increasing trends in employment (see Table 1) which translated into a growth of labour productivity and reduction of hidden unemployment. The continued growth of labour supply (with declining economic activity rates) and the drop of employment added to some, although quite slow, growth of unemployment and the rate of unemployment in the years 1992-1993 (see Figure 1 and Table 1). The upward trends of unemployment and the rate of unemployment were arrested and reversed in the years 1994-1996 which was primarily due to the growth of production and employment.

A characteristic feature of the Polish labour market is relatively low inflow rates into unemployment and low outflow rates from unemployment (Rynek Pracy ..., 1994). The stock of unemployment is, therefore, quite stagnant compared with the developed countries.



Inflow rates are measured as % of employment stock; outflow rates - as % of unemployment stock

Figure 2. Gross Unemployment Flows, 1992-1996, (%). Source: Registered unemployment in Poland, CSO, Warsaw.

It is worth noting that some positive changes regarding this situation took place in the years 1992-1996, being a generally upward trends of the inflow and outflow rates (see Figure 2). Nevertheless, the stock of unemployment is still not dynamic enough. The share of the long term unemployment (over 12 months) in the overall unemployment is at a comparatively high level, although a weak downward trend of this share could be observed in the years 1992-1996 (from 45.2 % at the end of 1992 to ca 41% at the and of 1996; (Registered Unemployment ..., 1996, p. 14). Another worrying phenomenon is the upward trend among persons repeatedly registered as unemployed. In the successive six month periods of the years 1994-95 the share of jobless persons returning after 1990 to be re-registered in relation to the total inflow of persons into unemployment ..., 1996). These trends point to the process of squeezing out some groups to the outskirts of the labour force that takes place in the Polish economy.

Another characteristic feature of the Polish labour market is strong regional variations of unemployment. This phenomenon is proved by the coefficients of variation of the regional unemployment rates, rates of inflows to unemployment and rates of outflows from unemployment that can be found in Figure 3. It is worth stressing that the values of these ratios were relatively high in the case of unemployment rates and inflow rates throughout the period 1992-1996 and that the coefficient of the regional outflow rates from unemployment was declining in that period.



Figure 3. Coefficients of variation of regional unemployment rates, inflow rates and outflow rates, 1992-1996 Source: as in Figure 1.

Table 2 is a list of voivodeships with the lowest unemployment rates (below the average minus 1 standard deviation) and the highest rates (above the average plus 1 standard deviation) in the years 1991-1996. From the table it results that the group of voivodeships with the lowest rates was quite stable in time and included urbanised and industrialised voivodeships with a high share of the service and private sectors. Voivodeships with the highest rates were not that stable in time, but all of them can be characterised as underdeveloped agricultural regions with a low share of the private sector.

Table 2. Voivodeships with the lowest and highest unemployment rates, 1991-1996,data at the end of years (in %).

1991 1992			1993		1994		1995		1996		
1751		1	Voivo	deships with t	he best	situaction in t	he labo	ur market			
Warszawskie	42	Warszawskie	5.9	Warszawski	7.6	Warszawski	7.5	Warszawskie	5.3	Warszawskie	4.3
Poznańskie	56	Poznańskie	7.9	Krakowskie	7.7	Krakowskie	8.5	Poznańskie	7.7	Poznańskie	6.2
Krakowskie	62	Bielskie	7.9	Poznańskie	9.0	Poznańskie	8.8	Krakowskie	8.1	Krakowskie	6.4
Katowickie	6.6	Katowickie	8.6	Katowickie	10.1	Katowickie	10.1	Katowickie	9.2	Katowickie	8.4
Wrocławskie	77	Krakowskie	89	Bielskie	11.1	Bielskie	11.5	Bielskie	11.3	Bielskie	9.7
Bielskie	8.2	Wrocławskie	10.1					Wrocławskie	11,4	Wrocławskie	9.7
Opolskie	8.8	Chełmskie	10.2		1.27		E. N	the state of the second			
Chełmskie	9.2									1	I
			Voivo	deships with t	he wors	st situation in t	the labo	our market		1	
Elblaskie	16.4	Pilskie	19,7	Koszaliński	28.9	Pilskie	24.2	Włocławskie	22.3	Słupskie	26.8
Gorzowskie	16.4	Włocławskie	19.7	Słupskie	29.7	Elblaskie	26.7	Wałbrzyskie	24.4	Suwalskie	25.4
Włocławskie	16.5	Ciechanowski	19.8	Olsztvńskie	30.1	Wałbrzyskie	27.1	Elblaskie	25.8	Koszalińskie	25.1
Teleniogórskie	16.8	Wałbrzyskie	21.0	Suwalskie	30.3	Koszaliński	28.0	Olsztyńskie	26.1	Olsztvńskie	23.8
Ostrołeckie	16.8	Flblaskie	21.4		R CA	Olsztvńskie	28.2	Koszalińskie	26.9	Elblaskie	23.6
Ciechanowski	17.0	Shinskie	23.2		0.3	Suwalskie	29.1	Suwalskie	27.6	Wałbrzyskie	22.3
Wałbrzyskie	17.1	Olsztvńskie	23.6			Słupskie	30.5	Słupskie	28.6	Włocławskie	21.8
Shipskie	17.8	Suwalskie	23,7		4.3	1 - 3 3	2				
Koszalińskie	17.9	Koszalińskie	24.1			1.12.15.19	-		1.1.3		
Olsztvńskie	18.2					A STAR	-				
Suwalskie	18.6				-	6 0. 2 4	-				

