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Public works for Poland? Active labour market policies during transition

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Discussion Paper

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Public Works for Poland?

Active Labour Market Policies during Transition

Patrick A. Puhani
Viktor Steiner

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Public Works for Poland? Active Labour Market Policies during Transition

by

Patrick A. Puhani
Zentrum für Europäische Wirtschaftsforschung (ZEW)
Centre for European Economic Research
SELAPO, University of Munich

and

Viktor Steiner
Zentrum für Europäische Wirtschaftsforschung (ZEW)
Centre for European Economic Research

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Corresponding author:
Dr. Viktor Steiner
P.O. Box 10 34 43
D–68034 Mannheim
Germany
e–mail: steiner@zew.de

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Abstract: Following the predominance of macroeconomic stabilisation policies and passive income support schemes in the first phase of transition, active labour market policies (ALMPs) have now come to play a more important role in transition economies. This paper looks at the Polish experience and provides empirical evidence on the effectiveness of ALMPs. We use the Polish Labour Force Survey of August 1994 in combination with its Supplement on the Evaluation of Labour Market Policies together with data on ALMP expenditure at the regional (voivodship) level. The macroeconometric analysis of the relationship between labour market flows and ALMP expenditure shows no significant effects. The microeconometric analysis reveals that ALMPs are not particularly well targeted at the problem groups in the labour market. That is, women and people with basic vocational education do not receive enough attention, whereas persons formerly employed in the public administration seem to have a privileged status in ALMPs. As to the effectiveness of ALMPs, the paper shows that former participants cannot expect to find employment more easily than their peers who have been unemployed but have not been in a programme. Subjective evaluations of former participants also suggest that ALMPs, but especially works programmes, have not increased their chances to find a job.

Streszczenie: Po okresie dominacji makroekonomicznej polityki stabilizacyjnej i pasywnych programów ochrony dochodów w pierwszej fazie transformacji, aktywna polityka państwa na rynku pracy zaczyna obecnie odgrywać coraz ważniejszą rolę w krajach przechodzących transformację gospodarczą. Niniejszy artykuł analizuje doświadczenia Polski i dostarcza empirycznych dowodów dotyczšcych efektywności aktywnej polityki państwa na rynku pracy. W artykule wykorzystujemy badania aktywności ekonomicznej ludności przeprowadzone w Polsce w sierpniu 1994 w połączeniu z badaniem modułowym poświęconym ocenie polityki państwa na rynku pracy, jak również dane o wydatkach na aktywną politykę państwa na rynku pracy w przekroju regionalnym (wojewódzkim). Makroekonomiczna analiza nie dowodzi istotniejszych zależności między strumieniami siły roboczej na rynku pracy a wydatkami na aktywną politykę państwa na rynku pracy. Analizy mikroekonometryczne pokazują, że aktywne polityki państwa na rynku pracy nie są zbyt dobrze adresowane do grup problemowych występujących na rynku pracy. Chodzi o to, że kobietom oraz osobom z wykształceniem zasadniczym zawodowym nie poświęca się wystarczajšcej uwagi, podczas gdy osoby zatrudnione uprzednio w administracji publicznej zdają się posiadać uprzywilejowany status w aktywnej polityce państwa na rynku pracy. Jeśli chodzi o efektywność aktywnej polityki państwa na rynku pracy, artykuł pokazuje że wcześniejsi uczestnicy aktywnych programów nie mogą spodziewać się łatwiejszego znalezienia pracy niż ci, którzy są bezrobotnymi nie uczestniczącymi w aktywnych programach. Subiektywne oceny wcześniejszych uczestników programów sugerują również, że aktywne programy przeciwdziałania bezrobociu, a zwłaszcza programy robót publicznych i prac interwencyjnych nie zwiększają ich szans znalezienia pracy.

1 Introduction

As the experience with the persistence of high unemployment in most OECD countries has shown, macroeconomic policies and passive income support schemes are not sufficient remedies against the unemployment problem. Since the 1980s, active labour market policies (ALMPs) have been widely used in market economies to enhance the employability of particularly disadvantaged groups in the labour market. This is attempted by either placing these groups into an employment relationship (public works, subsidised employment), or by augmenting their human capital through (re–)training, or sometimes by giving them loans so they can start their own business. Thus governments try to promote allocative efficiency by overcoming market failures such as incomplete information when unemployment gives a negative signal on employability to prospective employers or capital market restrictions prevent the financing of private investments in human capital. Apart from allocative efficiency, ALMPs are also used to promote equity by redistributing job opportunities to the problem groups, which usually consist of people with a low level of education, women, older workers, or the disabled.

The two aims of equity and allocative efficiency are often in conflict with each other: faced with a person who seems rather unemployable even after an ALMP, the official in charge at the labour office concerned with allocative efficiency will probably leave the person on the dole. Yet another official, who is more worried about equity, may want to place the worker onto an ALMP scheme. Targeting efficiency therefore requires information on the problem groups in the labour market, the impact of ALMPs on individual outcomes as well as the social preferences concerning equity versus allocative efficiency. While the latter are to a large extent politically determined, information on problem groups as well as on the effectiveness of ALMPs can in principle be obtained from empirical studies.

In the empirical literature, the main microeconomic questions in this area are, first, whether it is possible to target problem groups effectively, second, whether participation in ALMPs increases an individuals employment probability in the short as well as the long run, and third, whether there are any income effects. Yet although ALMPs may be effective in placing some of the unemployed into jobs, subsidised labour might replace non–subsidised labour. This negative replacement effect can most easily be taken into account in macroeconomic studies, like those on labour market flows at the regional level.

Most of applied research on the effectiveness of ALMPs in Central and Eastern Europe so far has taken the macroeconometric augmented matching function approach on regional panel data (see Terrell and Lubyová, 1995; and Terrell and Munich, 1995, for short surveys). In these studies, some flow (*e.g.* exits from unemployment or hirings) is regressed on vacancies, unemployment, and a set of variables measuring ALMPs (*e.g.* expenditure or the number of participants). Burda and

Lubyová (1995) using this approach argue that for the Czech and Slovak Republics public works and subsidised employment had a positive, but modest effect on exit rates from unemployment. Similar results for the Czech Republic are found by Boeri and Burda (1995) who take possible endogeneity of ALMPs into account in a dynamic (partial adjustment) model. Svejnar, Terrell and Munich (1995) find positive effects for the Czech, but not for the Slovak Republic, which they ascribe to the different demand and geographical conditions in the two countries. Munich, Svejnar and Terrell (1994) demonstrate the importance of the specification on the estimates. For Poland, Góra and Lehmann (1995), also using the augmented matching function approach, find no significant effect of training on hirings. Lehmann (1995) also concludes that training and public works have no effect on hirings, but that subsidised employment has a positive one.

The microeconometric literature on the subject is not a terribly large one, although a number of studies have been undertaken since the late 1980s (see OECD, 1993, for a short survey). Studies on *western countries* show that the estimated effects of ALMPs are sensitive to the econometric techniques employed. Sometimes no effects are found, sometimes the effects are significantly positive for employment opportunities and incomes, but they tend to be rather small (OECD, 1993). Programmes which are targeted at specific problem groups seem to be more effective than ones which target a very general group, such as all unemployed in the extreme case. For *Eastern Germany*, Steiner and Kraus (1995) find positive effects of public works (ABM) for long–term unemployed males, but no such effects for females. As to the targeting issue, the authors find that women are in effect not targeted according to the formal criteria set down by the legislator: women with better chances to find employment also have better chances getting onto a public works scheme. Lechner (1995) looks into off–the–job training in Eastern Germany that began after reunification, and which is subsidised by the Federal Labour Office. No positive effects were found for the short run.

There is little microeconometric research yet on the *Central and Eastern European reform countries*, but the existing evidence points to similar results as those for western countries. Micklewright and Nagy (1994, 1995, 1996) estimate exits to employment and into ALMP measures for Hungary. They identify older and less educated people as problem groups. However, these groups are less likely to receive public training. For subsidised employment, they also find no effective targeting. On the other hand, the less educated seem to be targeted in public works. However, O'Leary's (1994) results suggest a negative effect of public works on employability, which might be due to a stigma effect. Training is found to be useful, though.

For *Poland*, Góra and Lehmann (1995) present cross–tabulation evidence from the Supplementary Labour Force Survey on the Evaluation of Labour Market Policies of August 1994, the data set also used in the present study. They find that public works and subsidised employment, although targeted mainly at the long–term un-

employed, are not very effective due to high turnover rates. For public training, on the other hand, positive effects on employability are found, but the real problem groups do not seem to be targeted well. Kwiatkowski (1996) mainly concurs with these results: he also concludes that problem groups are not effectively targeted and that ALMPs are not particularly effective. However, Kwiatkowski argues that both training and subsidised employment are far more effective than public works on the micro level.

This paper explores the regional (voivodship[1]) and the individual effects of ALMPs in Poland. Poland was transformed into a market economy by way of a shock therapy. So in relation to other countries in transition, the Polish labour market institutions had to adjust themselves very rapidly. As a consequence of the shock therapy, unemployment rose up to 14% within 2 years thus calling for policy action. Whereas an unemployment benefit system was introduced right at the beginning of transition in 1990, ALMPs were not important before 1992 but have gained in importance since. From the pioneer experience of Poland, we also hope to learn something on the effectiveness of ALMPs for other transition economies.

Our analysis of ALMPs is limited to public works, subsidised employment and publicly–financed training. For comparative purposes, we also look at both self– and employer–financed training in the microeconometric analysis. We investigate the issue of targeting efficiency of ALMPs and the effects of ALMPs on employability also exploring the subjective evaluation of the schemes by their participants. Due to data limitations, income effects are not considered here. For the microeconometric analysis, we use individual data from the August 1994 Polish Labour Force Survey as well as its Supplement on the Evaluation of Labour Market Policies. In the macroeconomic part, we use data from the first eleven waves of the Polish Labour Force Survey together with expenditure data from the National Labour Office (NLO).

