THE IMPACT OF ACTIVE LABOR MARKET POLICIES ON THE OUTFLOWS FROM UNEMPLOYMENT TO REGULAR JOBS IN UKRAINE

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Abstract

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The Ukrainian labor market is characterized by increasing open unemployment, spreading long-term unemployment and by the stagnancy of the unemployment pool. The system of active labor market policies directed towards the registered unemployed job-seekers in Ukraine consists of public employment services, training/retraining, public works, job quota for vulnerable groups, early retirement, and interest-free loans to start-up business. Although theoretically labor market policies can crowd out regular employment because of distortive effects, we advocate usage of these policies as a means of combating unemployment and easing social tensions in Ukraine. Using a large panel of quarterly data from regional employment centers (including outflows from registered unemployment, number of registered unemployed, number of available vacancies, active labor market policies expenditures and inflows), we estimate the effects of active labor market policies on the job-matching process with Cobb-Douglas specification in Ukraine. Estimates of an augmented matching function have confirmed our hypothesis that active labor market policies such as training and public works (measured as total regional spending and as inflows of participants) have a significant positive impact on outflows from unemployment to regular jobs in Ukraine. We address potential endogeneity problem in the case of ALMP inflows, employing the set of instruments. Regression results of an augmented matching function with separate parameters for training and public works expenditures show that training has greater effect on number of new matches than public works. Therefore, implemented ALMP schemes seem to improve the efficiency of the Ukrainian labor market. In that case we would recommend to dedicate more resources to these programs and to expand a range of unemployed placed on them, paying particular attention to vulnerable groups.

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LIST OF ABBREVIATIONS

ALMP	Active Labor Market Policies
CEE	Central and Eastern Europe
CIS	Commonwealth of Independent States
FSU	Former Soviet Union
GLS	Generalized Least Squares
ILO	International Labor Organization
IV	Instrumental Variable
LMP	Labor Market Policies
LFS	Labor Force Survey
NEC(S)	National Employment Centre (Service)
NEF	National Employment Fund
OECD	Organization for Economic Cooperation and Development
OLS	Ordinary Least Squares
2SLS	Two Stage Least Squares

Introduction

The transition process of the Central and Eastern European (CEE) and former Soviet Union (FSU) countries involves dramatic changes in all fields of life as a result of adjusting of the old centralized command system to a new competitive market economy. The labor market is not the exception. With the shift of the production pattern driven by state orders to one driven by consumer preferences, the structure and amount of output and the demand for labor changed dramatically. The main consequence of overall restructuring of economy, especially property form restructuring, was that unemployment arose. This was inevitable under the new conditions of the reallocation of jobs and workers between a declining public sector and an emerging private sector, and non-matching of this process. Although there was some evidence of frictional and structural unemployment in the European socialist countries before, these countries did not experience cyclical unemployment due to periodic contractions in aggregate demand such as those observed in market economies. Government policies of suppressing unemployment in the European socialist countries formed the basis of public assertions about non-existence of unemployment and macroeconomic stability in the equitable socialist system. Since the state asserted that its plans created enough jobs for the labor force, and that people unwilling to take existing vacant positions therefore were voluntarily idle, there were no arrangements for unemployment compensation or other labor market institutions. Following the start of the transition process, the emergence of the hitherto unknown phenomenon of unemployment and its steady increase, accompanied by sharp decline of the living standards of population have led most governments of transition economies to the necessity of active search and actions in the field of institutional labor market reforms.

From the very beginning of transition, the countries have set workplace standards like minimum wage, working time, protections for most vulnerable groups in the labor market, established rules for labor contracts, and

introduced unemployment benefit system. Simultaneously with the use of passive income-support programs like unemployment benefits, the state authorities implemented extensively active labor market policies (ALMP) such as training or retraining programs, temporary public-sector schemes, interest-free loans to promote business start-up, and private-sector recruitment subsidies intended to create jobs. The rationale for ALMP comes from the experience of the industrialized market economies, which have used these policies for the past 25 years. If carefully designed and tightly managed, ALMP can help the unemployed to overcome difficulties in finding a job, increase their productivity and thus competitiveness in the labor market, and improve the functioning of the labor market in general. But in recent times there is considerable debate over the effectiveness of labor market policies, and which labor market policies are the most appropriate in a period of radical structural change. The problem is that unemployment benefit entitlements have disincentive effects with respect to the outflow from unemployment to a job. Active labor policies are often associated with high costs and unfavorable effects such as deadweight losses, substitution and displacement effects, and dependence of its effectiveness on macroeconomic indicators such as output growth, number of vacancies, number of long-term unemployed, etc. It is difficult to make any generalizations on the possible effectiveness of various labor policies in transition countries relying only upon OECD experience while taking into account that results and relative cost-effectiveness of these programs tend to vary across countries. Therefore, the transition economies of CEE and CIS should be individually extensively involved in rigorous evaluations in deciding on how and where which programs are best used.

Since the collapse of the socialist economic system, policymakers and academic scholars have increased their attention toward monitoring the progress of transition process to the market system. But since this process of transition began earlier in CEE countries, and the proper information for different empirical investigations and access to it is more available in these

countries because of prolonged relations with western scientists and economists, researchers concentrated their efforts on these economies. Problems of transition are much less investigated in former soviet republics, which became independent states after the collapse of the Soviet Empire. The labor market is one of such items of transition economics disregarded by western and domestic researchers in FSU republics, but extensively investigated and presented in CEE countries. So far there is a tremendous number of papers concerning micro- and macroevaluation of ALMP and unemployment benefits in the Czech Republic, Slovakia, Poland, Hungary, Slovenia, Romania, Bulgaria and Slovenia dated from 1992 to the present, but analogous investigations (at least, published) have not been done yet in Ukraine or Russia. The main problems holding up western economic scientists on the road of their research in these countries are collection of appropriate data, bureaucracy in almost all levels of state life, and the lack of critically thinking, well-educated (under international standards) domestic scholars with which it would be possible to co-operate successfully. Nevertheless, we think, research in FSU economies could cast additional light on important questions of transition period, and therefore, be useful cases for other countries despite some specific features of transition process in newly independent states.

This paper tries to fill this gap in the empirical literature and focuses on Ukraine, one of the largest and most developed former soviet republics. Ukraine makes a particularly interesting case for investigation, because in spite of huge declines in output and massive inflation during the first years of independence, there has been little overt evidence of the mass open unemployment. The possible explanations to this paradox can be statistical distortions, the result of administrative procedures, low levels of unemployment benefits, labor market adjustment via price mechanisms rather than quantity adjustment, labor hoarding, and remarkable flexibility of the labor market, peculiar to many FSU republics. Nevertheless, reinforcement of the tension in the Ukrainian labor market, in particular expansion of the

hidden unemployment and wage arrears, worsening of population welfare standards, low level of their income, and imperfection of social protection system, requires development of justified conception for regulation of unemployment levels, taking into account transformations on the path from command to market economy. This paper reviews progress of labor institutional arrangements, and surveys labor market dynamics in Ukraine to draw preliminary lessons about appropriate labor market policies. Ukraine had no experience of labor market policies earlier, and although some labor market measures (public employment services, training/retraining, public works, job quotas for vulnerable groups, subsidized job creation, start-up loans and grants, and unemployment compensation) were specified in 1991 by the Employment Law, not all of them are provided because of fiscal reasons, and not all of the provided policies proved to be the most relevant for Ukraine. In order to increase the impact of labor market policies, it is important to make periodical evaluations of these programs in Ukraine. Since one of the striking feature of unemployment in Ukraine and other transition countries is low turnover of the unemployment pool due to low outflows from unemployment, implemented employment policies were primarily aimed to produce larger outflows from unemployment to regular employment. In that case one of the most topical issues of such evaluations of labor market policies is establishing of their effect on the unemployment outflows to jobs that has not been done yet in the case of Ukraine.

Therefore, the main purpose of this study is to take the first step in examining the effectiveness of the main measurable active labor market policies such as training/retraining and public works in Ukraine. We try to answer the question whether ALMP measures such as expenditures or inflows of participants increase re-employment opportunities of the unemployed at the macroeconomic level, i.e. is there positive correlation between these ALMP measures and the outflows from unemployment to regular jobs. We use cross-regional quarterly administrative data from the National Employment Service on registered outflows from unemployment to jobs,

stocks of registered unemployed and vacancies, inflows and spending on training and public works. The estimation model is the augmented matching function with Cobb Douglas specification, without 'ranking' of unemployed by duration and on-the-job search. The hypothesis to be tested is that active labor market policies (their total measure) have significant positive impact on outflows from unemployment to jobs in Ukraine, i.e. that participation in ALMP-programs improves job-matching process (ceteris paribus). The availability of the data on training/retraining and public works scheme allows us to identify separately the effects of the main active labor market policies provided in Ukraine, and thus to shed some light on their merits and demerits.

This paper may be of interest not only for Ukrainian administrative bodies challenging with employment policies such as the Ministry of Labor and Social Protection, the National Employment Service, commissions of the Verkhovna Rada, but also for policymakers in transition economies and for other people interested in the development of labor markets, because the paper uses recent data on the dynamics of the Ukrainian labor market from the LFSs and registers of the NES for its review, multi-region administrative data sets for estimation, provides an application of econometric techniques, and gives some recommendations as to active labor market policies.

The paper is organized as follows. Next chapter discusses the rationale for ALMP in advanced and transition economies, touches upon the question of evaluation of ALMP, and simultaneously reviews the existing literature on these questions. In chapter 2 we analyze the development of Ukrainian labor market on the whole, and of labor market policies and institutes in particular. In chapter 3 we provide some theory of matching functions setting main assumptions to our econometric model, moving from the Beveridge curve to the augmented matching functions. In chapter 4 we describe our data (section 4.1), discuss econometric specification and then present our estimation results and analyze them (section 4.2). Finally, we offer some general conclusions highlighting main finding and providing some policy implications.

Chapter 1

THE RATIONALE FOR LABOR MARKET POLICIES: EXPERIENCE FROM THE OECD AND TRANSITION COUNTRIES

1.1. CAUSES OF PERSISTENT UNEMPLOYMENT AND ITS COSTS TO SOCIETY

The overall levels of production, unemployment, inflation and the trade balance in the economy are the key variables used by researchers and policymakers for the analysis of an economy's health. Persistent and severe character of unemployment in many OECD countries (primarily in Europe) over the last two decades and in all transition countries over the last decade has become an overwhelming concern not only of policymakers, but also of the whole general public. The reason for this concern of community is that unemployment involves significant costs to society at the aggregate level (the lost output associated with the reduced utilization of labor in the economy) as well as at the individual level of the unemployed (personal hardship for the unemployed like a loss of income, deterioration of working skills during a period of unemployment, suffering psychological effects, etc). Trying to recommend macroeconomic or labor market policies for the government in order to combat such undesirable and at the same time practically inevitable phenomenon as unemployment, researchers firstly determine the type of unemployment and its causes, and only then make suggestions about appropriate policies.