Source: Biuletyn Statystyczny, GUS, Warszawa, issues published between 1990-1996; Bezrobocie rejestrowane w Polsce, GUS, Warszawa, issues published between 1992-1997.

1992		1993		1994		1995	
.0661-7661	DOLK	Voivodeship	s with th	ne lowest inflow	rates	mone mone	and a first of the
Warszawskie	1.28	Warszawskie	1.62	Warszawskie	1.69	Warszawskie	1.76
Zamojskie	1.58	Poznańskie	2.00	Poznańskie	2.19	Poznańskie	2.28
Krakowskie	1.59	Katowickie	2.09	Katowickie	2.22	Katowickie	2.30
Katowickie	1.65	Krakowskie	2.11	Krakowskie	2.35	Krakowskie	2.35
Poznańskie	1.82	Siedleckie	2.15	Siedleckie	2.36	Bielskie	2.85
Tarnobrzeskie	1.82	Zamojskie	2.32	Bielskie	2.62	Siedleckie	2.89
na todt is in	abuda	Voivodeship	s with th	he highest inflow	rates	de l'en lettels e	111
Pilskie	3.45	Pilskie	4.55	Gorzowskie	5.46	Olsztyńskie	6.53
Toruńskie	3.52	Jeleniogórskie	4.55	Olsztyńskie	5.58	Gorzowskie	6.55
Olsztyńskie	3.55	Włocławskie	4.82	Jeleniogórskie	5.74	Elbląskie	7.80
Jeleniogórskie	3.58	Gorzowskie	5.00	Elbląskie	6.51	Suwalskie	7.93
Elbląskie	3.72	Suwalskie	5.24	Koszalińskie	6.73	Koszalińskie	8.25
Włocławskie	3.79	Koszalińskie	5.76	Suwalskie	7.19	Słupskie	9.02
Suwalskie	3.99	Elbląskie	6.45	Słupskie	7.84	a in ascerti	
Gorzowskie	4.05	Słupskie	6.64		in the second		
Koszalińskie	4.17						
Łódzkie	4.36	1 DRE 20010	113838	Service 19	ouri de		ELL 3
Słupskie	4.50		NOY UN			S DX CODES	

Table 3. Voivodeships with the lowest and highest inflow rates, 1992-1995, (in %)

Source: as in Table 2.

Table 4. Voivodeships with the lowest and highest outflow rates, 1992-1995, (in %)

1992		1993	10 110	1994	nity a	1995	10Lin
nection to	No la	Voivodeships	s with th	e lowest outflow	rates	i meritedian	anti
Wałbrzyskie	6.9	Siedleckie	7.6	Siedleckie	10.9	Zamojskie	18.4
Olsztyńskie	7.4	Wałbrzyskie	8.7	Wałbrzyskie	12.2	Ostrołęckie	18.9
Bydgoskie	7.9	Olsztyńskie	9.0	Ostrołęckie	14.6	Olsztyńskie	19.0
Ciechanowskie	8.5	Łomżyńskie	10.0	Piotrkowskie	14.6	Tarnobrzeskie	19.3
Tarnowskie	8.6	Ostrołęckie	10.1	Olsztyńskie	15.0	Płockie	20.1
Siedleckie	8.8	Radomskie	10.5	Tarnobrzeskie	15.3	Wałbrzyskie	20.2
Suwalskie	9.0	Kieleckie	10.6	Konińskie	15.4	Ciechanowskie	20.3
Koszalińskie	9.1	Piotrkowskie	10.7	Krośnieńskie	15.5	Radomskie	20.5
and menus	autou(Voivodeships	s with th	e highest outlow	rates:	ionais da Sara	aug.
Leszczyńskie	17.4	Chełmskie	19.4	Gdańskie	22.3	Pilskie	26.6
Gorzowskie	17.6	Białostockie	19.9	Lomżyńskie	22.6	Leszczyńskie	26.7
Białostockie	17.7	Leszczyńskie	20.4	Poznańskie	22.7	Zielonogórskie	26.8
Poznańskie	17.8	Szczecińskie	20.8	Białostockie	22.8	Wrocławskie	26.8
Zielonogórskie	17.8	Gdańskie	22.1	Szczecińskie	22.9	Katowickie	26.8
Warszawskie	18.3	Poznańskie	22.3	Leszczyńskie	23.0	Krakowskie	27.7
Jeleniogórskie	18.4	Krakowskie	29.5	Jeleniogórskie	23.7	Poznańskie	28.1
Lubelskie	18.9	det at las la t		Krakowskie	24.1	Gorzowskie	28.8
Łódzkie	19.4	Manager Contractor				Warszawskie	32.0
Chełmskie	20.0					hereithered	5105
Szczecińskie	20.0						1.0
Bielskie	24.8						