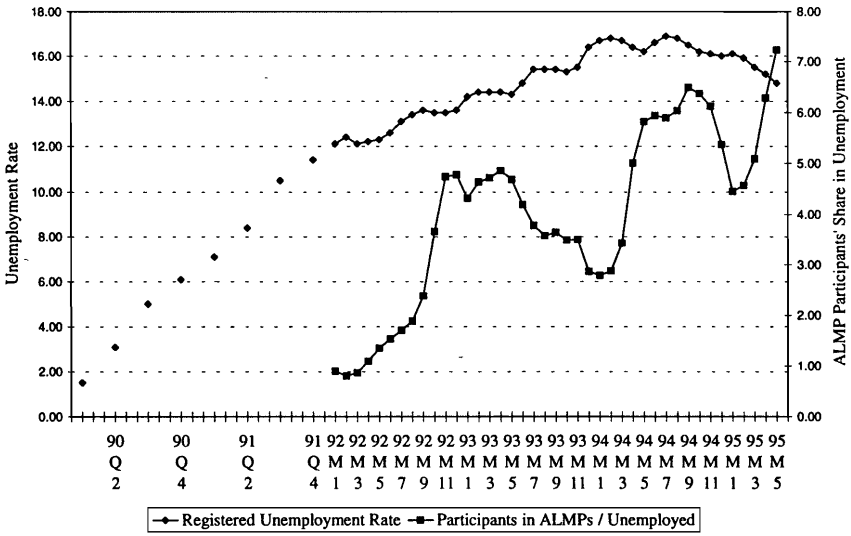
Section 2 gives a short institutional account of ALMPs in Poland. An impact evaluation of ALMPs on regional labour market flows is undertaken in section 3, while section 4 presents the microeconometric analysis of ALMPs. The paper concludes with a discussion in section 5.

[1] Poland is administratively divided into 49 voivodships.

2 Active Labour Market Policies in Poland

Figure 1 plots the development of the registered unemployment rate[2] and the share of ALMP participants in the unemployment stock. ALMPs became significant not before the end of 1992 when unemployment had already been over 10 percent of the labour force for over a year. Although the share of ALMP participants amongst the unemployed behaves cyclically, it seems on a rising trend. The reason for this cyclical behaviour is the disbursement of the ALMP fund during the last quarter of each year (Góra and Lehmann, 1995) which leads to a large inflow into ALMPs in the consecutive months.

Figure 1: Unemployment and the Share of ALMP Participants in the Unemployment Stock



Note: Q denotes quarter, M denotes month. We only consider public works, intervention works and public training.
Sources: GUS (1994) and GUS (1995). The GUS is the Central Statistical Office of Poland. See also Witkowski (1995).

[2] In the Polish Labour Force Survey, a person has to fulfil the three conditions of the International Labour Office (ILO) for being classified as unemployed: (i) he or she must not work, (ii) he or she must seek employment and (iii) he or she must be ready to start work in the reference week or the following one (Szarkowski and Witkowski, 1994). The most important difference between the ILO and the Polish local labour office (LLO) definition is that for the LLO, a person has to be *registered* as unemployed as well (for more details see Steiner and Kwiatkowski, 1995; n.7). In September 1994, 45.2% of the registered unemployed received benefits (GUS, 1995).

ALMPs comprise a variety of policy measures which range from direct job creation to loans for people who are willing to start their own business. The OECD (1993) distinguishes between five programme categories which are listed together with their Polish equivalents in Table 1. Although Poland has a similar range of ALMP programmes as other market economies, there are – apart from the support of apprenticeships – no special youth measures, nor are they planned (Góra, 1994).

Table 1: Classification of ALMP Policies

OECD ALMP Category	Name of Corresponding Polish Institution
Public Employment Services (PES) and Administration	Voivodship and Local Labour Offices (VLOs and LLOs)
Labour Market Training	(Re)Training for the employed and unemployed
Subsidies to Employment	Intervention Works Loan Schemes
Direct Job Creation	Public Works
Youth Measures	–

Sources: OECD (1993), p.41; and Kwiatkowski, Janusz and Steiner (1995).

An international comparison of unemployment as well as active and passive labour market expenditures in Poland is presented in Table 2.

Table 2: Polish Labour Market Policies in Comparison 1992

	Unemployment Rate	Expenditures on Active Measures [% of GDP]	Expenditures on Passive Measures [% of GDP]	Policy Activism
Poland	13.3	0.32	2.51	11.3
Czech Republic	3.2	0.32	0.19	62.7
Slovak Republic	12.1	1.37	0.65	67.8
Hungary	11.6	0.39	2.39	14.0
Spain	18.4	0.57	3.07	15.7
Sweden	5.3	3.21	2.78	53.6
United States	7.4	0.25	0.58	30.1

Notes: (1) Passive measures are essentially unemployment benefits.
(2) The index for policy activism equals the percentage share of expenditures on active measures in total expenditures (active and passive).
Sources: Unemployment Rates for the Visegrád countries: Boeri (1994), p.30; for the OECD countries: OECD Main Economic Indicators, June 1995, Paris; Expenditures: OECD (1993), pp.73–78.

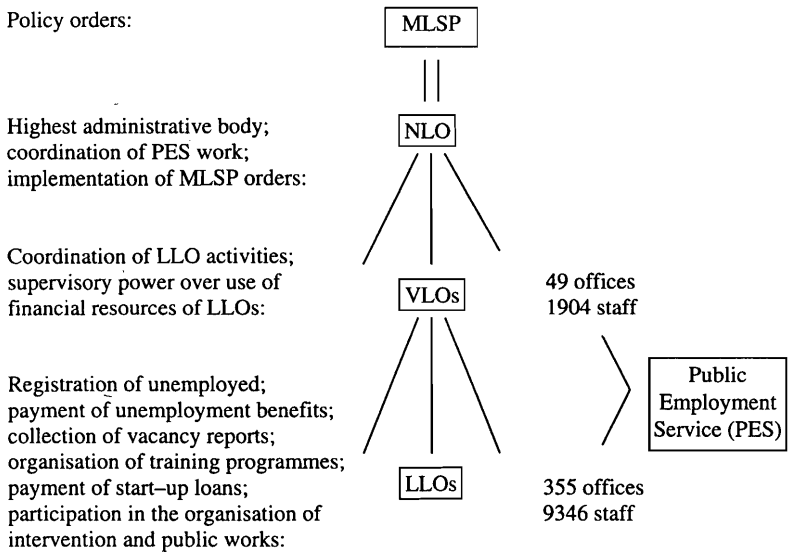
In 1992, Poland was the least activist amongst both the OECD and the Visegrád countries.[3] Policy activism is defined as the share of ALMP expenditure in total labour market expenditure. The most activist OECD country is Sweden, where ALMPs have a strong tradition. Polish labour market policy activism and expenditure as a percentage of GDP was roughly at the level of Spain, an OECD country which also has a two–digit unemployment rate. It should be noted that even a liberal country like the United States with much lower unemployment spent only a little bit less of GDP on ALMPs than Poland. As can be seen from Figure 1 above, though, ALMPs became more prominent in Poland after 1992.

Polish ALMPs are financed from the Labour Fund. Roughly one third of the fund is raised from employers' contributions (3% of the product wage). The rest comes from state budget transfers (Góra, 1994). The Labour Fund finances both active and passive labour market measures. The institutional and administrative structure responsible for the implementation of ALMPs in Poland is described in Figure 2.

The delivery mechanism for ALMPs is in fact quite decentralised like in other transition countries with LLOs having in practice a lot of discretionary power over the resources allocated to them (Góra and Lehmann, 1995). On the one hand, such a decentralised system is likely to perform better in face of the diverse regional developments during the transition to a market economy. Considering, on the other hand, the lack of expertise of labour offices which had to establish ALMP programmes from scratch, more centralised decision making or at least monitoring and education of local officials may be needed. For example, one reason for the alleged initial bad performance of public training are probably failures in the delivery mechanism. LLOs first had to go through a learning process and build up a network of training providers (Boeri, 1995). Given that labour offices in transition countries are also heavily understaffed (Boeri, 1995; World Bank, 1993), it seems no surprise that many regulations are not well enforced. There is no evidence that Polish LLOs use ALMPs as a work test, although an unemployed person may be eliminated from the register in case of refusal to accept a placement in a public or intervention works programme (Góra and Lehmann, 1995). An important incentive to join ALMP schemes is the fact that the eligibility for unemployment benefits is renewed after a programme. Under the Polish flat–rate system, an unemployed person is usually entitled to 12 months of benefits, which generally amount to 36% of the average wage of the previous quarter. In December 1993, this would have been 86.1% of the minimum wage (World Bank, 1994).

[3] The Visegrád countries are the Czech Republic, Hungary, Poland, and the Slovak Republic. Since the end of 1995, the Czech Republic is a member of the OECD.

Figure 2: The Institutional Structure of Labour Market Policies in Poland 1992



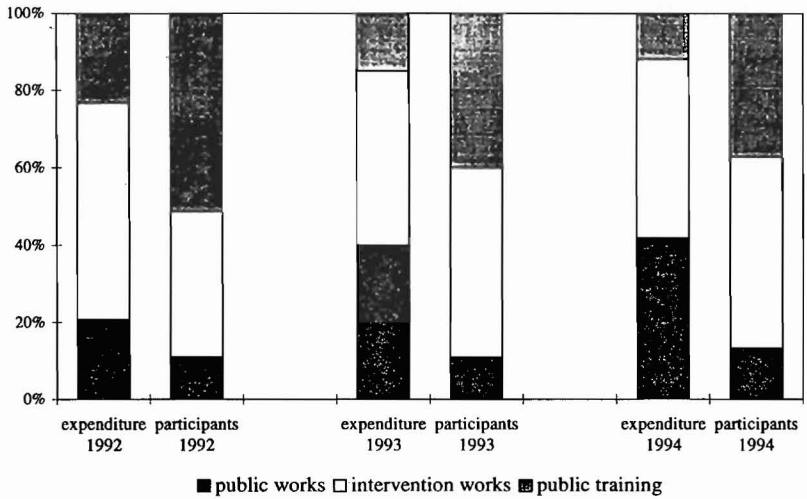
Note: MLSP: Ministry of Labour and Social Policy; NLO: National Labour Office; VLO: Voivodship Labour Office; LLO: Local Labour Office.
Sources: Góra (1994), p.203f.; Kwiatkowski, Janusz and Steiner (1995), p.281ff.

Our study will focus on works and training programmes. During the participation in a training programme, which is supposed to take about 3 to 6 months, the unemployed receive an allowance equal to 115% of the unemployment benefit. However, failure to complete the training course on the part of the participant will result in his or her having to repay the cost of training as well as losing his or her eligibility to receive unemployment benefits (Kwiatkowski, 1996). Whilst in intervention works, the participants receive a wage which is subsidised by the labour offices by an amount equal to the unemployment benefit. Further, a premium is paid to the employer if the work contract is prolonged after 6 months, when intervention and public works programmes usually finish. In the case of public works, the subsidy paid by labour offices equals 75% of the average wage and is therefore about twice the subsidy paid for intervention works (Kwiatkowski, 1996). Public works are organised by local governments and consist mainly of infrastructural investment such as construction and municipal services. The type of work required in public works is probably the reason why three–quarters of the participants in the years between 1990 and 1994 have been male. Intervention works comprise a greater variety of industries and occupations and are organised by local labour offices. The gender mix here is 60 to 40 in favour of males. Public training programmes, on the other hand, are dominated by women who make up almost two thirds of the participants.