Among the numerous investigations of the causes of high and persistent unemployment in OECD countries in the 80s and 90s, Jackman (1995a) argues that the growth in unemployment in these countries primarily cannot be caused by demographic, institutional, or macroeconomic supply side factors (with the exclusion of the early 1980s when high unemployment was

associated with supply shocks and restrictive monetary policies) but rather has been attributed to major shifts in the demand for labor by skill due to shifts in the composition of final demand for products, changes in technology and changes in the pattern of external trade (so-called globalization of the economy). Therefore, he confirms claims by the OECD and other economists, that unemployment of the 80s and 90s in Europe and the US is basically structural. Moreover, he stresses that there is not only high unemployment in the aggregate, but also an evidence of long-term unemployment in the most European countries.

As to transition countries in Central and Eastern Europe and in Former Soviet Union open unemployment, practically non-existent before, accelerated after the collapse of the socialist system and the introduction of political, economic and social reforms at the end of the 80s, when the former regime of full employment along with other features of the command economy became unsustainable. As in the case of the OECD countries there was a lot of studies on the causes of rising unemployment. The common belief was that the driving force behind the growth of unemployment in these countries was the resource reallocation between the state and the emerging private sector as former state-owned enterprises restructured, privatized and reduced redundant labor. In this case given that employment in the state sector was really declining and that employment in the private sector was increasing, a high turnover of the unemployment pool should take place. But despite significant changes in the structure of employment, evidence on flows into and out of unemployment in CEE and FSU counties (Commander, 1994) suggested quite the opposite characteristic, that is a very small turnover of the unemployment pool because of low inflows and even lower outflows from unemployment. This puzzle in the relationship between the dynamics of employment and unemployment in transition countries induced further investigations of the causes of unemployment in these countries. In one of such researches Jackman (1995b) argued that unemployment in CEE countries was a result

of economy-wide supply side shocks reflected in a sharp decline in demand for labor rather than the hypothesized reallocation of labor resources between sectors. The problem of such demand-deficient rising unemployment is that it has many feedback effects on the overall reform process. High unemployment and a small exit rate from unemployment to jobs make leaving the state unprofitable enterprises rather unattractive for employees (taking into account their access to social services often attached to large enterprises). Different measures applied by such enterprises (primarily, at the cost of lower wages and lower utilization of production capacity) and concessions by the state authorities aimed at keeping redundant workers became an obstacle to effective restructuring of the economy and a reason of the spread of hidden unemployment. The other issue of this process is that low re-employment probability for those who lose their jobs and worse labor market conditions have negatively affected the process of privatization of state enterprises. Thus rising unemployment through its effect on restructuring and privatization and other its economic, political, and social costs endangers reform process, discrediting the government and sapping political support for reforms. In such situation, given additionally the spread of long-term unemployment as a consequence of unemployment growth and the stagnancy of the unemployment pools, all transition countries were deeply involved in active search of policies slowing the growth of unemployment and bringing the long-term unemployed back to regular employment. The rationale for using labor market policies to cope with unemployment issues came from experience of OECD countries discussed below.

1.2. LABOR MARKET POLICIES

In response to increased structural imbalance and persistent unemployment in OECD countries, governments of many advanced countries have been forced to introduce or to expand various labor market policies addressed to unemployed. Labor market programs directed on

reducing unemployment by improving the work of labor market are called '*active labor market policies*' (ALMP) as opposed to income-supporting transfers (unemployment benefits and social assistance) called '*passive labor market policies*'. Among the ALMPs recommended by the OECD are: 1) public employment services (job-search assistance); 2) labor market training and retraining; 3) subsidized employment; 4) public sector employment (public works); 5) loans or grants to support business start-up and self-employment; 6) youth measures; 7) measures for disabled.[1] Most countries use these policies to increase human capital and productivity of the unemployed (with further training/retraining, and sometimes with temporary works), to integrate marginal groups into the labor market (with retraining, public works and subsidies, measures for youth and disabled), to improve matching of workers' skills with available vacancies (with job-search assistance and retraining, and with subsidized employment in the short run), to reduce regional mismatch (with further training, retraining and subsidies in conjunction with mobility grants), and to increase the demand for labor (with subsidized or public sector employment and business start-up schemes). The basic rationale for these policies is that helping the unemployed to become competitive in the labor market is preferable to providing them only with income support. If the government is committed to support the living standards of the unemployed, this social insurance by the government can take the form of provision of temporary public works, training placements, interest-free loans, paying a wage in conjunction with cash unemployment benefits.[2] Moreover, high unemployment benefits are often associated with disincentives for unemployed to seek work or to acquire new demanded skills, while active labor market policies can successfully assist job search and skill acquisition and overcome the moral hazard problems of unemployment benefits. Despite strong positive characteristics of ALMP there are some theoretical reasons for being wary

[1] The names of listed ALMP programs may vary from country to country (i.e. there is no requirement to follow strictly listed names), but their basic meaning is unchanged.
[2] More details on social insurance function of labor market policies can be found in Jackman (1995a).

of their effect on unemployment. Firstly, in the case of using labor market policies workers are less concerned with the possibility of being laid off and of spending time as job searchers due to social insurance function of these policies. This leads to more aggressive wage bargaining on the part of workers and may actually increase unemployment. A second reason for being cautious about using labor market policies is distortive effects peculiar to some active labor market policies such as *deadweight losses* (many of those for whom active policy is provided would have been hired anyway), *substitution effect* (some of those hired after participation in active policy replace those already employed or other unemployed whom the firm would have hired instead), *displacement effect* (assuming limited demand, increase in number of jobs in one firm as a result of active policy may be at the expense of jobs in other firms), and *fiscal substitution effect* (spending on active policy replaces spending on creation of new jobs out of labor market policies).[3]

Assessing the role of ALMP in OECD countries, Jackman (1995a) argues that in the absence of active policies the combination of more rapid structural change and availability of generous cash transfers can be expected to lead to a continuing growth in long-term unemployment, while the extensive use of active policies is usually associated with lower open unemployment rates. Although unemployment benefits remain 'the first line of defense' the author stresses on fuller and more effective use of ALMP since the latter encourage mobility and may maintain social protection as well as passive cash benefits. Resting on empirical evidence from different OECD countries he also points out that even when active policies don't have much of return to individuals participating in these schemes, they may have substantial social return in preventing the emergence of long-term unemployment. Thus Jackman's study has corroborated the theoretical proposals as to the positive effect of active policies suggested by Layard et al (1991). In both researches, the authors came to very important and obvious

[3] For further detail about these effects see Layard et al (1991), chapter 10.

conclusion, which should be taken into account by policymakers, that in the case of rising long-term unemployment it is more effective to apply carefully targeted active labor market policies before its commencement than after its spread, that is 'its prevention is better than cure'.

Therefore, because of significant effect of ALMP in the case of structural imbalance and long-term unemployment the use of these policies as a means of combating unemployment has gained popularity with governments of OECD countries. And now the most interesting question for us is whether such successful policies in combating structural unemployment in OECD countries have the same functions and effects in transition countries suffering in the early period from demand-deficient unemployment. Misconception about the character of unemployment in transition economies at the beginning of economic transformation caused the main emphasis to be placed on traditional labor market policies which seemed to be effective in the case of structural unemployment. It was believed that if these policies were designed on the experience of industrialized OECD countries, they could be the only remedy for all emerged problems of the labor market. Practically inefficient by nature labor market policies and the lack of experience of the employment office staff accompanied by low demand for labor in this period resulted in increasing unemployment and long-term unemployment. The crucial issue on the role of ALMP in transition countries, highlighted by Lehmann (1998) and Nesporova (1999) among others, is that active labor market policies in themselves cannot significantly reduce unemployment and increase employment and that only well-balanced approach of policies in a number of areas (especially macroeconomic policies) can lead to considerably improved labor market outcomes. Nevertheless, due to practically unchanged functions of ALMP discussed for OECD countries, these policies can play an important role in relieving social tensions in the labor market and alleviating poverty associated with unemployment. Although transition countries have implemented a wide range of ALMP with emphasis on individual policy

varying from country to country, the 'true' impact of these policies has often understated expectations due to lack of funding, poor targeting, and due to failure in design of optimal mix of policies especially with regard to local needs. Thus one important conclusion should be highlighted for all transition countries: since labor market policies can be very expensive, it is better for state authorities to concentrate on some policy measures that are more likely to be effective within their country instead of precise following the OECD approach and offering a variety of world-wide labor market policies.

Trying to find out the balance between active and passive labor market policies in order to minimize social and fiscal costs (taking into account higher administrative costs of active policies but faster rise in spending in passive policies because of increasing stock of unemployed) and maximize their benefits for society and individual unemployed, policymakers and researchers make evaluations of these policies and then restructure the policy package in favor of programs which are more effective. Methodological aspect of these evaluations is the subject of the next section.

1.3. EVALUATION OF ALMP IN OECD AND TRANSITION COUNTRIES

According to Lehmann (1998) the most common questions asked by researches in evaluations as to the effectiveness of ALMP programs are the following:

"1) Did the schemes target the groups identified as those having problems leaving unemployment? 2) Did participation in a scheme enhance individuals' productivity, expressed in higher wages? 3) Did the measure increase the average re-employment probability of participants? 4) Have distortive effects been minimized?"

To answer these questions economists usually employ two types of studies: microeconomic and macroeconomic.[4] Microeconomic evaluations are concerned with the effects of active programs on individuals, comparing labor market outcomes (e.g. earnings and employment prospects) of those participating in a particular program with non-participants with similar characteristics.[5] This type of research uses micro data allowing for observable differences between people like age, sex, education, family status, etc., but not adjusting for unobservable characteristics like motivation, attitude to work, personality and others, which also may be relevant to individual's labor market outcomes (so-called 'unobservable heterogeneity'). These studies are often criticized on the ground that they can misrepresent the true impact of ALMP on participants due to unobservable heterogeneity; that most studies in OECD countries, according to Layard et al (1991), have concentrated on the effect on earnings rather than employment prospects; that these studies need complicated data sets containing information about the personal characteristics of the unemployed person and complete individual employment/unemployment history, and including a large number of participants of various ALMP schemes, which are not always readily available; and that such micro studies are subject to selection bias because of sampled data. Nevertheless, microeconomic evaluations have showed many important results, especially relating to the targeting issue addressed in the first question. The commonly used estimation techniques for micro evaluation are proportional hazard rate models or multinomial probit and logit models.