Source: as in Table 2.

Tables 3 and 4 show variations of the inflow rates to unemployment and outflow rates from unemployment by voivodeships for the period 1992-1995. By comparing those tables we find that in many cases the outflow rates were very low in the voivodeships with the highest inflow rates (e.g. in the voivodeships of Olsztyn, Elblag, Suwałki, Słupsk and Koszalin). On the other hand, the voivodeships where the inflow rates were the lowest included many voivodeships with the highest outflow rates (e.g. Warsaw, Poznań and Cracow).

When data in tables 2, 3 and 4 are compared, the conclusion is that in the majority of voivodesips with the lowest unemployment rates inflow rates were relatively low and the outflow rates relatively high. On the other hand, the majority of voivodeships with the highest unemployment rates can be characterised as voivodeships with high inflow rates and low outflow rates.

3. Active Labour Market Programmes: Description and Trends

In the first years of the transition period (1990-1991) the major objectives of the macroeconomic policy in Poland concerned the stabilisation and liberalisation of the economy and suppression of inflation. The government policy towards unemployment focused primarily on ensuring social protection to the unemployed. The fruit of the policy was the generous system of unemployment benefits which was referred to in the previous section of the paper. Reduction of unemployment was not announced as the priority of the economic policy. In spite of this, at the very beginning of the transition period there was formed a legal framework enabling to launch active labour market programmes. The significance of these programmes started to grow in the successive years of transition, together with the building up structural unemployment in the Polish economy and inclusion of unemployment combating into the priorities of the economic policy.

Active labour market policies in Poland include six types of programmes:

- 1) public employment services,
- 2) training,
- 3) intervention works,
- 4) public works,
- 5) loans for unemployed,
- 6) loans for employers.

Let us look at the essential features of these programmes (according to the legal framework as set in the Employment and Unemployment Combating Act of 14 December 1994).

The nature of the employment service is a free of charge assistance to the unemployed and employers provided by labour offices in order to provide either jobs or employees. The services are based on the following guiding rules: equal access for all unemployed and employers, voluntariness, equality (i.e. no discrimination), and openness (job seekers are informed about every vacant job reported to the office). Employers are obliged to report their vacancies to the labour office, but in practice no sanctions are imposed if they choose not to.

The aim of training organised by labour offices is teaching a new trade or upgrading qualifications to increase the trainees' chances for employment. Training is primarily designed for unskilled unemployed. During the training, that usually takes not longer than six months, the trainees receive a training allowance equal to 115% of the unemployment benefit, provided that they are eligible for the benefit. The training cost is to be reimbursed by the unemployed person if he or she is at fault for not completing it. An important incentive to organise training is the income tax exempt for enterprises run by individuals introduced in 1992. It is granted to an enterprise for training an employee if it operates in an area threatened by structural unemployment. This exempt is six times the lowest monthly salary, and in the case of longer courses 9 times.

Intervention works aim to economic activation of the unemployed and providing them with an opportunity for acquiring regular jobs. Employers who create additional jobs for the unemployed are refunded a part of the pertinent costs by the labour offices. The period of subsidised employment ranges from 6 to 12 months. If a jobless person is employed for 6 months, then the employer receives a monthly subsidy equal to the unemployment benefit and social security contribution. When a job is given for 12 months, the employer is refunded the cost of labour every second month, in the amount equal to the lowest salary and the social security contribution. The employer may also be granted a single bonus amounting to 150% of the average salary, if he/she decides to extend to another 6 months the employment of a previously unemployment person after the intervention works period expires.