Although labour offices initiate and organise the training courses, the training services themselves are usually contracted out to private agencies. For more institutional detail see Góra (1994), Scarpetta and Reutersward (1994), Kwiatkowski, Janusz and Steiner (1995), Góra and Lehmann (1995) and Kwiatkowski (1996).

Figure 3 depicts expenditure and participants' shares of the three ALMP schemes considered here from 1992 to 1994. The share of expenditure on training has been decreasing, while public works have become more important. Expenditure per participant in public works is high (as one would expect given the high subsidies) and expenditure per participant in public training is low relative to expenditure per participant in intervention works.

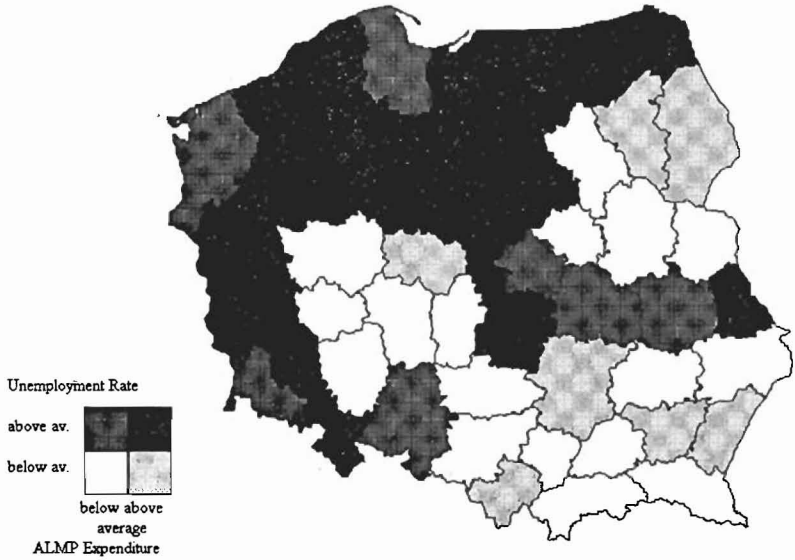
Figure 3: Expenditure and Participants' Shares of ALMPs in Poland 1992–1994



Source: National Labour Office; own calculations.

An issue often mentioned in the literature is the problem of financial crowding out. This means that regions with high unemployment rates may have to spend so much money on unemployment benefits that they have to reduce their expenditure on ALMPs, which are more expensive and regarded as secondary. If this was true, then financial crowding out would induce a negative correlation between regional unemployment rates and expenditure per unemployed person on ALMPs. The alternative interpretation of a negative correlation would be that expenditures on ALMPs in fact reduce regional unemployment rates.

Figure 4: Unemployment Rates and ALMP expenditure in the Polish Voivodships



Note: The unemployment rates and expenditure data are averages over the years 1992 and 1993. We take the logarithm of expenditure on public works, intervention works and public training normalised by the number of unemployed for the corresponding voivodship in the Polish Labour Force Survey. For the names of the voivodships see Figure A1 in the appendix.
Sources: Unemployment data: Polish Labour Force Survey; expenditure data: National Labour Office; own calculations.

As shown in Figure 4, though, voivodships with above–average unemployment rates usually also spend above average on ALMPs per unemployed person (the black–shaded regions) and vice versa (the white–shaded regions). There may therefore be a causal effect running from high unemployment rates to high expenditure per unemployed on ALMPs. A statistical analysis of the impacts of ALMPs on unemployment might be subject to endogeneity bias through this reverse causation. This point is taken up in the following section, where the effects of ALMP expenditures on labour market flows are analysed.

3 Macroeconometric Impact Analysis

We use annual ALMP expenditure data provided by the National Labour Office (NLO, Krajowy Urzad Pracy) for the years 1992 and 1993 to explore whether ALMP expenditure has had any effect on labour market flows in 1993 and 1994, respectively. We consider both effects on outflow rates from unemployment into

employment and from employment into unemployment. In the latter case, we test for replacement effects: although ALMPs may improve the employment probabilities of the targeted group, firms might sack some of their previous employees to replace them with subsidised labour (Calmfors, 1994). In the case of unemployment outflow rates, we test whether expenditures on ALMPs have any net effects thus taking into account that, when applying for jobs, ALMP participants might displace unemployed persons who have not been in a programme. Lagging the expenditure variables hopefully mitigates the endogeneity problem mentioned in the previous section.[4] But there are two other very important reasons for including lagged expenditure only. First, if people in ALMPs are counted as employed, we will naturally have a correlation between current ALMP expenditure and outflows from unemployment, which will most likely not represent a causal effect. Second, the average duration of a works programme is about 6 months, and that of public training about 2.5 months.[5] So some time will elapse until ALMP expenditure can have any effect in the labour market.

Corresponding to the definition of the outflow rates, we normalise voivodship ALMP expenditure by the number of unemployed and the number of employed, respectively. The rationale of the normalisation of the expenditure variables in the outflow from employment equation is that ALMP expenditure per employed person measures the intensity ALMP expenditures jeopardise the incumbent worker's job by pushing outsiders into the job market.

The outflow rates are calculated using Polish Labour Force Survey (PLFS) data.[6] The quarterly PLFS of the Central Statistical Office (GUS) of Poland is a representative sample of the Polish population aged 15 and above (for details see Szarkowski and Witkowski, 1994). Having been conducted as a pure panel in the first four waves (until February 1993), the PLFS is now running on a rotating basis. Each wave now consists of four subsamples which rotate according to the 2–(2)–2 rule (two waves in, two waves out, two waves in, exit). In our sample, we calculate labour force exit rates between consecutive quarters of the four quarterly survey dates within each year. Thus for each region (voivodship), we have exit rates for six time periods for the years 1993 and 1994, which are assigned to the expenditure data of the years 1992 and 1993, respectively, giving us a panel with $6 \times 49 = 294$ observations. Table A1 in the appendix has more detail on the sample.

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[4] Unfortunately, the endogeneity problem will persist to some extent if expectations of future unemployment rates influence the labour offices' decisions on current ALMP expenditure, which is not an unlikely assumption.

[5] These averages are calculated from the Supplemetary Survey on the Evaluation of Labour Market Policies.

[6] The PLFS is conducted in February, May, August and November.

Figures 5 and 6 show averages over time of outflow rates from unemployment into employment plotted against lagged, logged and normalised ALMP expenditure by voivodship. We cannot detect a relationship between ALMP expenditure and outflow rates from unemployment at first glance. The correlation coefficient for Figure 5 is –0.09 and insignificant. However, the plot of employment outflow rates against ALMP expenditure in Figure 6 suggests replacement effects. Here the correlation coefficient is significant and equals 0.57. The conclusions from these two plots seem inconsistent. After all, if outflows from unemployment into jobs are unaffected, who should displace workers?[7]

In the following, we explore the two relationships above econometrically. Tables 3 and 4 present estimates of the effects of regional (voivodship) expenditure on public works, intervention works and public training on labour market flows using the panel data set described above.[8] We estimate both fixed (FE) and random effects (RE) models controlling for voivodship–specific effects. By including time dummies, we also control for time–specific effects. We also experimented with the inclusion of other explanatory variables describing the demographic and industrial structure in the voivodships, such as age, education, occupation or industry group shares. Since these variables have changed very little within the observation period, their coefficients could not be estimated with precision in the fixed effects model. We also encountered problems in the random effects specification.

[7] It might be that replacement occurs through an increased *absolute* flow from unemployment into employment. With a constant outflow rate, this can only occur if the unemployment pool grows due to a larger flow from non–participation into unemployment.

[8] All calculations in this paper are carried out using the statistical package STATA.

Figure 5: Plot of Unemployment –> Employment Flows against ALMP Expenditure

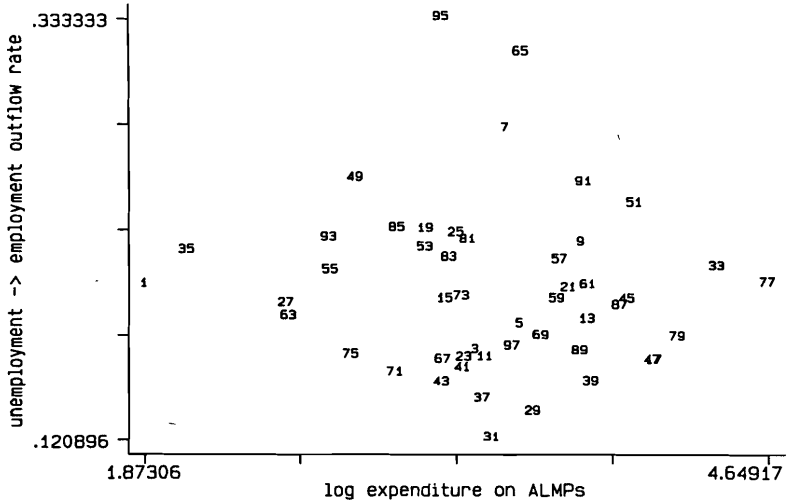
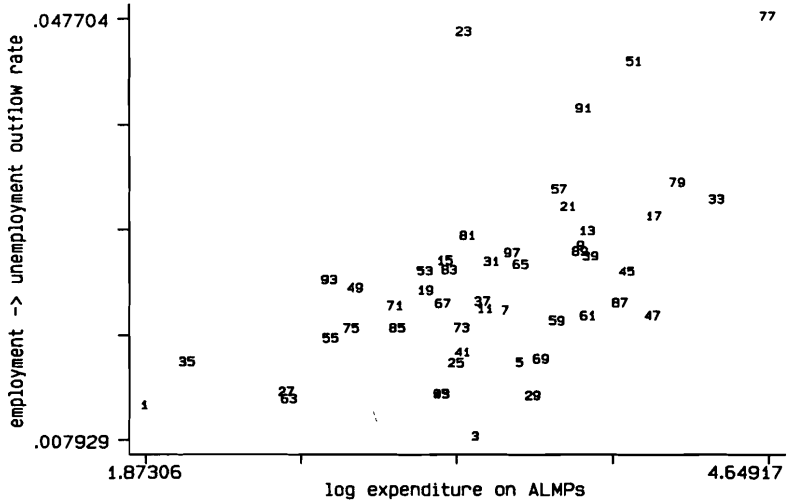


Figure 6: Plot of Employment –> Unemployment Flows against ALMP Expenditure



Note: The numbers in the scatter plot refer to the voivodship codes. The voivodship names and codes can be found in Figure A1 in the appendix. The plot depicts averages over time of the sample observations summarised in Table A1 of the appendix.
Sources: Polish Labour Force Survey; National Labour Office, own calculations.