Macroeconomic evaluation is more aggregative approach: it measures the overall effects of labor market policies on unemployment or earnings in the economy as a whole. The rationale for this type of evaluation versus microeconomic evaluation is that positive microeconomic result of a program (e.g. improved re-employment prospects of an individual

[4] According to Lehmann (1998) and Jackman (1995a) the fourth issue of effectiveness of ALMP can be evaluated solidly only by means of macroeconomic general equilibrium model of particular country.

[5] Microeconomic evaluation approach can be applied also to the estimation of disincentive effects of unemployment benefits. For transition countries this approach is used by Lubyova, Van Ours (1997) for the Slovack Republic and by Micklewright, Nagy (1996) for Hungary.

participant) does not necessarily lead to positive macroeconomic result (e.g. reduction of unemployment in the economy) due to substitution or displacement effects. Moreover, macroeconomic evaluations usually use administrative aggregate data and thus do not suffer from problems of micro data discussed above. Measuring the effectiveness of ALMP macro evaluation mainly tries to answer the third question (see above) whether increased ALMP measure (usually, expenditures on ALMP or number of participants) reduces unemployment through increased re-employment probabilities of participants. Although there were suggested, estimated and then criticized on the ground of spurious correlation some empirical models examining the effects of active policies precisely on unemployment rate (e.g. Layard et al, 1990), the most common approach is the examining the impact of ALMP on the outflows from unemployment to jobs using the notion of the Beveridge curve (unemployment-vacancy relationship) and of the matching function. This approach will be fully described in chapter 3, since it will be used for evaluation of ALMP in Ukraine.

The review of numerous evaluation studies of labor market policies in OECD countries is beyond the scope of this paper. What is indeed worth noting in this section is the relevance of above questions about the effectiveness of ALMP and possible problems of their evaluations in transition countries. It is evident, that since ALMP in some sense are relevant for transition countries, all questions with regard to their effectiveness remain valid. It's quite another matter that the answers to these questions may differ from those in OECD countries because of some specific features of labor markets in transition countries.

As regards the first question, as simple surveys of labor market policies or empirical evidence from micro evaluation have showed, far from all labor market policies are aimed at problem groups. In one of such micro evaluation of ALMP in Hungary, Micklewright and Nagy (1996) show that training policy is concentrated on those unemployed who have the least

difficulty in finding job anyway (young and well educated people).[6] They agree that such targeting of training may maximize the number of new matches after the completion of training courses, but this approach does not help to reduce long-term unemployment. Also the estimates of hazards show that less educated unemployed are more likely to exit to public works (this negative relationship between education and exit rate may be attributed to the type of public works (mainly, low skilled) or to its targeting on problem group) and that age is not significant factor in this case; that there is positive relationship between education and the probability of entering subsidized self-employment; and that probability of entering to subsidized employment does not differ significantly across education and age.

Understanding that low outflows from unemployment, particularly very low outflows from unemployment to employment, may be a matter of difficulty in reducing a rise of unemployment, transition countries stated promoting unemployment outflows as an objective for implementing employment policies. Therefore, one of the main questions for all research studies of labor market policies in transition countries (macro and micro) has became the effect of ALMP on re-employment probability of participants and thus on unemployment outflows to job (that is the third question). Below we review results of some recent papers on the effectiveness of ALMP presented at the symposium 'Unemployment and Labor Market Policies in Transition Countries'. Although discussed papers refer to microeconomic evaluations of ALMP, i.e. they use estimation technique that differs from macroeconomic matching approach applied in this paper, their results are of interest for us since they show advantages or disadvantages of participation in ALMP program at the individual level.

Lybyova and Van Ours (1999) focus on the Slovak labor market and examine the effects of three ALMP such as two job creation programs (socially purposeful jobs (i.e. subsidized employment and interest-free loans

[6] Targeting of training on better educated and younger people (so-called 'creaming') is particular to all transition countries characterized by a relatively large stock of human capital among unemployed.

for self-employment) and publicly useful jobs (i.e. public works)) and retraining of unemployed on exits from unemployment to a regular job. The authors estimated several statistical models to allow for unobserved heterogeneity to affect the transitions to a job and to ALMP-programs and to make sensitivity analysis. Accounting for selectivity in the inflow to ALMP Lubyova and Van Ours have found that participation in ALMP-measures raises the exit rate to a regular jobs by 150%, that is workers benefit from entering the programs. They also have shown that while the effect of retraining and publicly useful jobs is positive, the treatment effect of socially purposeful jobs is negative, meaning that in the absence of the program unemployed worker have a higher exit rate to a job. Additionally, the authors have established that younger, married, unemployed males and unemployed living in low unemployment districts have significantly higher exit rates than their counterparts. Finally, the authors come to conclusion that 'the jobs created by active policies in the Slovak Republic may serve as complementary to the regular labor market rather than compensation for bad labor market characteristics (female, old or lower educated), since the workers with a better position in finding regular jobs have better position in finding publicly useful or socially purposeful jobs'.

Kluve, Lehmann, and Schmidt (1999) estimated the effects of three ALMP in Poland (training/retraining, intervention works (i.e. subsidized employment), and direct public employment (i.e. public works)) using innovative approach 'difference-in-difference matching estimator of treatment effect with a moving window' and minimizing bias due to unobserved heterogeneity and selection bias. Their main findings are that participation in training and retraining of men and women raises the chance of an unemployed to find a job, while intervention and public works have negative treatment effects for men and no any treatment effect for women (i.e. participation in intervention and public works decreases men's re-employment probabilities and does not affect women's). Based on evidence from Polish employment offices the authors have attributed these negative

treatment effects for men to benefit churning (namely, placement of the unemployed, often long-term unemployed, in these programs so that they may requalify for benefit payment) rather than to stigmatization of public and intervention work participants.

Vodopivec (1999) analyzes the effect of public works in Slovenia. In contrast to the negative effect of public works established in Poland Slovenian micro data have shown that participation in public works, on average, raises the probability of finding a job at least just after the completion of a public works scheme. The author stresses that in Slovenia public works are provided not only for unskilled workers like in most countries, but also for educated skilled workers, and it may be the possible explanation to the positive effect of public works.

Thus microeconomic evaluations of ALMP in selected transition countries have showed positive effect of active policies (on average) on re-employment probabilities of participants, with effect of individual programs varying from country to country. Running a few steps forward (results of macroeconomic evaluations in transition countries will be described in section 3.2) we may conclude that according to macro evaluations ALMPs also have significant and positive effect on the outflows from unemployment to jobs through improved re-employment prospects in the Czech Republic, Bulgaria, Poland, and the Slovak Republic. These results on the role of ALMP in transition countries allow us to argue that despite the fact that even under the best circumstances active policies tend to play a minor role in reducing cyclical unemployment there is a strong theoretical and empirically confirmed rationale for their more extensive and more effective use as one of a means of combating unemployment in these transition countries. In the rest of the paper we will try to determine the role of ALMP in Ukraine, moving from evidence based on simple facts of the labor market developments to results from the empirical estimation. Since Ukraine is one of transition countries we suppose (before our research) that functions of various ALMP schemes, mistakes in their implementation, and

the effect on unemployment in Ukraine are mainly similar to those in other transition countries.

Chapter 2

LABOR MARKET DEVELOPMENTS IN UKRAINE

Since Ukraine was a part of Soviet Union throughout the latter's existence, the Ukrainian labor market has many features common to former command economies of CEE countries and Soviet republics. In the command economy there was no market discipline at all, and thus there didn't exist a labor market as a market structure, especially in FSU republics because of propiska system. The embryonic labor market in Ukraine emerged in the late 1950s, after the introduction of passports for farmers (who had previously not been allowed to leave villages without permissions) and abolition of the prohibition on workers to quit their jobs, but the directive character of so-called labor market persisted until the late 1980s. Full employment was an obligation for the population and the state administration from the ideological point of communism. Labor departments of local authorities were responsible to ensure that all working age citizens were employed or had an administratively acceptable reason for not being in employment. As a result of such government policy many investments were devoted to the creation of new jobs, regardless of the economic value of the jobs being created and non-effectiveness of using labor inputs by many enterprises. Wage, educational and social policies were set to preserve a stable labor force. Thus, since the late 50s, labor hoarding accompanied by unsatisfied labor demand (because of a great number of created jobs) has prevented any manifestation of open unemployment in Ukraine and other republics of the USSR. But with the break-up of the highly integrated economy of the FSU, disruption of production and trade links, abrupt price liberalization, sharp currency devaluation, privatization of state-owned enterprises, reduction of subsidies to enterprises, and collapse in output since the late 80s, the illusion of full employment disappeared and reforming the labor market became inevitable

in Ukraine. On the path to a reformed labor market structure Ukraine substantially amended existing labor legislation, adopted new laws and designed employment policies and programs. Below we focus on the Law on Employment of the Population and Employment Programs since these are the main documents used by the National Employment Centre and its local subsidiaries.

2.1. THE LAW ON EMPLOYMENT OF THE POPULATION AND EMPLOYMENT PROGRAMS

The Ukrainian labor market since independence has been taking the shape under the influence of the Law on Employment that came into effect in 1991 and then was changed slightly during 8 years. This law, amended Labor Code and laws on social security, established a legal framework for the Ukrainian labor market. As in all advanced industrialized economies, 'such labor market institutions eliminate fundamental kind of uncertainty and establish a minimal environment for individual or collective labor agreements' (Commander, 1994).

The Law on Employment stipulates the voluntary character of economic activity and put all types of activity, including entrepreneurial and self-employment, on the same legal level. It bans all forms of work enforcement and stipulates that unemployment can not be the subject of administrative or criminal punishment (Article1, para 2). By the Law the unemployed are working-age, able-bodied persons, which are out of employment for reasons that do not depend on them, because of absence of a suitable work, are registered at a local employment exchange, are looking for paid employment, and are ready to start employment within two weeks (Article 2). The unemployed status is denied to persons under sixteen (with exception of those who worked and were laid off), to job seekers without work experience and without profession if they refused an offer of vocational training or a job, and to persons that have the right to pension according to the legislation. If a registered unemployed person refuses to accept two vacancies considered as

suitable by the local employment centre then unemployment status should be postponed for three months. Under the Law, unemployment status establishes eligibility to unemployment benefits or free training with stipend during it. The law guarantees free assistance in jobseeking from the employment center for all able-bodied working-age job seekers.