The major objective of public works introduced in 1992 is economic development of a region and economic activation of the long-term unemployed. Public works organised by local authorities and local labour offices consist in executing tasks useful for the general public, mostly in the field of economic infrastructure. Their duration is typically 6 months and they cannot extend beyond 12 months. To encourage organisation of public works, their promoter may be refunded a part of the costs incurred by the local labour office. When employing jobless persons for 6 months, the promoter is reimbursed the labour cost every month, the amount of subsidy being 75% of the average wage plus the social security contribution. When employment is provided for 12 months, the promoter

is reimbursed the labour cost every second month, the amount being equal to the average wage plus the social security contribution. Additionally, in regions threatened by the structural unemployment the promoter may also be disbursed a part of the material cost (to 50%), but not more than 25% of the subsidies granted to wages.

Loans for the unemployed to set up their own businesses aim to the creation of jobs through self-employment of the jobless and promotion of small business development. An important requirement to be met prior to getting a loan is presentation of a viable business-plan to the labour office by the jobless person. The maximum amount of admissible loan is 20 times average wage. The loans bear preferential interest rates being 0.6 of the regular interest rate on loans in the case of starting manufacturing activities and 0.8 in the case of entering into the services sector. Up to 50% of the loan may be forgiven if the business has been run for at least 24 months. Moreover, a grace period can be granted. The maximum grace period is 12 months.

Loans granted to enterprises for the creation of new jobs are available only when employment in the enterprises has not been reduced during the last 12 month. The amount of the loan per one employed jobless person is the same as in the case of loans for unemployed individuals. Repayment terms are less favourable than in the case of loans for the unemployed. The preferential interest rate (0.8 of the rate on loans) is only available in the case of loans for creation of jobs directly related to manufacturing. Moreover, these loans cannot be forgiven and the maximum grace period is six months.



Figure 4. Labour Fund expenditures as percent of GDP, 1990-1996, (%). Source: data provided by the Ministry of Labour and Social Policy; and Mały Rocznik Statystyczny 1996, GUS, Warszawa 1996.

The active labour market programmes discussed above are financed from the Labour Fund whose resources are made up of the contributions paid in by the employers (3% of the gross payroll), government subsidies and other sources (e.g. repaid loans). Figure 4 presents expenditures of the Labour Fund in relation to GDP. Although the general observation is that the share of total expenditures in GDP tends to grow, but it should be stressed that the share reached in 1995 (ca 2.2%) continues to be considerably lower than the shares in the majority of the OECD countries (ca 3%), despite the average rate of unemployment being in these countries lower than in Poland. Even more worrying is the low share of expenditures on active programmes in GDP that had been dropping until 1992. The fall was connected with the very fast growing number of the unemployed in the years 1990-1991 and the need to provide regulatory benefits to the unemployed. After 1992 the expenditures on the active labour market policy started to ascend, but their share in the total spending of the Labour Fund reached 16% only in 1995. When converted per one unemployed the amount of these expenditures was, however, relatively low and equalled to ca US\$ 80 per one unemployed (Kabai, 1995).

Item	1990	1991	1992	1993	1994	1995	1996
Number of persons (000's)	107	129	217	314.2	411	378.9	330.0
Share in total unemployment (%)	18.1	7.7	9.2	11.5	14.1	14.4	13.9
Index of participants (1990=100)	100	120.5	202.8	293.6	384.1	354.1	308.4

Table 5.	Participants	of the ALMP	programmes,	1990 - 1990	6.
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Source: as in Figure 4, own calculations.

The comparatively low expenditures on the active labour market programmes confine the number of beneficiaries to a relatively small group of unemployed. More accurate data on this subject are shown in Table 5. From the Table it results that the number of persons participating in the active programmes was growing in the years 1990-1994 but their proportion in total unemployment continued to be quite low and it exceeded 14% only in 1994. The rate indicates the role that might be played by the active programmes for suppressing unemployment.

The significance of particular active labour market programmes varied together with the passing years of the transformation. In the period 1990-1991 loans prevailed, both in terms of the Labour Fund's spending and the number of participants in this programme. In the next years the importance of this programme essentially declined in favour of other instruments, mainly public works.

(a) Expenditure Shares





Figure 5 shows that in the years 1993-1996 intervention works and public works prevailed, both regarding the expenditures on and participants in these programmes. For instance, the numbers of participants in particular programmes in 1994 were:

- intervention works -	195,000,
- public works -	110,000,
-training -	92,000,
-loans -	9,000 (Kwiatkowski, 1995).