Table 3: Estimates of Voivodship Unemployment –> Employment Flows

Variable	FE	t	RE	t
ln exp. on public works per unemployed$_{(t-1)}$	0.0167	1.02	0.0049	0.59
ln exp. on intervention works per unemployed$_{(t-1)}$	–0.0208	–0.68	–0.0120	–0.88
ln exp. on public training per unemployed$_{(t-1)}$	0.0213	1.10	0.0047	0.52
August 1992	–0.0339*	–1.85	–0.0339*	–1.85
November 1992	–0.0535	–2.92	–0.0535	–2.92
May 1993	–0.0064	–0.20	0.0189	0.88
August 1993	–0.0528	–1.64	–0.0275	–1.29
November 1993	–0.0869	–2.70	–0.0616	–2.88
constant	0.2253	3.61	0.2377	8.08
R^2 overall	0.0648		0.0893	
N	49		49	
T	6		6	
# observations	294		294	
$F_{(48, 237)}$ / LM $\chi^2_{(1)}$ test for voivodship effects	1.37*		1.84	
Hausman specification test $\chi^2_{(8)}$	–		2.99	

Table 4: Estimates of Voivodship Employment –> Unemployment Flows

Variable	FE	t	RE	t
ln exp. on public works per employed$_{(t-1)}$	–0.0003	–0.12	0.0014	1.02
ln exp. on intervention works per employed$_{(t-1)}$	0.0060	1.32	0.0041*	1.85
ln exp. on public training per employed$_{(t-1)}$	0.0009	0.32	0.0027*	1.84
August 1992	–0.0082	–3.02	–0.0082	–3.02
November 1992	–0.0008	–0.30	–0.0008	–0.30
May 1993	–0.0081*	–1.69	–0.0108	–3.33
August 1993	–0.0096	–2.01	–0.0123	–3.79
November 1993	–0.0100	–2.10	–0.0128	–3.93
constant	0.0115	1.24	0.0120	2.53
R^2 overall	0.1293		0.1489	
N	49		49	
T	6		6	
# observations	294		294	
$F_{(48, 237)}$ / LM $\chi^2_{(1)}$ test for voivodship effects	1.70		7.37	
Hausman specification test $\chi^2_{(8)}$	–		1.95	

Notes: (1) Here, as in all other tables, shaded (asterisked (*)) coefficients are significant at the 5% (10%) level.
(2) The R^2 overall is the squared correlation between the actual and the fitted N × T outflow rates.

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The presence of regional (voivodship) effects is tested by means of an F–test in the fixed effects model and a Lagrange Multiplier (LM) test in the random effects model. The potential correlation of these effects with the regressors is tested by a Hausman test. If the Hausman χ^2 statistic is (in)significant, then the (fixed) random effects model is not appropriate and the (random) fixed effects model should be estimated.

According to the LM test statistic in Table 3, voivodship effects are not significant at the 5% level. As the Hausman test shows, they also do not seem to be correlated with the explanatory variables in the model. Hence, the random effects estimator would also provide consistent, but more efficient estimates. The estimation results show that none of the ALMP expenditure variables has a significant effect on outflow rates from unemployment into employment. The fixed effects model leads to the same conclusion.

In contrast to the scatter plot in Figure 6, Table 4 shows – at the 5% level – no significant effects of ALMP expenditure on the outflow rate from employment into unemployment. This is valid for both the fixed and the random effects model. However, the more efficient random effects estimates show that the coefficients on intervention works and public training expenditure are significant at the 10% level. The estimates imply that a 1% increase in the expenditure on intervention works raises the outflow rate from employment into unemployment by 0.41 percentage points, whereas the same increase in the expenditure on public training leads only to an increase of 0.27 percentage points in the outflow rate. Thus, at the 10% significance level, intervention works will have the highest replacement effects, followed by public training. Public works, on the other hand, seem to have no significant replacement effects. Having found no significant impacts of ALMP expenditure on the outflow rate from unemployment, it would be inconsistent, though, to interpret our results as replacement effects. Hence, we have either misspecified our model or we reject replacement effects at the 5% significance level. As to the former hypothesis, we have used a variety of specifications. The models in Tables 3 and 4 have also been estimated using expenditures without normalising and/or taking logarithms of the expenditure variables. In all these cases, we found no effects of ALMP expenditure on labour market flows, ALMP expenditures mostly having no significant effects on the outflow from employment even at the 10% level. Further, the significance of some regressors can result from a correlation between the error term and the regressors in the random effects model, in which case it would be spurious. Even though the Hausman test does not reject the null hypothesis that there is no such correlation, it still remains a possibility if the test has low power. In this case, the fixed effects model would be appropriate, which shows no effects of ALMP spending on employment outflows.

The conclusions we draw from our analysis so far are that none of the three ALMPs under investigation seem to increase outflows from unemployment significantly. It

may be the case, though, that the target groups for ALMPs are more employable after ALMP participation, but they displace other unemployed people who would have got jobs had it not been for the competition with former ALMP participants. In this case, ALMPs may still serve a purpose, as equity could be promoted by targeting disadvantaged groups in the labour market. However, to explore these issues, a microeconometric investigation is called for, which we now turn to.

4 Microeconometric Targeting and Impact Analysis

Our microeconometric analysis combines information from the quarterly Polish Labour Force Survey (PLFS) with its Supplement on the Evaluation of Labour Market Policies, both carried out in August 1994. The PLFS provides us with information on the labour force status and personal characteristics (*e.g.* age, education, occupation, household characteristics) of the interviewees. In the Supplementary Survey, the interviewees are asked on changing their job, what they did a year ago, their mobility, participation in training courses, intervention and public works, start–up loans, their experience with labour offices and some other relevant issues. Unfortunately, the way the Supplementary Survey is set up, it does not provide sufficient information for a proper econometric analysis which considers the pre– and post–ALMP–participation labour market history of the interviewees. There is no question asking former participants what they did after the programme. The rotating system of the PLFS also does not allow us to trace back the complete employment history of an interviewee. However, each participant states whether his or her participation in the ALMP programme increased his or her chances of finding a regular job. Unfortunately, we have no idea whether we capture a short– or long–run effect in each case.

In the following, we examine the targeting efficiency and effectiveness of the ALMPs in Poland using microeconometric tools. We compare ALMPs with private training, both self– and employer–financed. Due to the relatively small numbers of observations in the separate categories, we combine both public and intervention works in one single group which we will call 'works' hereafter. The Polish Labour Force Survey puts us before an uncomfortable trade–off: we either have to exclude persons who have never worked so far, or we cannot include occupation or industry effects as persons without an employment history give no information on their occupational nor industrial background. We decided to exclude persons without employment history. Hence unemployed school leavers and any other new entrants into the labour market are not included. Further, we only consider persons aged between 18 and 55. As a consequence, our base sample for the next subsection is reduced from 47,393 (survey size) to 32,331 individuals. Table A2 in the appendix has more detail on the characteristics of the sample. We now turn to our first issue, *viz.* the targeting efficiency of ALMPs.

4.1 The Equity Aspect of Targeting Efficiency

In this subsection, we analyse whether groups with a high unemployment risk also have a high chance of receiving support through ALMPs. This is one criterion for targeting efficiency, yet more in the sense of equity. Subsection 4.2 will look into targeting efficiency stressing the allocative efficiency aspect. First, we identify problem groups in the labour market.

Table 5 presents estimates of the probability of being in any one of the three labour force states *employment*, *unemployment,* and *non–participation*. We have excluded persons who are currently in any of the ALMP or private programmes which reduces our sample to 31,822 persons.

For the purpose of providing a more intuitive interpretation of the estimation results, we define a *reference person* and calculate estimated effects of explanatory variables on the probability of being in any one of the three labour force states relative to the reference person, who is a married male industrial worker aged between 36 and 45. He has a basic vocational education, is employed in the public–sector manufacturing or mining industry and lives in the countryside. For the reference person, the average predicted probabilities of being in the labour force states are 83.48% for employment, 8.92% for unemployment and 7.60% for not participating. It follows that the odds ratio for unemployment versus employment equals 0.1069 or roughly 1 to 9.

To quantify the effect of explanatory variables we calculate relative odds ratios (RORs), which are reported in the table. To give an example for the purpose of interpretation, a relative odds ratio of 1.17 in the column 'Unemployed' for persons aged between 18 and 25 means that

$$\frac{\Pr(\text{unemployed} \,\&\, 18 \le \text{age} \le 25) \,/\, \Pr(\text{employed} \,\&\, 18 \le \text{age} \le 25)}{\Pr(\text{unemployed} \,\&\, 36 \le \text{age} \le 45) \,/\, \Pr(\text{employed} \,\&\, 36 \le \text{age} \le 45)} = 1.17.$$

Therefore, if a person with otherwise the same characteristics as the reference person falls into the age group 18 to 25, his odds for unemployment against employment will be 17% higher than if he was in the age group 36 to 45, and the odds ratio would be 0.1251 or 1 to 8.

Hence, if the relative odds ratio is greater (smaller) than 1, the chance of being, say, unemployed relative to employed (the reference labour force state) increases (decreases) for persons in the category corresponding to the ROR.[9] Because our regressors include interaction effects for young and single women, the relative odds

[9] For the metric variable *voivodship unemployment rate*, the ROR corresponds to a one unit increase (1 percentage point increase) in the voivodship unemployment rate.

ratios of the affected categories cannot be read off directly from Table 5 and the following tables. For this reason, Table A3 and the following tables in the appendix present the relative odds ratios for these groups.

The estimation results in Table 5 show that the following groups have, *ceteris paribus*, a high incidence of unemployment:

- young persons
- women, especially those between 26 and 35 years of age
- persons with primary or less education
- singles
- disabled persons
- persons doing simple jobs
- persons from the industries agriculture, forestry and fishing (as long as they are not farmers);[10] construction; trade, repairs; catering, and other services[11] as well as
- persons living in towns with below 20,000 inhabitants.

From Table 5 we can also identify socio–economic groups with high non–participation rates. These are

- the disabled,
- women, especially those between 26 and 35 years of age,
- and persons aged between 46 and 55.

With the exception of persons between 46 and 55 years of age, who are subject to the widely applied early retirement schemes, all these groups also have a high probability to be unemployed. For women, especially if aged between 26 and 35, the reasons for not participating in the labour market are probably family responsibilities. As these women know that they are comparatively unlikely to find jobs if they search for ones, part of them may be discouraged from job search. The same line of argument can be applied to the disabled.

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[10] People from the industries *agriculture, forestry and fishing* are mostly *farmers* by occupation, *farmers* having an unemployment rate of only 2.1%. As a result, the unemployment rate in the industry *agriculture, forestry and fishing* is also very low (4.6%). However, if we calculate the unemployment rate in *agriculture, forestry and fishing* excluding *farmers*, we obtain an unemployment rate of 22.2% which is way above average and explains our regression results.

[11] These include recreation, culture and sports.