Part II of the Employment Law specifies the rights of citizens on job placement without or with free assistance of the National Employment Service (NES), on free training, retraining and vocational consultation, on professional activity abroad, on social protection within the scope of employment. Part III of this Law specifies ways of regulating and stimulating employment, tasks and responsibilities of the NES, which is supervised by the Ministry of Labor and regional authorities, and the ways of financing all employment policies. The state employment policy is expected to promote employment and combat unemployment. For that the government envisages measures of investment and tax policies, stimulating mobility of labor, entrepreneurship, creation of small businesses, in order to preserve and develop the system of jobs. By the Law (Article 14) central and regional authorities are obliged to prepare annual and long-term national and regional employment programs for the purpose of promoting economic development and restructuring, preventing long-term and large-scale unemployment, improving the system of labor force reproduction accompanied by job creation, training and retraining, and providing social protection for the unemployed and their families.

As part of the national employment program several types of active labor market policies provided by the NEC are envisaged by the Law:

- (Vocational) training and retraining of registered unemployed and laid-off people seeking for a job, if they cannot obtain a suitable job because of absence of the necessary qualifications, or if it is needed to change their qualification because they are unlikely to find a job matching with their skills, or if they are not able to use their skills (previous qualification) in a job. Training and retraining is organized by the NES by conducting contracts with

educational institutions, enterprises and organizations or creating special educational centres at the expense of the Employment Fund (Article 24).

- Public works, organized by regional or local authorities, in cooperation with the National Employment Service, for providing temporary employment of the population (duration of one job is two months), especially of the registered unemployed. The local employment centre concludes contracts with enterprises and organizations under condition that enterprises and regional authorities have to finance them, as the Employment Fund covers only organizational costs for unemployed (if the enterprise has no money, wages for workers are partially or fully financed also from the Employment Fund).[7] The organizers of public works conclude a temporary labor contract with persons accepting public works offer, with a possibility of extending it until placement of persons in a regular job. In that work persons cannot be remunerated below the minimum wage, the unemployed retains entitlement to unemployment benefits, and other persons retain social maintenance like pension or assistance for disabled. In the case of long-term unemployment (after termination of unemployment benefits), the person has priority of participation in retraining or remunerative public works (Article 23).
- Supplementary guarantees of employment for most vulnerable groups in the labor market including women with children under the age of 6; single mothers with children under the age 14 or disabled chidren; children-orphans; school leavers (secondary and vocational) who have not been placed in jobs and other young people below 21; workers within two years of retirement; people released from prison or involuntary treatment; men discharged from the national military service (but not disabled persons). According to the Law, local authorities are requested to keep 5% of all jobs in organizations and enterprises for these groups of people (so-called 5% quota) (Article 5).
- Interest-free loans, provided to those unemployed starting their own business (Article 22).

[7] Organizational costs include transportation, purchase of the necessary inventory, etc.

- Subsidized job creation. Enterprises and organizations creating additional regular jobs, jobs for public works scheme, or jobs for vulnerable groups above the 5% quota, are entitled to partial or full compensation of costs in the form of privileged (reduced) taxes or other payments into the state budget (Article 22, 20).

The costs of all labor market policies and financial costs of the local, regional and national employment centres are covered by the National Employment Fund which is financed from 1996 from the state budget and 2% contributions from the enterprise wage fund.[8]

The final part of the Law is devoted to compensation payments for those who lose jobs such as severance pay, stipends during training or retraining period, unemployment benefits, and dependants' allowances for the family of unemployed (so-called passive active labor market policies). The unemployment benefit is paid from the eighth day after the date of registration. Citizens are entitled to unemployment benefits if they have unemployment status, and don't have any other income exceeding the minimum wage. Duration of unemployment benefits is limited to 360 days during two years for the majority of the unemployed, to 720 days for people of pre-retirement age, and to 180 days for people firstly seeking for a job or for people willing to recommence working activity after a long (more than six months) break. To remain in the register and to receive unemployment benefits without delays an unemployed must report to the local employment centre once a month, promote self-employment according to recommendations given by the officials of the NES, not to refuse a job offer with new qualifications after retraining, and not to leave training/retraining courses without valid reason. If the person has been working for at least 26 weeks during 12 months before the unemployment period, is registered on general conditions and is entitled to unemployment benefits, the size of his unemployment benefit should be no less than 50% of his average wage at the

[8] In the original Law on Employment the national employment fund was established as extra-budgetary independent financial system. In 1996 it was included into the state budget on the advice of the IMF, which resulted in a sharp decline and even gaps in expenditures on labor market policies.

previous work, but no more than the average wage at the region for the previous month and no less than the minimum wage. If the worker was redundant due to changes in production or labor organization, registered as seeking for a job during 7 days after redundancy and then registered as unemployed if a suitable job was not offered, he is entitled to unemployment benefit of complicated and privileged structure: 100% of the average wage at the previous work during 60 days, 75% during 90 days, and 50% during 210 days, but as above its size is limited by the average wage at the region and the minimum wage. If the worker has less than one and a half years until legal retirement age, he may be provided with a regular pension instead of unemployment benefits at the expense of the national employment fund. Other unemployed persons are entitled to unemployment benefit of no less than the minimum wage. If unemployed workers attend training or retraining courses, they are eligible for a stipend at the level of 75% of their previous wage, or at the level of unemployment benefit provided for certain groups of unemployed trainees like school leavers, university graduates, etc. without work experience during last months.

Carrying out the Law (article 14), Ukrainian labor market institutions (the Ministry of Labor and the network of employment centres) in collaboration with the state and local authorities have developed national and regional employment programs from 1992 to 1996 annually, and then the long-term national employment program for 1997-2000 (regional programs are always annual). The goals and measures of the National Programs were established on the basis of the forecasted labor market balance, development objective of branch ministries, and annual regional employment programs, adjusted with the economic and financial constraints, taking into account the consequences of reforms at the macroeconomic level. There are usually presented several scenarios of future labor market developments, and then on the basis of these scenarios labor market policies are designed to achieve established goals of the programs. After careful prediction of the number of participants at the various passive and active labor market measures during the next year,

thorough calculation of all expenses at the local level connected with them like organizational costs for public works, stipends and equipment of classes for trainees, unemployment benefits, or operational costs of employment centres, all these numbers are summarized and balanced in the centre. Local and regional employment centers are obliged to develop and deliver regional employment programs on the next year by the end of September of the current year. After adoption of the state budget and then, correspondingly to its size, of the budget of the National Employment Fund on the next year (may be, being already the current year), the central office of the NES distributes balanced demanded expenditures to the regional employment centres. This means that quarterly expenditures on labor market policies at the regional level are predetermined in the budget of the National Employment Fund at the beginning of the year, and thus quarterly cash expenditures do not depend on sudden inflow into unemployment or outflow into ordinary jobs during the quarter.

But there are some problems with realization of such programs. The first is that developments in the labor market may be unlike the Program's forecasts. The second is that forecasted job creation, public works and training placements are constrained by very modest resources available for local and regional employment centres. The final and most important reason is that regional employment programs are passive in their goals in respect of economic development and employment restructuring. Moreover, regional programs are aggregated in the centre with small corrections regarding demographic and regional labor market mismatch. In such situation in the labor market and in the whole economy, as we have already mentioned above, labor market policies even active can have only minor effects on employment.

At the next sections we review dynamics of the labor market in Ukraine during its independence, being familiar with its legal framework from this section.

2.2. DYNAMICS AND CHARACTERISTICS OF UNEMPLOYMENT

Ukraine started to experience unemployment in 1992 as many transition countries after the introduction of economic reforms. But while in CEE countries unemployment rates reached more than 10% during the first years of economic transformation, Ukraine recorded very slow growth in unemployment: registered unemployment rate was smaller than 1% up to September 1996, and the maximum registered unemployment rate during independence of Ukraine reached 4.5% (1229437 persons) in the first quarter of the current year (Table 1).

Table 1. Quarterly dynamics of registered unemployment rate in Ukraine (% of able-bodied working-age population)

Year	Q1	Q2	Q3	Q4
1992	0.09	0.13	0.22	0.25
1993	0.28	0.26	0.28	0.30
1994	0.35	0.33	0.32	0.29
1995	0.30	0.30	0.35	0.46
1996	0.72	0.80	0.93	1.27
1997	1.70	1.90	2.11	2.33
1998	2.77	2.91	3.18	3.69
1999	4.04	3.98	4.12	4.30
2000	4.50			

Source: National Employment Centre

The main explanations to such a low unemployment rate, not corresponding to a huge decline in output and hyperinflation during the first years of independence, are hidden unemployment and statistical-administrative procedures leading to a chronic understatement of 'true' unemployment. First of all, due to very low unemployment benefit and numerous requirements to be eligible to it according to the Law on Employment, many job seekers do not turn to the employment centre for assistance, and thus they are out of the register, but still unemployed. May be because of low unemployment benefits, workers at the declining formal sector prefer to accept much lower real wages or no wage at all (wage arrears), be on partially paid or unpaid administrative leaves, or to work shorter hours rather than lose their jobs. Many of such workers gain income in the informal

sector of the economy, while formally they are regarded as employed part of the labor force. From an employer's standpoint, keeping such workers means not having to dole out severance pay. The latter factors have led to emergence and aggravation of hidden unemployment, naturally omitted by the registered measure of open unemployment. Other reasons of statistical understatement of actual unemployment arise directly from the definition of unemployed and the rules of registration under the Law on Employment: persons turned to the centre gain unemployment status only from the 8th day from his registration; disabled persons and persons aged 60 or more for men and 55 or more for women are not counted as unemployed; to be registered at the employment centre as unemployed, a person must have many documents including work history book and a residence permit ('propiska'). Consequently, there are many more people who should be counted as unemployed but they do not meet the specified conditions.