The amount of expenditures on active programmes spent by the Labour Fund varies across regions. "Active" expenditures per 1 unemployed are generally higher in the voivodeships where the rates of unemployment are the highest. This indicates that the allocation of resources from the Labour Fund to particular voivodeships is centralised, the criterion being the rates depicting the situation on the labour markets. Although no mathematical formula is applied to decide about funds allocation, the rule is that areas assumed as threatened by structural unemployment receive much more from the Labour Fund (even three times more) than other areas. As a result, in voivodesips where the number of such areas is higher "active" expenditures per 1 unemployed are also higher.

More freedom is enjoyed by voivodeships when deciding about the allocation of "active" expenditures to particualr programmes. The only constraint here is the legal regulations that have to be adhered to. In practice voivodeship labour offices decide freely about the structure of these expenditures taking into account local conditions. Consequently, the regional variations of expenditures on active programmes per 1 unemployed person are quite marked. As it results from Table 6 the strongest regional variations of the expenditures can be found in the case of loans for enterprises. Variations in the case of training are also considerable, the lowest can be found in the case of intervention works. This can be explained by both varying demand for particular programmes and different possibilities of responding to it particular voivodeships.

Item	1992	1993	1994	1995	1996
Total exp. on ALMP	0.39	0.37	0.44	0.42	0.35
Intervention works	0.5	0.42	0.47	0.46	0.43
Public works	0.72	0.48	0.57	0.56	0.66
Training	0.57	0.57	0.8	0.71	0.60
Loans to unemployed	0.66	1.14	0.51	0.48	0.62
Loans to enterprises	1.25	1.29	1.03	1.15	1.31

Table 6.	Coefficient of variation of regional expenditures	
	on ALMPs per unemployed, 1992 - 1996	

Source: data provided by the Ministry of Labour and Social Policy, own calculations.

4. Statistical data

The database used in the study covers data about unemployment, vacant jobs and outflows from unemployment, on the one hand, and about expenditures on the active programmes of the labour market, on the other. All these data are administrative in nature and derived from labour offices. The basic observation units are voivodeships (49) that make up the administrative division of the country. The data used are quarterly and annual data. In the case of stock data (unemployed) they are as at the end of the quarter; in the case of the flow data (outflows from unemployment, inflow of vacancies, expenditures on active programmes on the labour market) these concern particular years. The data cover the period 1992 - 1996.

As regards outflows from unemployment they constitute a part of total outflows from unemployment that include also outflows to economic inactivity. Outflows to employment include outflows to the active programmes of the labour market and outflows to regular jobs. Outflows from unemployment to active programmes concern beneficiaries of intervention works, public works and both types of loans. These outflows do not concern trainees who are not struck out from unemployment registers when being trained.

Data about vacancies used in the analysis concern vacancies registered by labour offices within particular years. Therefore, these are flow data.

Data about expenditures on the active labour market programmes are annual data on particular voivodeships for five programmes:

- intervention works,
- loans for the unemployed,
- loans for enterprises,
- public works,
- training for unemployed persons.

The data concern expenditures per one jobless person. In order to eliminate the impact of inflation, the data about expenditures are expressed in the prices of the first quarter 1995.

5. Econometric Analysis

In this part of the paper we present estimates of the Cobb-Douglas type augmented matching function by which we mean a function given by the formula:

$$OJ_{it} = \exp\left(\alpha_0 + \alpha_t t + \sum_{j=1}^{5} \alpha_j EX_{jit}\right) \left[U_{it}\right]^{\beta_u} \left[V_{it}\right]^{\beta_v} \varepsilon_{it} \qquad (1a)$$

assumption can be explained in this way: changes in labour market efficiencito

$$OJ_{it} = \exp\left(\alpha_0 - \frac{\alpha_t}{t} + \sum_{j=1}^5 \alpha_j EX_{jit}\right) \left[U_{it}\right]^{\beta_u} \left[V_{it}\right]^{\beta_v} \varepsilon_{it} \qquad (1b)$$

where:

OJ it - outflow from unemployment to employment in voivodship i in period t (i=1, 2, ..., 49; t=1, 2, ..., 5 for the years 1992, 1993, ..., 1996, respectively);

t - time variable (defined in the same way as subscript t);

 Ex_{jit} - expenditures on j-th ALMP per unemployed in i-th voivodship in period t (j=1, 2, ..., 5; where

EX_{1it} - spendings on intervention works per unemployed,

EX_{2it} - spendings on training per unemployed,

EX_{3it} - loans for the unemployed per head of the unemployment stock,

EX4it - loans for enterprises per unemployed,

EX_{5it} - expenditures on public works per unemployed;

 U_{it} - average stock of unemployment in i-th voivodship in period t (we mean the average level of unemployment at the end of each quarter);

V_{it} - number of registered vacancies in i-th voivodship in period t (annually);

 ε_{it} - error term.