Table 5: Multinomial Logit Estimates of the Labour Force State

Variable	Unemployed		Not Participating	
	ROR	t	ROR	t
age between (36 and 45)				
18 and 25	1.17	2.50	2.16	11.29
26 and 35	1.11	1.61	0.90	–1.06
(26 and 35) & female	1.57	5.35	2.61	9.07
46 and 55	0.77	–3.93	2.45	16.83
education (basic vocational)				
higher	0.51	–4.82	0.50	–5.61
post–secondary	0.76	–2.05	0.52	–4.77
secondary vocational	0.81	–3.68	0.73	–5.17
secondary general	0.85*	–1.81	0.86*	–1.79
primary or less	1.38	5.79	1.50	7.11
female	1.89	10.30	5.44	27.87
female & single	0.43	–9.28	0.27	–12.18
single	2.18	12.14	1.44	4.34
assigned to a disability group	2.46	10.23	36.10	61.16
occupation (industrial worker)				
manager	0.47	–5.89	0.48	–5.92
professional	0.37	–6.51	0.55	–4.48
technician	0.56	–6.20	0.76	–3.20
white–collar	1.03	0.35	0.98	–0.26
personal services	1.05	0.63	0.94	–0.68
farmer	0.06	–19.26	0.03	–23.53
simple blue–collar	0.98	–0.22	0.82	–2.34
other simple jobs	1.19	2.58	0.82	–2.75

(to be continued on the next page)

Table 5: Multinomial Logit Estimates of the Labour Force State (continued)

Variable	Unemployed		Not Participating	
	ROR	t	ROR	t
industry (manufacturing, mining)				
agriculture, forestry, fishing	1.83	5.68	1.54	3.78
electricity, gas, water	0.52	–3.26	0.66	–2.24
construction	2.14	11.02	1.36	3.61
trade, repairs	1.24	2.92	0.92	–1.03
catering	1.71	4.10	1.20	1.29
transport, communication	0.74	–3.00	0.82	–2.15
financial intermediation	0.50	–3.60	0.43	–4.86
real estates, renting	0.97	–0.22	0.84	–1.08
public administration	1.05	0.45	0.75	–2.55
education	0.91	–0.85	0.67	–3.87
health, social work	0.60	–4.92	0.57	–6.23
other services	1.31	2.78	0.97	–0.26
private sector	1.10	2.18	0.76	–5.71
place of residence (countryside)				
100,000 inhabitants or more	1.02	0.33	1.13	2.31
20,000 to 99,999	1.13	2.13	1.03	0.60
19,999 or less	1.31	4.45	1.01	0.18
voivodship unemployment rate	1.07	13.11	1.02	4.66
log likelihood	–17,745.46			
pseudo–$R^2_{McFadden}$	0.24			
# individuals	31,822			

Notes: (1) Base categories are given in parentheses.
(2) The pseudo–$R^2_{McFadden}$ is equal to $1-\ln(l)/\ln(l_r)$, where $\ln(l)$ is the log likelihood of the estimated model and $\ln(l_r)$ denotes the log likelihood of the model with all slope coefficients restricted to zero.
Source: Polish Labour Force Survey, own calculations.

Table 6: Multinomial Logit Estimates of Programme Participation

Variable	Works		Public Training		Self–Financed Training		Employer–Fin. Training	
	ROR	t	ROR	t	ROR	t	ROR	t
age between (36 and 45)								
18 and 25	1.59	3.11	1.27	1.07	2.56	8.48	1.05	0.57
26 and 35	1.36	1.98	1.31	1.11	1.72	4.70	1.45	4.84
(26 and 35) & female	1.15	0.63	1.27	0.79	1.14	0.87	0.67	–3.63
46 and 55	0.71	–2.01	0.26	–3.98	0.63	–3.49	0.59	–6.23
education (basic vocational)								
higher	0.16	–2.48	3.04	2.87	3.99	8.87	2.05	6.22
post–secondary	2.33	2.74	2.10*	1.68	3.32	6.89	1.86	4.57
secondary vocational	1.25	1.42	2.40	4.01	1.89	5.67	1.42	4.26
secondary general	1.79	2.60	4.57	5.94	2.05	4.53	1.49	3.47
primary or less	1.36	2.39	1.63*	1.91	0.79	–1.45	0.54	–4.68
female	0.62	–3.04	0.82	–0.86	0.56	–4.99	0.63	–5.93
female & single	1.14	0.57	1.66	1.47	1.64	3.05	1.56	3.37
single	1.25	1.49	0.90	–0.37	1.00	–0.01	0.78	–2.56
assigned to a disability group	0.22	–4.58	0.39	–2.20	0.33	–4.46	0.24	–7.85
occupation (industrial worker)								
manager	0.15	–3.54	0.69	–0.89	1.37*	1.79	1.43	2.86
professional	0.24	–3.32	0.42*	–1.83	1.66	2.79	2.22	6.16
technician	0.22	–6.07	1.10	0.31	1.07	0.42	1.94	6.48
white–collar	0.48	–2.80	2.22	2.83	1.26	1.32	1.63	4.19
personal services	0.51	–2.86	1.34	0.91	0.87	–0.82	0.80	–1.50
farmer	0.47	–2.32	0.84	–0.28	1.25	0.60	0.17	–5.70
simple blue–collar	0.52	–2.70	0.68	–1.00	1.21	1.15	0.97	–0.26
other simple jobs	2.27	5.55	1.24	0.74	0.93	–0.40	0.52	–4.21

(to be continued on the next page)

Table 6: Multinomial Logit Estimates of Programme Participation (continued)

Variable	Works		Public Training		Self–Financed Training		Employer–Fin. Training	
	ROR	t	ROR	t	ROR	t	ROR	t
industry (manufacturing, mining)								
agriculture, forestry, fishing	1.78	1.99	0.70	–0.63	0.61	–1.40	0.57	–2.76
electricity, gas, water	1.41	0.65	1.70	1.11	1.45	1.28	2.11	5.36
construction	1.78	2.77	1.51	1.53	1.33*	1.82	0.61	–4.26
trade, repairs	1.17	0.61	0.94	–0.22	1.82	4.37	0.50	–6.07
catering	1.51	0.98	0.20	–1.59	1.19	0.52	0.41	–2.67
transport, communication	0.47	–1.44	0.57	–1.35	1.44	2.08	1.09	0.82
financial intermediation	7.89	6.12	0.88	–0.27	1.97	2.99	2.16	5.89
real estates, renting	7.20	6.76	1.06	0.11	2.11	3.31	0.89	–0.61
public administration	29.64	19.18	1.13	0.38	1.37*	1.69	1.71	5.50
education	2.94	3.75	1.52	1.20	1.80	3.74	0.71	–2.90
health, social work	3.36	4.84	0.57	–1.41	1.71	3.29	1.05	0.45
other services	6.00	8.97	1.73*	1.85	1.76	3.33	0.72	–2.42
private sector	1.90	5.72	1.69	3.24	1.21	2.24	1.10	1.55
place of residence (countryside)								
100,000 inhabitants or more	0.29	–6.46	1.19	0.82	1.41	3.41	1.27	3.40
20,000 to 99,999	0.81	–1.50	1.86	3.04	1.27	2.16	1.07	0.86
19,999 or less	1.32	2.14	1.51*	1.74	1.11	0.82	0.98	–0.18
voivodship unemployment rate	1.11	8.95	1.09	4.79	0.99	–0.52	1.00	–0.55
log likelihood	–12,131.56							
pseudo–$R^2_{McFadden}$	0.15							
# individuals	32,393							

Notes: (1) see notes to Table 5.
(2) Recall that works comprise both public and intervention works.
Source: Polish Labour Force Survey, own calculations.

Having established problem groups in the labour market we now take a look at Table 6 where we present estimation results for the probability of joining an ALMP or private training programme. The reference group consists of all persons who have not been in an ALMP programme nor undertaken private training. If someone has been in more than one programme, he or she is 'cloned',[12] which leaves us with 32,393 observations. Bearing in mind the problem groups identified above, we observe the following:

• The *young* members of the labour force are targeted effectively. It is worth noticing that older persons are significantly more likely to receive private than public training. It shows that the market has more confidence in this group than labour office officials. Indeed, there is heavy support in Poland for sending older people into early retirement which is reflected in their high propensity not to participate (*cf.* the relative odds ratio on age group *46 to 55* in Table 5).

• *Women* aged between 26 and 35 are not targeted in works programmes, which may have to do with the nature of especially the public works jobs. In case of public training we calculate a relative odds ratio of 1.52 (*cf.* Table A4 in the appendix), which implies positive targeting. However, we also observe that women in general are not targeted in either works or public training programmes, although there seems some positive discrimination[13] by labour offices, because employers are very unlikely to invest into female human capital due to the fact that females in this age group are, on average, quite likely to temporarily withdraw from the labour force for family reasons. Given that women make up about half the population, these results point to a lack of concern for one of the most important problem groups in the labour market.

• People with primary or less *education* are not the ones with the highest chances of joining ALMP programmes. Instead, for both works and public training schemes, people with higher levels of education are preferred. Efficiency reasons probably account for this fact, as private training may be more effective for higher educated people. Again, the important group of people with primary or less education (20% sample share) is not targeted according to equity principles.

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[12] To give an example, if a person has been both in a works programme and in public training, we take him or her into the sample as two people with the same characteristics, except that one of them has only been in works and the other only in public training.

[13] Positive discrimination here means that a person is given an advantage over the market outcome by labour office officials.

• Works programmes are – at the 10% significance level – more accessible to *singles* than married people, but public training is not (*cf.* Table A4 in the appendix). So the evidence on equity is mixed.

• The *disabled* have extremely low chances of getting into an ALMP programme as well as receiving private training. However, there are special measures for the disabled in Poland (Kwiatkowski, 1996).

• The targeting of *occupational groups* is fairly equitable. Whereas works programmes are conceived more for workers in simple jobs, public training is mainly aimed at improving the qualification of white–collar workers. The allocation of the *type* of ALMP programme to occupational groups therefore seems to be driven by efficiency aspects if one takes the view that white–collar workers are more capable to acquire new human capital through training. Indeed, the probability of receiving employer–financed training for white–collar workers is amongst the highest of all occupational groups.

• Except for people from the category *other services*, the *industrial* problem groups are not the ones to receive special attention in ALMPs. The high probability of public administrators getting into works programmes stands out. An explanation could be that public administrators at labour offices when deciding whom to admit to a works programme tend to sympathise with other (former) public administrators. If that is the case, targeting would be very unfair. However, if we compare the chances of high unemployment groups to participate in self– or employer–financed training courses, some positive discrimination by labour officials can be detected for people from *agriculture, forestry and fishing* as well as construction workers who – by the nature of their profession – can easily be integrated into public works projects.

• Persons living in *towns with less than 20,000 inhabitants* receive more ALMP support than persons from the big cities, which is consistent with equity. But one has the best chance of receiving training in places between 20,000 and 100,000 inhabitants.