To overcome these difficulties and to create a measure of unemployment that allow comparing it with international standards, from 1995 Labor Force Surveys have been conducting in Ukraine. For calculating unemployment rate the LFS uses the ILO definition of unemployed persons aged from 15-70: a person is considered unemployed if he is jobless, actively looking for a job and ready to start it within two weeks (*Rynok pratsy Ukraiyny v 1998 rotsi*, 1999). The unemployed under LFS methodology include also the following groups of persons: if they are registered in the NES as seeking for a job; if they participate in the training program organized by the NES; if they have found job and are waiting for a call. Figure A1 (see Appendix) shows dynamics of two official measures of unemployment (according to the register of the NES and according to the LFS data) used for the analysis of the labor market in Ukraine since 1995 [9]. From this figure we can see that there is a tendency toward reduction of the difference between the LFS and registered unemployment rates from 11 times in 1995 to 2.5 times in the third quarter of

[9] We use all available data on the LFS conducted in the fall of the each year from 1995 to 1998 annually, and in 1999 quarterly.

1999 and to 3 times at the fourth quarter of 1999. This fact enables us to note that with time the registered level of unemployment slightly approaches the real situation at the labor market, but there is still very large discrepancy between these measures. It is interesting that both measures show increasing unemployment level from 1995 to 1999:I. Then the LFS unemployment rate declines by 3 points in the second quarter and by 0.7 points in the third quarter but increases by 2.6 points in the fourth quarter, while the registered unemployment rate also slightly (by 0.06 points) falls in the second quarter but then rises gradually to the level greater by 0.26 points than in the first quarter. So, regardless the measure of the unemployment level, Ukraine experiences rising (and very high according to the LFS) level of unemployment, meaning that this is a time to the government to worry about providing appropriate macroeconomic and labor market policies to combat it in time.

Analyzing available recent information from the LFS (September and December, 1999) and from the National Employment Centre (March, 2000) we survey now some characteristics of unemployment in Ukraine.

Labor market states. According to the LFSs in March, June, September and December (1999) labor force (economically active population) has increased from 61.8% of population aged from 15 to 70 in March to 62.2% in June and to 62.8% in September, but then has declined slightly to 62% (or 22651100 persons) in December. Moreover, with increase of labor force number of unemployed has decreased from 3154800 persons (8.6% of all 15-70 aged population) in March to 2363700 persons (6.4% of all 15-70 aged population) in September, that is number of employed people has increased during the first three quarters of 1999. The increase of employment is explained by self-employment (number of self-employed has increased by 321500 persons or 16.6% from June to September) and stirring up of the private sector (number of employed at the private sector has increased by 188300 persons or 12.8%). At the same time number of employed at the state enterprises decreased by

156600 workers. The highest level of employment as to age composition is 81.3% for men and 78.1% for women aged from 40 to 49.

Reasons of unemployment. The main reasons of unemployment according to the answers of respondents of the LFS (September, 1999) are: release because of restructuring, liquidation or conversion of the production and staff reduction (39.1% of unemployed), voluntary job separation (28.1%), impossibility to find a job after finishing secondary or vocational schools or graduating from universities and institutes (19.5 %).

Regional dimension of unemployment. There are high and increasing regional disparities in unemployment. The lowest registered unemployment rate tends to be in big cities like Kyiv (0.92%) and Odessa, eastern and southern regions (Odessa oblast – 1.03%, Crimean Republic – 2.81%, Zaporizhie oblast – 3.53%, and the other oblasts of Southern and Eastern Ukraine – up to 4%). The relatively low level of unemployment in the eastern part may be attributed to benefits of these oblasts from cooperation and trade contracts with neighboring Russia (including official and non-official employment of Ukrainians in Russia) and to a more diversified industrial economy. Similarly, southern regions use its proximity to the Black Sea to generate jobs in trade, transport, tourism and recreation. In contrast, rural and monostructural regions where the main industry is suffering from economic recession, and regions with little potential for economic development because of poor infrastructure, low educational level of human resources, and a poor experience with private enterprises are hardest hit by unemployment. Such regions in Ukraine are located primarily in its western and northern part. The registered unemployment rates in these oblasts are the following: Chernigiv – 8.09%, Zhitomir – 7.78%, Rivne – 7.47%, Lviv - 7,41%, Volyn – 7.15 %, Ternopil – 6.82%, Transcarpatian – 6.41%, and Ivano-Frankivsk – 6.12%. Moreover, there are some local employment centres where the registered unemployment rate accelerated to 14-20%. The problem of regional disparities in Ukraine is aggravated by very low territorial mobility due to propiska, high housing prices, especially in the regions with more possibilities

for employment and earning high income, shrinking transport connections and increasing fares. Thus because of these barriers to regional mobility, active labor market policies such as training or retraining of unemployed in high unemployment regions which could help to solve regional mismatch in the case of providing mobility grants to trained unemployed (experience from advanced countries like the US), turned out to be ineffective in Ukraine. Creation of new jobs through subsidized employment (so-called additional jobs) and interest-free loans for unemployed to start-up business in regions with high unemployment as another possibility to solve regional mismatch is also almost excluded due to a lack of resources in the national employment fund.

Duration of unemployment. The LFSs and registered data on flows into and out of unemployment show that Ukrainian labor market can be characterized by low turnover in unemployment (e.g. during the fourth quarter of 1999 there were 298271 new registrants (i.e. inflows into registered unemployment) and 77396 outflows to jobs versus the stock of unemployed of 1174542 at the end of 1999), and as a result by increasing long-term unemployment. Although as above the registered data understates the real situation and the LFS data may overstate it, there is an overt evidence of increasing average duration of unemployment and increasing number of long-term unemployed. So according to the LFSs average duration of unemployment has increased from 17 months in March 1999 to 19 months in September, and the number of long-term unemployed (for more than one year) increased from 52.2% of all unemployed in March to 58.4% in September. At the same time average duration of the registered unemployment has increased from 9.9 months in 1998 to 11.4 months in 1999. And although the number of registered long-term unemployed as a percentage of all unemployed increases constantly over the years, it constitutes only (compared to the LFS's number) 37.1 % of all unemployed in 1999. Obviously, average duration and number of long-term unemployed is larger in the regions hardest hit by unemployment. Women and urban population tend to suffer more from long-term unemployment

than men and rural population. As we know the long-term unemployment has reduced the average search effectiveness of the unemployed since it may make skills of the unemployed obsolete with time and thus it may serve as a bad signal for employers, and put large human costs on the long-term unemployed because of stigma and demoralization. In such situation there is a rationale for providing temporary jobs which could serve as an income-transfer instrument and intermediate link between unemployment and regular job.

Recipients of unemployment benefits. At the end of March 2000 52% of registered unemployed (637584 persons) were eligible for unemployment benefits. Average monthly unemployment benefit in March 2000 amounted to 51.6 UHA (or about 9.4$). Figure A2 (see Appendix) gives dynamics of unemployment benefit recipients as a percentage of all unemployed from 1996:I to 2000:I. Fluctuating between 57% and 66% during 1996 and 1997, it reached the local peak of 65.4% at 1998:I and then showed a steady decline. This decline may be due to the spread of long-term unemployment and failure or even unwillingness by unemployed to meet all specified requirements to be unemployment benefit recipient. From our standpoint downward trend of the percentage of benefit recipients may be interpreted in two ways. On the one hand, due to decreasing percentage of benefit recipients one would expect that more resources could be turned to active labor market measures. But on the other hand, absolute number (stock) of benefit recipients rises simultaneously with increasing stocks of unemployed, "crowding out" resources for ALMP.

Gender composition of unemployment. It is worth noting that there is unclear picture of gender composition of unemployed in Ukraine. According to the registered data women experience higher unemployment than men in all regions and all times (1992-2000). For example, 61.3% of all registered stock of unemployed in March 2000 were women, and the registered unemployment rate for women and men was correspondingly 5.69 and 3.39. But according to the LFS data in December 1999 there were 53.4 % of men

among unemployed and the rest were women, and the rate of unemployment for men was even slightly larger than for women during all quarters of 1999 (e.g. it was 13.8% and 13.3% correspondingly for men and women of working age in December). This discrepancy may be explained by the fact that most workers of the contracting state sector becoming unemployed are women. Also women more often prefer withdrawal from the labor market to unemployment and register at the employment centre since they rely more on unemployment benefits and job-search assistance from the employment service than men who opt for other channels in job search and income (often in the informal economy). This can be also attributed to low employment of women in the private sector because of increasing discrimination against them, and privileges of men as to job-assistance from the employment centre (centres might tend to place men first since men may be seen as the main bread-winner in the family), that is women tend to have relatively low outflows from the register. To combat discrimination against women with children under the age of 6 and single mothers with children under the age of 14, these groups of women are subject to so-called 5% quota under the Law on Employment (Article 5). Such active labor market policies as job brokerage, retraining (in the case of skill mismatch), public works and subsidized jobs may be effective for other unemployed women, as well as for unemployed men.

Age composition of unemployment. According to the registered data in March 2000 youth of age up to 28 have constituted the largest age group of unemployed (369928 persons) with its share of 30.1 % of all unemployed. Although the share of youth unemployment is still very large, there is a positive tendency of its slightly declining from 39.8% in 1994:I to 30.1% in 2000:I with some variation during the year. Regional shares of youth unemployment vary from 24.6% in Kyiv to 35.2% in Zhitomir oblast. The same conclusions about very high youth unemployment can be drawn from the LFS data in September 2000 (see Appendix, Figure A3). According to the Law on Employment young persons below 21 are subject to 5% quota 'active'

measure already discussed above. As other registered unemployed and seeking for a job people they may participate in labor market programs discussed in the next section.