Parameters α_0 , α_t , α_1 , α_2 , ..., α_5 , β_U , β_V can be interpreted as follows:

- α₀-constant (no direct economic interpretation);
- α_t-is a rate of growth of outflows from unemployment to employment in each successive period under the *ceteris paribus* condition [in eq. (1a)]. α_t>0 in eq. (1b) indicates that in each successive period growth rate of outflows from unemployment to employment (under the *ceteris paribus* condition) will decrease (it seems to be important to add, that if t→+∞, then the rate of growth will go to zero). Components α_tt [in eq. (1a)] and -α_t/t [in eq. (1b)] describe improvement in labour market efficiency resulting from factors not specified in the model (for example higher efficiency of job searching by

unemployed or gaining experiences by labour offices etc.). Components α_t t and $-\alpha_t/t$ constitute the main difference between the eq. (1a) and (1b). Eq. (1a) indicates that for $\alpha_t>0$ the growth rate of outflows from unemployment is constant, whereas eq. (1b) implies that this rate decreases in time. The second assumption can be explained in this way: changes in labour market efficiency should be smaller and smaller because unemployed as well as labour offices gain less and less new experiences concerning unemployment.

- α_j (j=1,2,...,5) is the growth rate of outflows from unemployment to employment due to 1 PLN increase in expenditures on j-th ALMP per unemployed;
- β_U (β_V)-elasticities of dependent variable with respect to unemployment stock (number of registered vacancies). Sometimes it is assumed that the augmented matching function is homogeneous of degree one with respect to U and V. It means that β_U+β_V=1 (this assumption will be verified by Wald coefficient test in presented later estimations).

At the beginning the augmented matching functions (1a-1b) were estimated basing on the 1992-1996 sample. Unfortunately, an unforeseen problem emerged: the estimators resulting from this sample were unstable in time (the stability of these estimators was checked with Chow breakpoint test). It means that these estimators described only short-run relationships between the dependent and independent variables. However, we were searching for medium- or long-run relations, so we decided to cut the sample to the period 1993-1996. In the new sample Chow breakpoint test gave much better results then in the previous one. We suppose these estimators show medium- or long-run relationships.

Moreover, under the assumption of homogeneity of degree one of augmented matching function (1a) or (1b) we can rearrange this eq. as follows:

$$\frac{OJ_{it}}{V_{it}} = \exp\left(\alpha_0 + \alpha_t t + \sum_{j=1}^{5} \alpha_j EX_{jit}\right) \left(\frac{U_{it}}{V_{it}}\right)^{\beta_u} \varepsilon_{it}$$
(2a)

or:

$$\frac{OJ_{it}}{V_{it}} = \exp\left(\alpha_0 - \frac{\alpha_t}{t} + \sum_{j=1}^5 \alpha_j EX_{jit}\right) \left(\frac{U_{it}}{V_{it}}\right)^{\beta_u} \varepsilon_{it}$$
(2b)

The functions (1a-1b) and (2a-2b) were estimated after taking logs and transforming to eq. (3-6):

$$\ln(OJ_{it}) = \alpha_0 + \alpha_t t + \sum_{j=1}^{5} \alpha_j EX_{jit} + \beta_U \ln(U_{it}) + \beta_V \ln(V_{it}) + \varepsilon_{it}$$
(3)

Macroeconomic Effects of Active Labour Market Policies in Poland

$$\ln(\text{OJ}_{it}) = \alpha_0 - \frac{\alpha_t}{t} + \sum_{j=1}^5 \alpha_j \text{EX}_{jit} + \beta_U \ln(U_{it}) + \beta_V \ln(V_{it}) + \varepsilon_{it}$$
(4)

$$\ln\left(\frac{OJ_{it}}{V_{it}}\right) = \alpha_0 + \alpha_t t + \sum_{j=1}^{5} \alpha_j EX_{jit} + \beta_U \ln\left(\frac{U_{it}}{V_{it}}\right) + \varepsilon_{it}$$
(5)

or:

$$\ln\left(\frac{OJ_{it}}{V_{it}}\right) = \alpha_0 - \frac{\alpha_t}{t} + \sum_{j=1}^5 \alpha_j EX_{jit} + \beta_U \ln\left(\frac{U_{it}}{V_{it}}\right) + \varepsilon_{it}$$
(6)