• *Voivodships with higher unemployment rates* tend to get more people into both works and public training programmes. This is again evidence against financial crowding out, as mentioned above in connection with Figure 4. We might have expected higher unemployment to positively influence self–financed training as employees seek to improve their qualifications to counteract the imminent danger of job loss. Similarly, employer–financed training can be expected to be reduced in face of a growing pool of unemployed, which offers a reserve army of cheap labour that employers can substitute for high–cost and highly qualified labour. Surprisingly, the voivodship unemployment rate does not affect participation in private training courses. An explanation might be market imperfections as suggested by the

insider–outsider and the efficiency wage theories. Another reason could be the fact that many large employers – who can afford to finance training courses for their employees – do not plan their human resource expenditure on the voivodship, but a more global level. Further, time and credit constraints may hinder employees from improving their qualifications privately.

To sum up, for the largest part, other groups than the ones in need are targeted, although some positive discrimination exists if we compare labour office support with the market outcome. There is considerable space for improvement concerning equity. However, equity may conflict with allocative efficiency. This latter aspect of ALMPs will therefore be analysed in the next section.

4.2 The Allocative Aspect of Targeting Efficiency

Former and current participants in the programmes are asked whether they think their participation has improved their chances to find or keep employment.[14] They had four options answering the question: *no, I do not know, a little* and *very much.*

Table 7: Did the Programme Improve Your Chances to Find or Keep Employment?

Answer	Works	Public Training	Self–Financed Training	Empl.–Financed Training
No	59.59%	29.29%	18.04%	18.54%
I do not know	16.91%	7.07%	6.13%	6.74%
A little	17.11%	52.02%	51.42%	52.3%
Very much	6.39%	11.62%	24.41%	22.43%
# individuals	485	198	848	1,721

Note: The question is also answered by persons currently in the programmes. This is why we have more observations here than in Table 9 below.
Source: Polish Labour Force Survey, own calculations.

Table 7 suggests that works programmes are of very little use for the participants. This contrasts sharply with public and especially private training. Whereas almost a quarter of private training participants found their programme very useful, the ratio is just over a tenth for public training and something more than a twentieth for

[14] As people *currently* in ALMPs or private training programmes also answer the question, the responses will be based on a wide range of experiences. A person who is currently in an ALMP programme will perhaps have more difficulties judging its use than someone who has left a year ago. On the other hand, the person may know quite well how much he or she can get out of the ALMP scheme. Nevertheless, we checked that the inclusion of persons currently in programmes does not affect our results to a qualitative extent.

works. However, almost two thirds of all respondents think that public training programmes have improved their chances to find or keep employment at least a little.

To see whether we can identify certain groups who found any of the programmes especially useful, the structure of these answers was analysed by way of Ordered Probit Models. Yet this led to the problem of very few or no observations in several cells of the dependent variable cross–classified by certain explanatory variables. As a result, certain coefficients could not be estimated at all. Hence, we have grouped the answers into two categories: *a little* and *very much* on the one hand and *no* and *I do not know* on the other. Due to the paucity of observations for works and public training programmes, we generally restricted coefficients with t–values smaller than 1 in absolute value in the first–round estimation to zero.

The second–round estimation results for the probit models are presented in Table 8. The higher a coefficient, the more valuable the corresponding group views the programme in question. By establishing a set of groups who get very much or very little out of the programmes we can – similarly to subsection 4.1 – get further insights into the efficiency of targeting, yet this time in the sense of allocative efficiency. However, as the pseudo–R^2s according to Veall and Zimmermann (1992) show, the predictive power of all four regressions is very weak.[15] This suggests that the success of these programmes is predominantly determined by unobserved factors, which may for example include the type of training, the training agency, the motivation of the trainee *etc.* Hence we can evaluate the allocative efficiency of the four programme types only to a rather limited extent. The results can briefly be summarised as follows:

- *Works programmes* are found especially helpful by very young people, people with post–secondary, secondary–general (significant at the 10% level), and primary or less education, women, particularly if they are singles, and people in big cities (significant at the 10% level) and large towns. They are found without much use by the disabled, people in personal services, farming and simple jobs. In addition, all of the few people in the industries electricity, gas, water; catering; transport and communication consider their participation in works programmes more or less useless. It follows in connection with the estimates of Tables 5 and 6 that both equity and allocative efficiency could be promoted by letting more women, especially singles, into works programmes. In the case of people with simple jobs, there is a conflict between allocative efficiency and equity.

[15] The pseudo–$R^2_{\text{Veall–Zimmermann}}$ was found to come closest to the underlying OLS–R^2 in a Monte Carlo Study on a binary probit model by Veall and Zimmermann (1992).

Table 8: Probit Estimates of Subjective Programme Evaluation

Variable	Works		Public Training		S.–F. Training		E.–F. Training	
	Coeff.	t	Coeff.	t	Coeff.	t	Coeff.	t
age between (36 and 45)								
18 and 25	0.45	2.11	0.56*	1.82	–		0.17	1.46
26 and 35	0.24	1.30	0.37	1.12	–		0.08	1.02
(26 and 35) & female	–		–0.11	–0.25	–		–	
46 and 55	0.32	1.30	–		–		–0.16	–1.49
education (basic vocational)								
higher	–		–		–		0.14	0.96
post–secondary	0.82	2.06	–2.14	–3.20	–		0.26	1.50
secondary vocational	–		–0.74	–2.49	–		0.08	0.82
secondary general	0.48*	1.72	–0.77	–2.24	–		0.30	2.02
primary or less	0.37	2.07	–0.87	–2.75	–0.49	–2.53	–	
female	0.28	1.48	0.67	1.99	–		–0.01	–0.12
female & single	0.80	2.40	–0.84*	–1.64	–		0.26	1.46
single	–0.14	–0.62	0.34	0.81	–		0.03	0.24
assigned to a disability group	pred. perfectly		–		–0.39	–1.18	–	
occupation (industrial worker; white–collar)								
manager	–		–		–		0.30	1.96
professional	–0.82	1.34	–		–		0.36	2.43
technician	0.34	1.14	–		0.23	1.50	0.22	2.16
personal services	–1.13	3.33	0.37	1.24	–		–	
farmer	–0.87	2.27	1.07*	1.85	–		0.47	1.28
simple blue–collar	–		0.78	1.47	0.27	1.42	–	
other simple jobs	–0.45	2.77	–		0.28	1.21	–	

(to be continued on the next page)

Table 8: Probit Estimates of Subjective Programme Evaluation (continued)

Variable	Works		Public Training		S.–F. Training		E.–F. Training	
	Coeff.	t	Coeff.	t	Coeff.	t	Coeff.	t
industry (see note (2))								
electricity, gas, water	pred. perfectly		–		–		0.24	1.40
catering	pred. perfectly		pred. perfectly		–		–	
transport, communication	pred. perfectly		–		–		–	
financial intermediation	–		–		0.62*	1.92	0.21	1.25
real estates, renting	–0.67	–1.46	–		0.58*	1.88	–0.24	–1.10
public administration	–		1.27	2.33	0.44*	1.85	–	
education	–		–		0.50	3.30	–0.46	–3.26
health, social work	–		–0.63	–1.24	–		–0.27	–2.16
other services	–		–		0.53	2.48	–	
private sector	0.14	0.97	–		–		0.19	2.29
place of residence (countryside)								
100,000 inhabitants or more	0.51*	1.85	–		–0.18*	–1.78	–	
20,000 to 99,999	0.70	3.59	–		–		0.13	1.56
19,999 or less	0.30*	1.65	–		–		0.14	1.33
voivodship unemployment rate	–0.02	–1.50	–		–		–	
constant	–0.90	–2.62	0.20	0.75	0.61	7.80	0.32	3.72
log likelihood	–213.99		–110.49		–450.15		–945.64	
pseudo–$R^2_{McFadden}$	0.171		0.146		0.040		0.031	
pseudo–$R^2_{Veall–Zimmermann}$	0.011		0.004		0.019		0.037	
# individuals	460		197		848		1,721	

Notes: (1) The base categories are those given in parentheses plus the categories for which no coefficients are reported in the corresponding column.
(2) The base category here is manufacturing and mining; agriculture, forestry and fishing; construction; trade and repairs, plus the categories for which no coefficients are reported.
(3) 'pred. perfectly' stands for 'predicts outcome perfectly', so that individuals in the corresponding categories had to be excluded from the sample. In all these cases, except for the one person in public training from the catering industry, the corresponding groups assess ALMPs not to be useful. We have first estimated the models with all variables and then excluded the ones with t–values smaller than 1 in absolute value. The full models with all the variables are available on request.
Source: Polish Labour Force Survey, own calculations.

Of all occupational groups, those with simple jobs have the highest incidence of unemployment (*cf.* Table 5). The fact that they are also most likely to get onto a works scheme (*cf.* Table 6) can therefore be justified on equity grounds. However, as mentioned above, Table 8 shows that targeting people with simple jobs is not allocatively efficient. The same conflict arises for persons living in small towns (less than 20,000 inhabitants). Again, targeting is equitable with respect to this group, but not allocatively efficient. It should be mentioned, though, that targeting is efficient with respect to age as well as educational attainments. In the case of education, labour officials target mainly on allocative efficiency rather than equity grounds.

• As to *public training*, young people (significant at the 10% level), people with higher and basic vocational education, women, farmers, and people from the public administration seem to get most out of it. By contrast, people in the other educational categories, especially those with post–secondary education, find public training comparatively unhelpful. Comparing these results with the chances of joining public training (*cf.* Table 6), we find that the evidence on the allocative efficiency of targeting is mixed. Especially women and people with a basic vocational education should receive more support through public training courses on allocative efficiency (as well as equity) grounds. The same may be claimed for farmers, because, although they have a very low unemployment rate, most of them are likely to be heavily underemployed. Góra and Lehmann's (1995) conclusion that targeting is allocatively inefficient in public training programmes can therefore only be partially substantiated. However, as women and people with basic vocational education make up large shares of the unemployment population (47% and 43% of the formerly unemployed, respectively), we would attach a comparatively large weight to the inefficiency concerning these groups.

• It is striking that only very few coefficients are significant in the column for *self–financed training*, although the sample size is reasonable. The reason may be that self–financed training is very heterogeneous including both minor further education as well as complete re–qualification: whereas the share of people who have taken part in an employer–financed training course for more than half a year is only about 10% percent, this share is approximately 25% in the case of self–financed training. Unfortunately, though, our data does not allow us to distinguish further between different types of self–financed training. It is shown that people with primary or less education as well as people from the big cities (significant at the 10% level) do not gain much from self–financed training. On the other hand, people in the industry groups education and other services, which include recreational, cultural and sporting activities, as well as – significant at the 10% level – financial intermediation, real estates, renting and public administration are more likely to find their self–financed training course useful than people from other industries. As a comparison with Table 6 shows, private agents on the whole seem to invest efficiently, except for persons from the big cities.