Structure of unemployed and registered vacancies by occupation. Beginning from the end of 1994 when the share of unemployed blue-collar workers in unemployment exceeded (in contrast to the previous period) the share of white-collar workers (49.3% and 46.9% respectively) the difference between them increased in favor of white-collar workers throughout the period (53.4% and 31.5% respectively in 2000:I). That means that the demand for skilled labor has recovered as restructuring and privatization has accelerated the pace. However, employment prospects of white-collar released workers are unfavorable, judging from the structure of vacancies. Although the share of all registered vacancies for white-collar workers increased from 16.9% in 1994 to 27.2% in 1998 and then slightly fell to 25.2% in 1999, it is still at very low level compared to 68.2% of vacancies for blue-collar workers (in 1999). Among white-collar vacancies the highest share was comprised by vacancies for professionals with full higher education (graduates) or with academic degree (9.7% of all vacancies), the second highest rate was for specialists (9.4%), and the rest was for state employees and managers (5.1%) and for technical employees (1%). Among blue-collar vacancies the highest numbers of vacancies were for skilled workers operating with instruments (36.6% of all vacancies), and for operators and assemblers of equipment (25.8%), and the lowest share of vacancies was for skilled workers of agriculture, forestry and fish industry (1.6%). Only 6.6% of all registered vacancies were assigned for persons without profession.[10] Analysis of data on occupational structure of registered unemployed (including not only persons with unemployment status) and number of vacancies leads us to inference that in average persons without occupation have the lowest employment prospects of three occupational subdivisions, since there are 54 unemployed workers without

[10] In Ukrainian labor market all persons are divided into employees (white-collar workers), workers (blue-collar workers), and persons without profession.

profession per one available vacancy. At the same time, number of unemployed per one available vacancy is equal to 30 for employees and to 18 for blue-collar workers. Among particular occupations the highest ratios of registered unemployed to registered vacancies were for technical employees (125 persons/vacancy), for workers of trade and service sectors (70persons/vacancy), and for specialists (34 persons/vacancy). Comparing unemployed/vacancy ratios in 1998 and 1999 we have noted that it has declined on average and for every occupation separately due to increased number of vacancies, meaning a positive shift in re-employment probabilities of the unemployed. But there is still very high mismatch between registered unemployed and available vacancies for employees and for low-skilled workers, as a result of which these groups of unemployed comprise only 24.1% and 16.2% of the total number of job placements by the employment service correspondingly, that is they really have poor re-employment probabilities. This problem of low re-employment prospects may be attributed not only to the common problem of a lack of available vacancies especially in the more flexible private sector, but also to widespread skill mismatch in the Ukrainian labor market. On the one hand, many skills have become obsolete due to changes in technologies, production structures and forms of work organization, and in this case workers with obsolete skills or without special occupation need to be retrained, that is there is the strong rationale for providing carefully designed training or retraining courses for such unemployed. But on the other hand, national education and training systems in Ukraine provide very narrow specializations often characterized by poor quality, and do not correspond to the changing labor market demand for skills. As a consequence, oversupply of not required by the economy skilled specialists (i.e. skill mismatch) might be one of the reasons of high youth unemployment particularly after graduating from universities, secondary and vocational schools. In this case of skill mismatch, ex ante suggested policy might be only considerable reforms of national education system directed towards flexible adjustment to the demand for skills on the labor market, to

improvement in the general quality of education, and to replacing over-specialized curricula with a more balanced educational model. Ex post policy might be labor market training and retraining programs applied by employment centres, but also after significant reforming of training system taking into account some peculiarities of regional labor market development.

Education composition of unemployed. Job seekers with secondary general and secondary vocational education constitute 30.1% and 31.7% of total unemployment, the share of unemployed with base and complete higher education is equal respectively to 21.6% and 10.5%. It is interesting to note that during the first years of independence the highest unemployment rate was among university graduates, who comprised a third of registered job seekers, but then this rate had declined as opposed to the rate of unemployed with secondary general education which had been rising constantly from 1991 to 1998. Thus to the end of the 90s education composition of unemployment in Ukraine have shaped to the recognized pattern according to which those with relatively low levels of education tend to suffer more from redundancy and persistent unemployment.

The most common conclusions drawn from this section are that high unemployment and in particular long-term unemployment became almost permanent feature of Ukrainian labor market; that unemployment in Ukraine has arisen as a consequence of macroeconomic external and internal shocks rather than as part of the process of reallocation of labor between sectors, but in the course of subsequent employment restructuring it looks more and more like structural; and that the social groups most exposed to unemployment are young people, particularly school-leavers (vocational or general) without work experience, women, and low-skilled workers. In such situation labor market policies widely used by the OECD countries for structural unemployment cannot by themselves without consistent macroeconomic reforms and policies directed towards an increase of labor demand solve the problem of unemployment in Ukraine. Nevertheless, it is believed that labor market policies may relieve aggravated tensions in the

labor market and alleviate poverty and stigma associated with unemployment. Thus there is a strong rationale for introducing and providing these policies in the case of Ukraine. In the next section we will describe the functioning of the National Employment Service dealing with passive and active labor market policies applied in Ukraine.

2.3. LABOR MARKET POLICIES

Since we have already described the main labor market policies specified by the Law on Employment of the Population in section 2.1. now for simplicity of our further work we summarize all types of labor market policies provided by the NES:

0) unemployment benefits system;

1) public employment services such as job placements, and measures of so-called professional orientation: job information, the provision of consultations and advice to the persons seeking for a job (that is not only to registered as unemployed), organization of job assistance seminars to the unemployed. In this item can be also included measures directed to self-employment like organization of "fair of vacancies";

2) training and retraining;

3) public works;

4) early retirement – older unemployed workers with eighteen months or less to retirement age and fulfilling the condition of 30 years of employment for men and 25 years for women are put on old-age pension prematurely;

5) ensuring 5% job quota for vulnerable groups (quotas are proposed by regional employment centres and approved by regional authorities according to the needs of regions);

6) subsidized "additional" jobs for vulnerable groups of people (above 5% quota) and interest-free loans to unemployed to start-up business (the maximum amount of the loan is limited to thirty minimum monthly wages (i.e. now it is limited to about 2400 UAH) during only one year, and is given for production and not other activities).

We put two quite different measures at the last category since these measures are poorly presented in Ukraine due to a shortage of resources. Such a measure as subsidized jobs in its usual meaning was abolished from 1993 on the advice of the IMF.

Now we should draw our attention on the relative sizes of these policies in the context of the whole economy since only then we can judge about their role in combating unemployment. Table 2 provides dynamics of expenditures by the National Employment Fund that should finance all market policies and operational costs of the NES by the Law on Employment (Article 22).

Table 2. Expenditures of the NEF as % of GDP, 1994-1999

Items of Expenditures, % of GDP	1994	1995	1996	1997	1998	1999
Unemployment benefits	0.01	0.02	0.05	0.14	0.20	0.26
ALMP	0.09	0.06	0.03	0.02	0.03	0.04
Operational costs of the NES	0.05	0.06	0.04	0.05	0.05	0.05
Total expenditures	0.21	0.24	0.14	0.21	0.32	0.41

Source: NEC

As can be seen from this table total expenditures of the NEF in Ukraine have increased over the last four years from 0.14% to 0.41% of GDP. Comparing total expenditures of employment funds across transition and OECD countries (see Table A1 in Appendix and Rutkowsky (1996), Table 2) we can say that Ukraine has been spending on labor market policies as percentage of GDP less than most countries involved. For instance, this measure in OECD countries ranged from 0.44% of GDP in Japan, 0.61% in Switzerland, 0.84% in the USA, through about 2.8% in Canada and Germany, to 3.75% of GDP in Sweden in 1994. In 1997 the level of total expenditures as percentage of GDP in Ukraine (0.21%) can be fully comparable with identical measure in other transition countries with relatively low registered unemployment such as Estonia (0.23%), the Czech Republic (0.24%) and Russia (0.29%), while in transition countries with high registered unemployment level this measure have amounted to 0.52% in Bulgaria, 0.7% in Croatia, 1.9% in Poland, and

1.2% in Hungary.[11] We should note here that total expenditures on labor market policies as a percentage of GDP do not always correspond with the level of real unemployment. For the most part they depend on the overall economic situation of the country, on the emphasis of the government on employment issues, and on general budget bounds.

As shown in Table 2, sharply increasing share of unemployment benefits is accompanied by declining (up to 1997) and very small share of ALMP expenditures. This dynamics confirms our suggestion from the previous section that the rise in the stock of unemployed requires more funds for income support and thus forces out ALMP in favor of unemployment benefits. Looking at the distribution of funds on passive and active labor market policies in some transition countries in 1997 or 1996 (see Appendix, Table A1) some comparisons can be made. All considered transition countries (and the Czech Republic is not the exception in 1997 contrary to the previous years) spend the bulk of their expenditures on unemployment benefits. The highest spender on unemployment benefits is Croatia (78.6% of total expenditures), the lowest is Estonia (47.3%), and Ukraine spends on unemployment benefits about 65% of total expenditures on labor market policies like most other transition countries. Correspondingly, the share of spending on ALMP in total expenditures on labor market policies is relatively small in these countries varying from 6.4% in Croatia to 38.2% in Estonia. It is worth also noting that Ukraine is the second lowest spender on ALMP among transition countries, meaning that active labor market policies have not attracted yet due attention of the state and local authorities in Ukraine. One more interesting relationship can be revealed from Table A1: in countries with lower total expenditures on labor market policies and on ALMP (Ukraine, Russia, Czech Republic), the proportion needed to cover operational and administrative costs of the NES is much higher. Thus we can conclude that, in general, the pattern of expenditures on labor market policies

[11] The level of total expenditures on labor market policies as a percentage of GDP declined significantly in the Czech Republic, Hungary and Poland from 1994 (0.53%, 2.95%, 2.01% correspondingly) to 1997 when unemployment rates had reduced to the western "standards".

in Ukraine is similar to those in some transition countries, but the share of expenditures on ALMP in Ukraine is very low.

Now we focus on the allocation of funds on particular labor market policies in Ukraine in 1999. Analysis of the expenditures of the NEF shows that up to 1996 expenditures comprised only small share of available income, which meant that a large part of the income was idle and loosing value due to huge inflation. An explanation may be anticipation of much higher unemployment than registered and necessity of creating some reserves for this. Now with stabilization of situation in the economy and acquisition of experience in accurate forecasting of national employment programs expenditures have reached 94% of available income in 1999. Obviously, unemployment benefits comprise the largest share of NEF expenditures (64.45%). As to ALMP, only 8.5% of expenditures was directed to training/retraining, 1.2% to public works, 5.3% to early retirement (in the form of compensation to the Pension Fund), 0.02% to interest-free loans for unemployed to start-up business (namely, such loans were given in 1999 to 44 unemployed at the amount of 102.2 thousand UHA), 0.00034% (1800 UHA) to additional jobs above 5% quota, and 2% to financial support and grants under instructions of the Government. The rest of expenditures was basically devoted to maintenance of the National Employment Service (11.4%), providing local subsidiaries of the NES with premises (3.2%), improvement and maintenance of the information network (3%), staff training (0.03%) and other operational costs of employment centres. Comparing expenditures according to the budget of the NEF and real expenditures in 1999, we can infer that many employment promotion programs could not be launched on the planned scale due to a lack of resources in the regions and were often cut down during the fiscal year. Thus regional labor market policies are principally restricted to payment of unemployment benefits, measures of professional orientation and job placement, training/retraining and public works, while the main instruments actually supporting regional restructuring and promoting employment are underdeveloped. Consequently, in the rest of the paper active

labor market policies in Ukraine will imply job placement, training and public works.