The estimators of the augmented matching functions (3-6) are given in Table 7. The estimates presented in Table 7 allow to draw following statistical conclusions:

- The independent variables explained about 87-87,5% (with assumption of homogeneity of degree one of augmented matching function) and about 94% (without this assumption) of the outflows from unemployment to employment.
- Chow breakpoint test at the 5% significance level suggests stable estimators in subsamples 1993-1994 and 1995-1996. So we can assume that presented in Table 7 estimators describe medium- or long-run relationships between log of outflows from unemployment (or log of OJ/V ratio) and independent variables.
- Time variable was statistically significant in all presented in Table 7 estimations. It means that (under the *ceteris paribus* conditions) analysed outflows successively grew in each period. This growth can be explained by more efficient job searching or better work of labour offices. Unfortunately, basing on statistics presented in Table 7 we cannot conclude whether this growth is linear or not (with respect to time), so we cannot decide which form of augmented matching function [e.g. (1a) or (1b)] is correct.
- As we were expecting, the unemployment stock [in functions (3-6)] and the number of vacancies [in functions (3-4)], appeared to be statistically significant in analysed matching functions. Moreover, the elasticity of outflows from unemployment with respect to unemployment stock amounted to approximately 0,72 [in the cases of functions (3-4)] and (*implicite*) about 0,76-0,77 [in the cases of functions (5-6)]. It means that the elasticity of outflows with respect to V amounted to approximately 0,24.
- Expenditures on intervention works per one unemployed significantly affected the outflows from unemployment to employment. Moreover, 100 PLN increase in these ALMP expenditures (under the *ceteris paribus* condition) led to increase in growth rate of analysed outflows by 0,16-0,17 percentage point.

- Spendings on training per one unemployed in some estimations significantly, negatively influenced the dependent variable (explanation of this relation is in conclusions of this paper).
- The rest of ALMP expenditures did not significantly influenced the outflows from unemployment to employment. This conclusion is similar to those reached by Boeri (1995), Lehmann (1995) and Puhani, Steiner (1996).

6. Conclusions

1. Despite a fast economic growth since 1992 and some decline in total unemployment since 1994 the Polish labour market seems to be beset by important problems. Unemployment rate is still relatively high and in the agricultural regions the indicator is vey high. The share of long-term unemployment is large and the role of the unemployed with multiple spells of unemployment is increasing. Unemployment is still a relatively stagnant pool despite some positive changes noticed recently.

2. Despite a relatively high unemployment the scale of ALMPs measured in terms of the expenditures and participants has been small in the past period of transition. The share of total Labour Fund expenditures in GDP exceeded 2% only at the end of the period analysed and the proportion of ALMPs in total Labour Fund expenditures has always been low, reaching 16% only in 1995. That is why only a small fraction of the unemployed (12-14 %) could participate in the active programmes.

3. The analyses undertaken lead to the conclusion that most of the explanatory variables (that is 5 from 8) specified in the models are significant in explaining the outflows from unemployment.

4. All the estimations made indicate that time variable is significant in explaining outflows from unemployment to employment. Positive coefficients confirm the earlier stressed tendency concerning increasing outflows from unemployment in consecutive years of the period analysed. This suggests some improvements in labour market efficiency in Poland in consecutive years of transition.

5. In the all estimations vacancies were significant determinants of the outflows from unemployment to employment. Positive coefficients are in line with the obvious observation that the more vacancies, the higher outflow from unemployment.