• *Employer–financed training* seems to be fairly successful amongst people with secondary general education, singles (significant at the 10% level), managers, professionals, technicians and people from the private sector. People from the education, health and social work industries generally do not think that employer–financed training increases their chances of keeping their jobs or finding a new one. It is worth noticing that people with a very high level of education have the best chances of receiving employer–financed training, but our results show that they are not the group who benefit most. However, it should be borne in mind that due to the very low unemployment incidence amongst people with higher education, the fact that the survey asks on the effects of training on finding or keeping employment means that other positive effects, most notably productivity and income effects, are not considered here. So targeting by employers may still be allocatively efficient, but in this case, success will not be measured by the likelihood of keeping employment, as it can be taken for granted that employers will keep on their employees when they spend money on their further education. Bearing this in mind the evidence on employer–financed training gives credence to the view that the market is efficient.

To conclude the discussion on the allocative efficiency of ALMPs, it can be said that, compared to private agents, the targeting by labour officials is less efficient. This need not be a generally negative result. Indeed, in the case of people with simple jobs and people in small towns, we find that for works programmes equity stays in conflict with allocative efficiency, but that equity is seen as more important by labour office officials. This is consistent with overall targeting efficiency given a corresponding normative decision taken by policy makers. Nevertheless, in the case of women in works programmes and women and people with a basic vocational education in public training, we conclude that more support for these socio–economic groups would improve both equity and allocative efficiency.

In this section, we have taken only a partial view of allocative efficiency based on the *subjective* evaluations of the participants. In the following subsection, we are looking at the more *objective* criterion of the employment effects of the various programmes.

4.3 The Impact of ALMPs on the Labour Force State

As the currently existing data sets do not contain information on the pre– and post–ALMP–participation labour market histories of the interviewees, we compare the labour force state of formerly unemployed former programme participants in August 1994 with the labour force state of the formerly unemployed who have never participated in an ALMP programme. This is thus a first step towards an objective exploration of the impact of ALMPs.

Table 9 shows that almost two thirds of former participants in works programmes have been unemployed in August 1994. Former public training participants are also more likely to be unemployed than the average person in the sample, but the difference is by far not as pronounced as for former participants in works schemes.

Table 9: Distribution of Labour Force States of Former Programme Participants Who Have Been Unemployed Before (in percent)

Labour Force State	Works	Public Training	Self–Fin. Training	Empl.–Fin. Training	Total Sample
Employed	33.62	61.9	77.66	87.06	67.13
Unemployed	59.57	29.52	17.02	10.95	22.29
Not Participating	6.81	8.57	5.32	1.99	10.59
# individuals	235	105	188	201	5,007

Note: The sample consists of 5,007 people who have been unemployed before and are currently not in any of the four programmes. The labour force state is the one during the reference week of the August 1994 survey.
Source: Polish Labour Force Survey, own calculations.

Converse results hold for former participants of private training schemes who have very low unemployment rates. Especially persons having undergone employer–financed training are very employable.[16] However, the above correlations between employment states and programme participation will be spurious if there are other factors which influence both the labour force state and programme participation.

Therefore, we estimate the determinants of individual labour force states by a multinomial logit model in Table 10. We control for the same set of demographic and socio–economic characteristics as in previous estimations (*c.f.* Table 5). Yet this time, our sample is limited to the 5,007 people who are currently not in an ALMP or private training scheme and who have been unemployed before. As can be seen from the estimates, persons who have previously been unemployed and are aged between 46 and 55, female, disabled, or from the industry agriculture, forestry, and fishing have a high probability to retreat into non–participation which supports the 'discouraged worker' hypothesis mentioned in subsection 4.1.

In addition to the standard set of demographic and socio–economic characteristics, we include four dummy variables for participation in any of the above–mentioned programmes.[17] The base category refers to a person who has participated in none of these programmes. Hence, in contrast to section 4.2 above, we compare the labour

[16] Note that only 201 of 1,721 people who receiv(ed) employer–financed training were unemployed before. The corresponding figures for self–financed training are 188 to 848.

[17] It is possible that a person has taken part in more than one programme.

market opportunities of former ALMP participants with those of formerly unemployed persons who have never been in an ALMP programme. Table 10 shows that after controlling for various demographic and socio–economic characteristics, having participated in a works programme increases the probability of being unemployed almost sixfold, but has no effects upon non–participation. No significant effects are found for public training or self–financed training. However, former participants of employer–financed training are *ceteris paribus* less than half as likely to be unemployed and about 80% less likely not to participate in the labour market than their peers who have not received training paid by their employer.

One problem with the interpretation of the effects of these dummy variables is that they are potentially endogenous. In particular, participation may be the result of self–selection or the outcome of the selection rules used by firms or the labour offices. That is to say, people who are not employable may have a high chance of getting into a works programme. Similarly, people who are very employable are likely to have a good chance of receiving employer–financed training. In any case, the dummies accounting for programme participation may be correlated with unobserved factors determining an individual's labour force state. Hence, we believe it is unlikely that the observed coefficients represent causal effects. As a consequence, we experimented with instrumental variable estimation of the model shown in Table 10. However, due to the poor predictive power of our equations for programme participation, our results produced extremely large standard errors of estimated coefficients and turned out as inconclusive.

In sum, we cannot detect any positive effects of ALMPs on employment prospects. Only works programmes significantly influence employment chances in our model, but the effect is negative. This may be explained by a stigmatising effect of ALMPs with a negative signal on a person's employability. On the other hand, it can also be the result of selection effects.

Table 10: Multinomial Logit Estimates of the Labour Force State

Variable	Unemployed		Not Participating	
	ROR	t	ROR	t
age between (36 and 45)				
18 and 25	0.69	–3.56	1.48	2.55
26 and 35	0.98	–0.16	1.40	1.53
(26 and 35) & female	1.05	0.30	1.00	–0.01
46 and 55	1.25	1.60	2.50	5.11
education (basic vocational)				
higher	0.42	–2.96	0.48*	–1.78
post–secondary	0.71	–1.44	0.59	–1.53
secondary vocational	0.83*	–1.73	0.86	–0.99
secondary general	0.95	–0.30	1.15	0.68
primary or less	1.32	2.75	1.36	2.07
female	1.63	4.10	6.79	10.67
female & single	0.63	–2.84	0.18	–6.46
single	1.63	4.38	1.58	2.37
assigned to a disability group	0.93	–0.32	16.88	16.63
occupation (industrial worker)				
manager	0.64*	–1.78	0.59	–1.37
professional	0.45	–2.66	0.46*	–1.81
technician	0.60	–2.70	0.59	–2.04
white–collar	1.02	0.13	1.02	0.08
personal services	0.82	–1.24	0.82	–0.90
farmer	0.09	–7.85	0.09	–6.13
simple blue–collar	0.98	–0.14	0.82	–0.84
other simple jobs	0.93	–0.59	0.90	–0.60

(to be continued on the next page)

Table 10: Multinomial Logit Estimates of the Labour Force State (continued)

Variable	Unemployed		Not Participating	
	ROR	t	ROR	t
industry (manufacturing, mining)				
agriculture, forestry, fishing	1.58*	1.92	2.51	2.97
electricity, gas, water	0.77	–0.70	1.99	1.63
construction	1.70	4.27	1.23	0.94
trade, repairs	1.30*	1.89	1.24	1.02
catering	1.11	0.41	1.51	1.36
transport, communication	0.93	–0.36	1.55	1.56
financial intermediation	0.54	–1.63	0.71	–0.71
real estates, renting	0.78	–0.76	2.05	1.95
public administration	0.96	–0.22	0.87	–0.45
education	1.54	2.02	0.73	–0.92
health, social work	0.70	–1.64	0.77	–0.97
other services	1.20	1.09	0.87	–0.54
private sector	0.60	–6.27	0.58	–4.72
place of residence (countryside)				
100,000 inhabitants or more	1.01	0.08	1.15	0.98
20,000 to 99,999	1.03	0.25	0.76*	–1.74
19,999 or less	1.22*	1.83	1.18	1.02
voivodship unemployment rate	1.04	3.83	1.03	2.24
works	5.75	10.65	1.54	1.43
public training	1.40	1.39	0.90	–0.25
self–financed training	0.80	–1.09	0.61	–1.41
employer–financed training	0.42	–3.60	0.18	–3.24
log likelihood	–3,597.37			
pseudo–$R^2_{McFadden}$	0.14			
# individuals	5,007			

Notes: see Table 5.
Source: Polish Labour Force Survey, own calculations.

5 Discussion

The results from both our macroeconometric impact and microeconometric evaluation analyses overall cast doubt on the usefulness of ALMPs in the Polish transition process. If we concur with the view that governments should keep their hands off the economy unless it is shown they can do better than the market, we may conclude that the best policy action would be to abolish ALMPs altogether. Some *caveats* should be borne in mind, though.

(i) Although we have found no impact of lagged ALMP expenditure on regional (voivodship) labour market flows, it is important to notice that we have used annual expenditure data, but do not know the lag structure between the disbursement of the funds and the implementation of the ALMP programmes.

(ii) The microeconometric analysis suggests that ALMPs are very often not efficiently targeted. Vested interests, for example, seem to give persons from the public administration good access to works schemes, although these persons do not have a high incidence of unemployment nor do they particularly benefit from works programmes in terms of better future labour market prospects. Also, women and people with basic vocational education should receive more support on both equity and allocative efficiency grounds. Looking at occupational and place–of–residence groups, we find conflicts between equity and allocative efficiency. However, we could not establish any positive effects of ALMPs on individual future employment prospects. In general, the estimated effects are subject to the problem of selectivity casting doubts on the possibility of identifying causal effects from the currently existing data on Polish ALMPs.

(iii) ALMPs may have positive effects on the incomes of those who have participated and found a job, although re–employment chances may be unaltered. In other words, ALMPs may cure poverty in employment even if they do not alleviate poverty through lack of employment. This issue is not investigated here. Further issues not discussed are the psychological and sociological effects of ALMPs. Participants might see a new perspective for their lives through an ALMP programme. Crime rates may be lowered. Hence ALMPs have the potential to deliver utility in different spheres from the ones explored in this paper.

(iv) Yet in spite of all the *caveats*, the fact that ALMPs are held in low regard by former participants gives credence to our tentative results. A reason for the supposed ineffectiveness of ALMPs may be inappropriate targeting as found in our microeconometric analysis. Therefore, further research on the development and emergence of problem groups in the labour market may help to make ALMPs more focused. Thus targeting efficiency can be improved, which shall in return make ALMPs more effective.

(v) It is difficult to generalise the results from our study to other transition economies, since delivery mechanisms, which may be of great importance for the effectiveness of ALMPs as well as the situation on the labour market, differ substantially between various transition countries. In order to draw more general conclusions on the effectiveness of ALMPs in transition economies, more especially microeconometric research would be needed. However, this requires better data on labour market transitions between ALMPs and the various labour force states, as well as incomes before and after ALMP participation.