Dynamics of participation of registered unemployed in ALMP in Ukraine from 1994 to 1999 is shown in Figure A4 (see Appendix). Naturally, the share of job placed unemployed job seekers is higher than the share of unemployed placed on training or public works throughout the period, since free job information and job placement is considered the primary goal of employment centres. Further, the weight of unemployed persons placed in jobs by the NES in the total number of job placed persons in the economy increases constantly and has reached 21.3% in 1999, implying improvement of the functioning of employment centres and rise of their importance for employment promotion in Ukraine. Comparison of the shares of participants in training program and public works leads us to conclusion that proportion of unemployed covered by these programs is very low in Ukraine meaning low participation rate in ALMP in total, and that the emphasis has changed after 1996 from training to public works (e.g. 5.3% of unemployed were placed in training and 3.5% in public works in 1996, while in 1999 training participants comprise only 4.9% of all unemployed in contrast to public works participants constituting 6.7% of unemployed). Using data on participants in ALMP in selected transition countries in 1997 (Nesporova, 1999) we have noted that public works scheme became the chief active labor market policy with the spread of long-term unemployment in almost all considered countries with the exception of Croatia where public works were not introduced, and Poland where subsidized employment was the most popular active policy. The only difference between Ukraine and these countries is that in other countries along with training and public works other active labor market policies like self-employment and subsidized employment are used, though importance of these programs has declined comparing to 1994 especially in the Czech Republic and Poland. Despite many similarities among labor market development in FSU republics, negligible number of participants in subsidized employment and self-employment programs as in

Ukraine isn't peculiar to Russia or Kazakhstan where these programs are applied almost on a par with widely used training or public works.

In the aspect of our study we are interested in the real impact of labor market policies applied in Ukraine on employment promotion and unemployment reduction, and reasons for providing specific programs which are not always effective in terms of combating unemployment. As in other transition countries labor market training was introduced in Ukraine in relatively large scale from 1991. But as was argued in section 1.2. about ineffectiveness of many ALMP in transition countries, during the first years of economic transformation training and retraining had not much affected the Ukrainian labor market, reflecting the lack of substantial structural change. Thus training and retraining programs were inefficient (the job placement rate after labor market training, which can serve as efficiency indicator was smaller than 45%), moreover, retraining was offered for skills that were well represented in the pool of unemployed. Over the transition period with improvement of the design and orientation of training courses, closer co-operation between employment centres and enterprises, implementing modular adult training (in 1998 about 815 elements of modular curricula were developed according to the methodology of the ILO), and in some sense with change of the character of unemployment in favor of structural, the role and effectiveness of training has increased in Ukraine, and job placement rate after training and retraining reached 70% in 1999. Number of retrained persons comprised 64.8% of all persons after training courses in 1999; 25.9% of all persons after training courses received training for the first time (i.e. they were without special occupation before), and the rest 9.3% of trained unemployed raised the level of their professional skills. As the proof of improved training scheme may serve increased and broadened number of provided specializations (in 1999 it was equal to 239 as opposed to 212 in 1998 and to 167 in 1997), ranging from simple professions for workers to more sophisticated vocations for white-collar employees like economists and financiers, programmers, psychologists, etc. 51.5% of all trained unemployed

persons were taught at vocational schools, 24.8% at enterprises and organizations, 20.8% at universities and colleges, and 2.9% at special training centres of the NES. Although training is often criticized that it is mostly provided to young and better educated unemployed job seekers who have a higher chance of employment anyway (deadweight effect) and that job placed trainees replace other potential job placed unemployed or even employed persons (substitution effect) empirical evidence from transition countries shows that when training addresses the real needs of the labor market and is targeted to hard-to-place job seekers, it increases their employability making them more competitive at the labor market, and thus promotes outflows from unemployment to jobs.

On the contrary, public works schemes increasingly used by transition countries, including Ukraine, after the spread of long-term unemployment seem to be less successful in combating unemployment (they even were not explicitly targeted in reducing unemployment). Public works in Ukraine are usually used for disadvantaged groups at the labor market, in particular long-term and low-skilled unemployed. They are provided first of all as income transfer to poor unemployed with expired unemployment benefits. Secondly, they help preserve or renew good working habits among the long-term unemployed. Thirdly, as Jackman (1995a) argues any work is considered more useful than the passive receipt of cash unemployment benefits. And finally, the output of public works brings economic benefits to the country since persons participating in public works are engaged in such activities as cleaning of public areas, repairing ecological and housing damages in regions hit by natural disasters, seasonal jobs in agriculture, construction and maintenance of roads. Moreover, these works are relatively cheap for employment centres since in most cases they are financed from local and regional budgets, and thus regional employment centres bear only operational costs. But the problem is that the bulk of registered unemployed in Ukraine have high educational level and high skills, and such low-skilled jobs with low remuneration are not attractive to them and may create stigma. Thus the role

of public works scheme for Ukrainian labor market is dubious; and it is difficult to separate job placement rate after completing public works. In addition, the net impact evaluation conducted in Poland and Hungary in 1996 by the World Bank showed negative net impact of public works, that is that unemployed persons participating in public works had lower job placement rate than unemployed with similar characteristics but not participating in public works.

Thus common sense, some theoretical grounds and empirical evidence in CEE and OECD countries suggest that active labor market policies in general should have positive impact on the social and economic costs of unemployment, avoiding the spread of long-term unemployment and promoting outflows from unemployment (the latter is not always associated with preventing the rise of unemployment because of large inflows into unemployment not depending on labor market policies). And now after the general analysis of labor market developments and implemented labor market policies in Ukraine it would be useful to estimate the impact of active labor market policies on reducing of unemployment in this country. In this study we try to make macroeconomic evaluation of ALMP (as opposed to microeconomic evaluation sketched in section 1.3) simply asking, how do NES labor market policies affect the outflows from unemployment to regular gobs? The empirical framework for our study is the augmented matching function described in detail in the next chapter and then estimated for Ukrainian data set in chapter 4.

Chapter 3

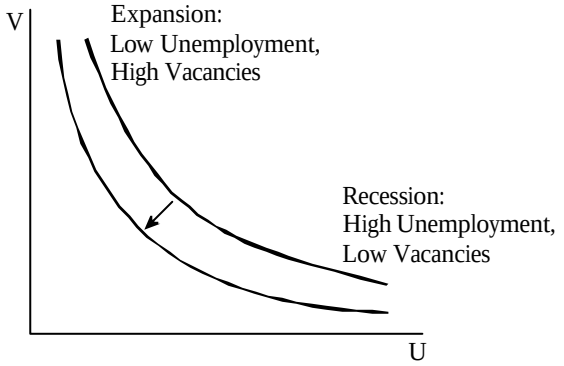
THEORY OF THE MATCHING FUNCTIONS

3.1. THE BEVERIDGE CURVE

In this section we sketch a simple model of the matching function, and in the next section we will go on to the main framework of our study, that is the augmented matching function. To understand how the matching function approach captures the role of different labor market policies, at first, we should focus on the notion of the Beveridge curve.

The Beveridge curve, first identified by William Beveridge in the 1940s, is the steady state relationship between unemployment and job vacancies: higher unemployment is associated with lower vacancies, and lower unemployment with higher vacancies (Figure 1).

Figure 1. The Beveridge Curve



This negative association is attributed to a common-sense cyclical pattern in the labor market: When the labor market is "tight" and demand for labor is high, most workers who wish to work have found employment, so the unemployment rate is low. Correspondingly, the vacancy rate is relatively high, as employers experience some difficulty finding qualified workers to fill job openings. During a "slack" labor market with weak labor demand, few employers are posting job offerings, so vacancies are low and

unemployment is high. So, the particular combination of unemployment and vacancies on a fixed Beveridge curve is often used to summarize the state of the labor market, and of the whole economy in the business cycle. In addition, the location of the Beveridge curve relative to the origin has been used to indicaty the overall level of labor market activity. Bleakley and Fuhrer (1997) offer several potential sources of changes in its location in the USA over the past 30 years: changes in the rate of labor force growth due to shifts in the demographic composition of the working-age population (primarily age and gender composition); changes in the degree of "churning" (reallocation due to job creation, job loss and job quits) in the labor market; and finally, changes in the efficiency of the job-matching process. At the rest of the theory part we concentrate just on the latter source, that is on the job-matching process and its efficiency.

A model of the job-matching process, time-consuming search process by which workers searching for jobs find a "match" with an employer who has a job offering, is an important component of any long-run equilibrium framework of the labor market. Although the "real world" search process is extremely complex, several assumptions in our model should simplify this process. This study abstracts from such complications of job matching as finding a match between the skills, location, and industry of workers and firms, and concentrates only on efficiency of this process. As was stressed above we use a model of the job-matching process for long-run analysis of the labor market, meaning that this model ignores short-run determinants of unemployment such as price and wage flexibility, taxes and indexing. Also we assume identical workers and random hiring ("no-ranking") as opposed to "ranking" by duration, when firms hire the worker who has been unemployed for the least amount of time.[12] Since there is no obvious way of constructing the stock of employed workers from which job-to-job matches are made, and of the hiring flows that correspond to such matches, on-the-job search is

[12] A detailed discussion of the matching process with "ranking" and wage determination can be found in Blanchard and Diamond (1994).

ignored in our simple model.[13] Analogous reasons give rise also to exclusion of flows from out of the labor force to employment from the analysis. Thus, the pool of workers available for a job match is taken to be the unemployment stock.

A simple approximation to the matching process states that some fraction of the stock of unemployed and of the stock of vacancies are brought together each period to make job matches, yielding gross flows of newly employed workers, or outflows from unemployment to employment. As known, equilibrium for the labor market is characterized by a balance of inflows and outflows, and not by particular values of the stocks of unemployed and vacant jobs. Therefore, the flows of workers and jobs into and out of unemployment and vacancies, together with the job-matching process, determine the outcomes for unemployment and vacancies summarized in the Beveridge curve.[14] The overall efficiency with which workers and vacancies are matched determines the outflows from the Beveridge variables, i.e. new hires. A more efficient matching process generates higher outflows from unemployment and vacancies, thus lower levels of both variables, resulted in inward shift of the Beveridge curve (as shown in Figure 1).

The notion of the matching function, a statistical relationship between the total number of matches and the total number of searchers on either side of the labor market (unemployed and firms with vacant jobs), is crucial at this stage for further analysis of labor market dynamics. As Blanchard and Diamond (1989) suggested, the matching function can be regarded like a production function in economics: inputs are combined to produce a flow of output. The inputs to the matching function are the existing stocks of unemployed workers and vacancies; and the output is a flow of new hires. Since we exclude employed people and people out of labor force from the matching process, the number of new hires is equal to the number of

[13] Some aspects of on-the-job search and more sophisticated matching technology are described in detail in Pissarides and Wadsworth (1989).