dependent variable:	ln(OJ)	ln(OJ)	ln(OJ/V)	ln(OJ/V)
independent	allow maniford	estimated	parameters	of unimation
variables:		(t-va	lues)	Conditioner 10
constant	-1,2996**	0,0870	-1,4172**	-0,0835
ode -	(-10,3883)	(0,7604)	(-18,0569)	(-1,3912)
t	0,1536**	iclusion that e	0,1540**	bur analysis
a main manufic services of	(12,5003)		(12,5240)	toolle vlouit
1/t	-	-2,7808**	main a finance	-2,7739**
ants or any schem		(-12,1104)	Turn encodine	(-12,0170)
EX1	0,0017**	0,0016**	0,0017**	0,0016**
	(6,4564)	(5,9200)	(6,4714)	(5,9181)
EX ₂	-0,0013*	-0,0007	-0,0016**	-0,0012
	(-2,0013)	(-1,0657)	(-2,6537)	(-1,8589)
EX3	-0,0003	-0,0001	-5,68*10-5	0,0003
Die estimations of	(-0,2485)	(-0,0936)	(-0,0530)	(0,2395)
EX4	-0,0001	0,0003	-0,0003	7,06*10-5
and lows displac	(-0,1007)	(0,2889)	(-0,2461)	(0,0646)
EX5	8,64*10-5	-2,88*10-5	3,90*10 ⁻⁵	-0,0001
	(0,3243)	(-0,1069)	(0,1477)	(-0,3782)
ln(U)	0,7249**	0,7262**	amos strought	durant- at al
isiging de appoule	(20,2550)	(19,9566)	gango cantorcan	the state of an income
$\ln(V)$	0,2446**	0,2290**	-	-
ang the schemes	(10,9165)	(9,7843)	sapi anasang	anna granadha
ln(U/V)	107/0200010		0,7587**	0,7750**
when wit spinzo 200		reffectivesids?	(34,0797)	(33,0904)
R ²	0,9410	0,9393	0,8795	0,8750
adjusted R ²	0,9384	0,9367	0,8750	0,8703
DW statistic	2,4503	2,3813	2,4721	2,3916
F statistic	372,6101	361,5403	195,9736	187.9328
ago ans description	[0,0000] ^a	[0,0000]	[0000,0]	[0,0000]
CARE INTO	Ch	ow breakpoint test		
F statistic	0.9028	1 5058	1.0196	1 9123
1 SuciScio	[0.5241]	[0,1489]	[0,4228]	[0.0606]
Log likelihood ratio	8 7483	14 3815	8 6867	15 9884
Sog memood rado	10 46081	[0 1094]	[0 3694]	[0.0425]
v shothin methods of	Vald coefficient t	est (null hypothesi	s is: $\beta_1 + \beta_y = 1$)	1 [0,0 [20]
Estatiatia	1 4565	2 0460	F0 F1 1)	Post to Thom
r statistic	1,4303	10,09261	chances. In co	r employmen
2 statistis	1 4565	2.0460	tw adot that is	now other cos
χ statistic	1,4303	5,0400	esoit as there	nuo villeit ini
No of charaction	106	100	106	106
INO. OI ODSERVATIONS	190	190	190	190

Table 7. Estimation results of the outflows from unemployment to employment

*(**) - variables statistically significant at the 5% (1%) significance level; a - [] parenthesis contain significance level of rejection the null hypothesis of a given test.

6. Unemployment stock significantly and positively influenced the outflows to employment. This result supports the view that search effectiveness which determines outflows from unemployment to employment depends positively on the size of unemployment. In other words higher unemployment increases search intensity of the unemployed and that is why outflows from unemployment to employment tend to increase with the rise of unemployment stock.

7. Our analysis leads to the conclusion that expenditures on intervention works positively affect the outflows from unemployment as can be seen from the all estimations. This suggests that a substantial part of participants of this scheme gets regular jobs after completing the scheme. Hence intervention works should be considered as an effective measure of combating unemployment.

8. Loans for unemployed and enterprises and the expenditures on public works turned out to be insignificant in determining the outflows from unemployment to employment. This may partly result from not taking lags in the estimations or perhaps there are deadwight losses as a result of the selection of the participants. It may be also the case that the target groups for public works and loans displace other unemployed who could not get jobs because of the competition by the participants of ALMPs.

9. As to the public works some hypotheses can be taken into account to explain our result. First, the effectiveness of public works measured as a proportion of the participants getting regular jobs at the employer after completing the scheme is very low in Poland. Second, the target groups for public works are mainly longterm unemployed, so their search effectiveness after the schemes expire is rather low. Third, there is evidence that some fraction of the participants of public works decide to take part in the scheme only to get back the eligibility to unemployment benefits. That is why they return to the register after the scheme is over. Of course this does not mean that public works are useless. Even if our conclusions are right public works still are to fulfill other important economic and social tasks.

10. As to the expenditures on training we obtained rather surprising results because our estimations suggest that those expenditures exert a negative influence upon the outlows from unemployment to employment. This may be partly connected with deadweight effects taking sometimes place while training schemes are organized. It is worth stressing that as a result of the assessment methods of the labour offices taken they are interested in selecting such trainees who have better employment chances. In consequence there are such unemployed among the trainees who would find jobs without training. We do not think that this factor explains fully our result as there is microeconomic evidence supporting the view that participation in trainings often increases employment probability of their participants. We rather think that effects of trainings appear with some delay so some lags introduced into the model could influence the results substantially. Moreover it is worth noticing that unlike the participants of the other active programmes the participants of trainings are still on the unemployment register. That is why the development of trainings does not directly lead to the reduction of unemployment as in the case of the other programmes.

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