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Appendix

Table A1: Summary Statistics of the Macro–Sample

Quarters	Mean	Standard Deviation	Minimum	Maximum
Outflow Rate Unemployment –> Employment (in percent)				
Feb 1993 – May 1993	22.02	11.52	0.00	61.54
May 1993 – Aug 1993	18.64	9.56	0.00	52.63
Aug 1993– Nov 1993	16.67	9.21	0.00	50.00
Feb 1994 – May 1994	24.19	9.16	9.43	50.00
May 1994 – Aug 1994	19.55	7.57	0.00	33.33
Aug 1994 – Nov 1994	16.15	8.26	0.00	37.50
Outflow Rate Employment –> Unemployment (in percent)				
Feb 1993 – May 1993	2.64	2.14	0.00	11.11
May 1993 – Aug 1993	1.82	1.31	0.00	5.41
Aug 1993 – Nov 1993	2.55	1.53	0.00	6.85
Feb 1994 – May 1994	2.27	1.23	0.00	5.51
May 1994 – Aug 1994	2.12	1.28	0.00	5.19
Aug 1994 – Nov 1994	2.08	1.35	0.00	4.91
Expenditure on Public Works				
1992	3,553	2,839	68	11,335
1993	24,426	15,631	5,071	63,761
Expenditure on Intervention Works				
1992	9,567	4,816	1,989	21,929
1993	27,397	16,091	7,105	74,539
Expenditure on Public Training				
1992	3,939	3,987	212	21,243
1993	9,163	9,826	541	50,819

Note: The data is on voivodship level. The unit for the expenditure data is current million old Polish Zlotys (PLZ '000,000).
Source: Outflow Rates: Polish Labour Force Survey, own calculations; Expenditures: National Labour Office.

Figure A1: The Voivodships of Poland – Map, Codes and Names

Map

Note: The voivodship codes are the standard codes used by the Polish Central Statistical Office (GUS).

Codes and Names

Code	Name	Code	Name
1	Stoleczne Warszawskie	51	Olsztynskie
3	Bialskopodlaskie	53	Opolskie
5	Bialostockie	55	Ostroleckie
7	Bielskie	57	Pilskie
9	Bydgoskie	59	Piotrkowskie
11	Chelmskie	61	Plockie
13	Ciechanowskie	63	Poznanskie
15	Czestochowskie	65	Przemyskie
17	Elblaskie	67	Radomskie
19	Gdanskie	69	Rzeszowskie
21	Gorzowskie	71	Siedleckie
23	Jeleniogorskie	73	Sieradzkie
25	Kaliskie	75	Skierniewickie
27	Katowickie	77	Slupskie
29	Kieleckie	79	Suwalskie
31	Koninskie	81	Szczecinskie
33	Koszalinskie	83	Tarnobrzeskie
35	Krakowskie	85	Tarnowskie
37	Krosnienskie	87	Torunskie
39	Legnickie	89	Walbrzyskie
41	Leszczynskie	91	Wloclawskie
43	Lubelskie	93	Wroclawskie
45	Lomzynskie	95	Zamojskie
47	Lodzkie	97	Zielonogorskie
49	Nowosadeckie	–	–

A2: Remark on the Micro-Sample

The number of individuals who are in both the Polish Labour Force Survey of August 1994 and its Supplement on the Evaluation of Labour Market Policies is 47,393. Limiting the sample to persons between inclusively 18 and 55 years of age we have 35,406 observations left. We then only include persons who give information on their occupational and industrial background, which means they must have been employed at some stage in their lives. This leaves us with 32,331 interviewees. The distribution of these individuals across the different programmes and in the total sample by various characteristics is given together with the unemployment rates in Table A2.

Table A2: Micro–Sample Means (% Shares) and Unemployment Rates (%) for Subgroups

Variable	Works	Public Training	Self–Fin. Training	E.–Fin. Training	Total Sample	Total Sample
	ΔMean	ΔMean	ΔMean	ΔMean	Mean	UR
age between						
18 and 25	9.09	4.96	9.76	–1.93	15.24	14.66
26 and 35	4.66	12.08	10.82	8.92	28.33	13.68
(26 and 35) & female	–0.59	10.75	5.93	0.36	14.00	16.97
36 and 45	–3.49	–0.69	–8.98	2.32	35.04	10.87
46 and 55	–10.26	–16.34	–11.61	–9.31	21.39	7.95
education						
higher	–8.33	–1.17	18.15	13.69	8.74	3.64
secondary general	0.28	0.31	5.03	3.05	3.22	8.23
post–secondary	–5.02	10.77	4.84	10.12	23.58	10.16
post–secondary	0.01	12.39	1.46	2.09	6.80	11.71
basic vocational	1.31	–14.29	–13.96	–11.60	36.01	13.95
primary or less	11.75	–8.01	–15.52	–17.35	21.65	14.30
female	–11.27	9.56	–0.86	–5.99	50.03	13.21
female & single	–0.58	6.1	6.21	–9.95	10.06	13.42
single	8.47	4.13	7.73	–21.43	21.63	15.33
assigned to a disability group	–8.28	–7.31	–8.34	–8.48	10.34	17.06
occupation						
manager	–4.67	–0.95	4.41	3.05	5.49	5.94
professional	–6.36	–2.96	16.87	11.69	8.01	3.94
technician	–4.77	3.28	2.07	13.62	11.37	7.57
white collar	–0.66	13.45	1.70	3.61	7.26	15.41
personal services	–3.30	4.84	0.06	–5.67	10.32	20.35
farmer	–8.44	–10.91	–10.50	–14.46	15.45	2.07
industrial worker	1.18	–2.33	–7.56	–3.30	22.53	16.34
simple blue–collar	–4.03	–4.23	–1.58	–0.75	8.77	13.44
other simple jobs	31.06	–0.19	–5.49	–7.77	10.79	21.37

(to be continued on the next page)

Table A2: Micro–Sample Means (% Shares) and Unemployment Rates (%) for Subgroups (continued)

Variable	Works	Public Training	Self–Fin. Training	E.–Fin. Training	Total Sample	Total Sample
	ΔMean	ΔMean	ΔMean	ΔMean	Mean	UR
industry						
agriculture, forestry, fishing	–8.04	–12.08	–12.48	–15.53	18.14	4.57
industry	–13.99	–1.25	–10.32	1.10	28.01	14.13
electricity, gas, water	–0.79	0.91	0.04	2.69	1.61	6.17
construction	0.90	3.25	–0.28	–1.83	7.35	22.10
trade, repairs	–7.98	6.27	5.94	–5.26	12.93	16.93
catering	–0.19	–1.13	–0.34	–1.06	1.64	25.96
transport, communication	–4.75	–2.04	0.20	1.86	5.57	9.37
financial intermediation	0.70	0.75	1.41	3.74	1.78	6.10
real estates, renting	1.83	0.34	1.50	0.53	1.68	10.49
public administration	28.65	1.81	0.67	8.55	4.75	9.19
education	–2.25	0.90	8.69	2.37	6.17	7.93
health, social work	–0.57	–2.09	2.59	3.05	6.13	8.14
other services	6.49	4.35	2.37	–0.22	4.23	14.87
private sector	15.69	16.28	5.53	–1.25	25.13	17.55
place of residence						
100,000 inhabitants or more	–20.05	–0.50	13.42	13.46	27.27	10.96
20,000 to 99,999	–1.95	11.93	2.40	3.41	19.89	13.58
19,999 or less	12.69	4.00	–0.52	–0.46	12.67	16.37
rural	9.31	–15.43	–15.30	–16.41	40.18	10.08
voivodship UR	16.65	15.63	13.96	14.07	14.25	–
# individuals	485	198	848	1,721	32,331	Ø11.78

Notes: (1) ΔMean denotes the percentage difference of the mean value of the category dummy (category share in the sample) between people who are or were in, say, works and all people in the sample. This means that if ΔMean is positive (negative), the corresponding category is over–(under–) represented in works programmes.
(2) The average unemployment rate (UR) with 11.78% is so low because of the exclusion of those persons who have never been employed. If we include these persons, the average unemployment rate would become 14.50%.
Source: Polish Labour Force Survey, own calculations.

Table A3: Relative Odds Ratios for Categories Affected by Interaction Effects in Table 5

Category	Unemployed	Not Participating
age (between 36 and 45)		
26 and 35	1.39	1.45
(26 and 35) & female	2.76	9.71
female	1.80	5.41
female & single	2.01	2.77
single	1.43	0.75

Notes: (1) To give an example, for *female*, the ROR is approximately $e^{\alpha\bar{A}} \times e^{\beta} \times e^{\gamma\bar{S}}$, where e^{β} is the ROR for female in Table 5, e^{α} is the ROR for *(26 and 35) & female*, $\bar{A}$ is the sample share of the category *(26 and 35) & female*, e^{γ} is the ROR for *female & single* and $\bar{S}$ is the sample share of the category *single*.
(2) Shaded RORs are significant at the 5% level.

Table A4: Relative Odds Ratios for Categories Affected by Interaction Effects in Table 6

Category	Works	Public Training	Self–Financed Training	Employer–Fin. Training
age (between 36 and 45)				
26 and 35	1.46	1.48	1.84	1.19
(26 and 35) & female	1.00	1.52	1.22	0.67
female	0.66	0.98	0.64	0.62
female & single	0.92	1.31	0.95	0.69
single	1.33*	1.16	1.28	0.97

Notes: (1) see Table A3.
(2) Shaded (asterisked (*)) RORs are significant at the 5% (10%) level.

Table A5: Effects for Categories Affected by Interaction Effects in Table 8

Category	Works	Public Training	Self–Financed Training	Employer–Fin. Training
age (between 36 and 45)				
26 and 35	0.24	0.30	–	0.08
(26 and 35) & female	0.76	0.72	–	0.12
female	0.52	0.41	–	0.04
female & single	0.94	0.12	–	0.28*
single	0.16	–0.16	–	0.14*

Note: To give an example, for *female*, the effect is approximately $\alpha\overline{A}+\beta+\gamma\overline{S}$, where β is the coefficient for female in Table 5, α is the coefficient for *(26 and 35) & female*, $\overline{A}$ is the sample share of the category *(26 and 35) & female*, γ is the coefficient for *female & single* and $\overline{S}$ is the sample share of the category *single*.

Table A6: Relative Odds Ratios for Categories Affected by Interaction Effects in Table 10

Category	Unemployed	Not Participating
age (between 36 and 45)		
26 and 35	1.00	1.40*
(26 and 35) & female	1.45	5.49
female	1.43	3.92
female & single	1.70	1.93
single	1.31	0.71

Notes: see Table A3.

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