[14] The model is based on the theory of the Beveridge curve presented by Blanchard and Diamond (1990).

unemployed workers who find a job and leave unemployment, i.e. to the outflows from unemployment into employment (U→E). If we denote the outflows from unemployment to employment during time period *t* as OF_t, *k* stands for the overall productivity factor, U_{t-1} and V_{t-1} denote, respectively, the stock of unemployed people and the stock of available vacancies at the end of period *t-1*, then the matching function may be written as[15, 16]

$$OF_t = kf(U_{t-1}, V_{t-1}). \quad (1)$$

As usual in mainstream economics, at the first stage of study it is assumed that unemployed and vacancies match according to a Cobb-Douglas function

$$OF_t = kU_{t-1}^{\alpha} V_{t-1}^{\beta},$$

which can also be written in its logarithmic form as

$$\log OF_t = \log k + \alpha \log U_{t-1} + \beta \log V_{t-1}. \quad (2)$$

This is the final specification of the simple matching function, which we will augment in the next section.

Blanchard and Diamond (1989) have estimated Cobb-Douglas matching function with total number of hires as dependent variable (not only hires from unemployed) and allowing a time trend to enter. They use monthly data from 1968:2 to 1981:12 for the USA. Their regression results show that both unemployment and vacancies are statistically significant determinants of the flow of new hires (the estimated regression coefficient for unemployed and vacancies, correspondingly, is 0.35 and 0.54), and that there is a relatively small downward drift. Bleakley and Fuhrer (1997) have also estimated Cobb-Douglas matching function with a time trend for the USA, but they use hires from unemployed as dependent variable. Regression results based on the monthly sample from 1979:1 to 1993:12 are different from Blanchard, Diamond's: despite almost the same sum of coefficients on unemployment

[15] We lag the stocks of unemployed and vacancies because at the most countries these data are reported at the end of time period. If the stocks of unemployed and vacancies were registered at the beginning of the period, we wouldn't lag these variables.

[16] We assume that all unemployed are effective job-seekers, that is we ignore search effectiveness index (automatically putting it equal to one). See Layard et al (1991), Ch.5 for the job search theory and challenge of the matching function with this index.

and vacancies, unemployment has greater weight now than vacancies (0.56 vs. 0.30); the time trend enters significantly and positively (i.e. upward drift). In both papers tests for constant returns to scale and for a unit elasticity of substitution (i.e. log-linear Cobb-Douglas form) are presented. The results of these tests indicate that there is no reason to reject Cobb-Douglas restriction and to reject the restriction of constant returns to scale in the matching function.

In the first study of the matching function for transition economies, Burda (1993) uses pooled district level monthly data (1990:10 to 1992:5) for the Czech and Slovak Republic. OLS estimates of equation (2) show that the coefficient of unemployment is about twice as high as that of vacancies and that the matching function displays constant or decreasing returns to scale.

3.2. AUGMENTED MATCHING FUNCTIONS

The previous sections indicate that active labor market policies affect efficiency of job matching through the provision of job information and advice (that make dispersed job offerings known to more potential employees) and promotion the search effectiveness through training, temporary public and subsidized works. As was described above the more efficient job-matching process shifts the Beveridge curve inward and generates more outflows from unemployment. This argument is the basic rationale for including ALMP in the arguments of the matching function (1). When ALMP measure (expenditures during time period, or number of participants at the end of the period (i.e. stock) or during the period (i.e. inflow)) is added to the stock of unemployed and vacancies in the matching function as a separate factor input such matching function is called "augmented". So from the simple Cobb Douglas matching function (2) we can easily obtain augmented matching function with the following equation:

$$\log OF_t = c + \alpha \log U_{t-1} + \beta \log V_{t-1} + \gamma \log ALMP_t, \quad (3)$$

where $ALMP_t$ denotes measures of active policies implemented over the period t, U_{t-1} and V_{t-1} denote as before the stock of unemployed and the

stock of available vacancies at the end of period *t-1*, and OF_t is the outflows from unemployment to employment during time period *t*.

The stochastic form of this equation is:

$$\log OF_t = c + \alpha \log U_{t-1} + \beta \log V_{t-1} + \gamma \log ALMP_t + \varepsilon_t, \qquad (4)$$

where ε_t denotes stochastic error term.

This model is linear in the parameters and is therefore a linear regression model which can be estimated by the method of ordinary least squares (OLS). A positive estimate of γ would support the hypothesis that ALMP measure has positive effect on outflows from unemployment to jobs, i.e. improves the matching process. Moreover, such model is easy for interpretation since the parameters α, β and γ are the partial elasticities of outflows with respect to the unemployed, vacancies and active labor market measure (correspondingly), and the sum of these parameters gives information about returns to scale. Thus having a sufficient number of observations this model can be with easiness econometrically estimated and then analyzed using time-series econometrics. Moreover, the use of macro data from the registers of employment offices allows avoiding the problem of sample selection bias and unobserved heterogeneity peculiar to individual data (used in micro evaluations).

Although augmented matching approach is proved to be appropriate for transition countries, time-series analysis at the country level is almost inapplicable for these countries because of very short spell of transition. Thus when applied to transition countries (including Ukraine) it is preferable to use multi-regional pooled (panel) data. If we assume that error term ε_{it} consists of random (white-noise) error term u_{it} that varies across regions and over time, and region-specific random (or fixed) effect c_i that varies across regions but remains constant over time, then the panel specification has the following form

$$\log OF_{it} = c + c_i + \alpha \log U_{i(t-1)} + \beta \log V_{i(t-1)} + \gamma \log ALMP_{it} + u_{it}. \qquad (5)$$

The appropriate estimation technique for this specification depends on the assumption about the individual regional effect c_i: if we assume random effects model (i.e. c_i is uncorrelated with explanatory variables), then a feasible generalized least squares (GLS) procedure gives more efficient estimates than OLS; in the case of fixed effects model (i.e. c_i is correlated with explanatory variables) pooled least squares technique seems quite appropriate (for further detail see Johnston and DiNardo (1997), Chapter 12).

We should note that although an augmented matching approach is principally relevant for transition countries, its applicability and estimation is often criticized. Firstly, in most (not only transition) countries vacancies reported to employment offices represent a minor fraction of all vacancies posted by employers, and in general there is a lack of vacancies in transition countries. This is because private firms have no incentive to notify vacancies in employment office, while public sector, which is accustomed to reporting vacancies, is contracting. Secondly, in many transition countries especially in countries of FSU the stock of registered unemployed tend to understate the 'true' stock of unemployed. Advocating this approach, researchers (see e.g. Lehmann, 1998) argue that since the registered unemployed mainly do not have access to the other sources of vacancies, and that anyway employment offices provide ALMP subject to available stock of vacancies and unemployed, these data are appropriate for estimation of the effects of ALMP on number of new matches.

Thirdly, the use of regional data on ALMPs may lead to endogeneity problem, i.e. $ALMP_{it}$ may be correlated with the error term u_{it}. Boeri (1997) offers two cases in which this problem is likely to happen: 1) if resources and inflows in ALMPs are concentrated preferentially in districts with lower anticipated outflows to jobs; 2) outflows and inflows are highly correlated over short periods of time, so that an increase of inflows into unemployment brings about a contemporaneous increase in outflows to jobs and in ALMP resource allocation. Under either of these cases, GLS estimates (or OLS estimates in the case of fixed effects) of equation (5) are inconsistent, and this

problem can be dealt with by using 2SLS (IV technique). In addition, Boeri and Burda (1996) have pointed out that endogeneity problem is likely to be more serious in the case of inflows than in the case of expenditures on ALMP.

Before moving on to the estimation of this function for the case of Ukraine, we review results of similar studies in other transition countries. The studies differ with respect to the specification of the matching function (not always assuming Cobb-Douglas functional form), assumption about returns to scale, frequency and sample of data, and type of time-specific or district-specific effects.

Boeri and Burda (1996) and Boeri (1997a) as many other economists of this field use Cobb Douglas matching function (without imposing assumption about constant returns to scale) for estimation of effects of ALMP on outflows from unemployment in the Czech Republic and in selected transition countries (such as Bulgaria, the Czech Republic, Hungary, Poland, and the Slovak Republic) correspondingly. They allow for dynamics through a partial adjustment model (introducing lagged outflows from unemployment ($OF_{i(t-1)}$, $OF_{i(t-2)}$) at the right hand side. Both studies control for district-specific fixed effects by estimating in differences from district means and including time dummies. Boeri and Burda (1996) uses quarterly data and three measures of ALMP such as total expenditures, number of positions (available slots in the various programs), and number of filled positions during quarter. Boeri (1997) uses monthly data and only inflows into ALMP programs as a measure of ALMP. Both papers focus on the issue of possible endogeneity of ALMP measures and use the same data set in the instrumental variable estimation. The OLS and instrumental variable (IV) estimates indicate that ALMPs have the significant and positive effect on outflows to jobs in all countries except for Hungary.

Munich et al. (1998) estimate the augmented matching function using a translog form and monthly district-level data for the Czech and Slovak Republics. The authors suggest that translog matching function with weak

separability between the existing and newly unemployed is the best functional form supported by the data. Contrary to many studies, their estimates indicate strongly increasing returns to scale in both countries. In most their specifications (with instrumental variables) the effect of ALMP expenditures on the efficiency of matching in the Czech Republic is found to be statistically insignificant

Chapter 4

EMPIRICAL ANALYSIS

4.1. DATA

In this study we use quarterly administrative data on 24 oblast employment centres, one republican centre in Crimea (we include data on Sevastopol city center in it) and Kiev city employment center over the period 1996:I–1999:IV.[17] Data are drawn from records maintained by the Ukrainian National Employment Centre (NEC).

Although the Labor Force Surveys (LFS) reveal a much higher level of open unemployment, several times greater than the registered rates (see section 2.2), we prefer registered data over information from the LFS for some reasons. Firstly, registered administrative data provide a continuous time measurement of unemployment flows (with monthly frequency), while the LFSs in Ukraine have been carried out from 1995 to 1998 at yearly frequencies, and only from January, 1999 at quarterly frequency. Low frequency LFS data, especially data on flows across labor market states, may underestimate seriously actual flows and thus distort the real labor market dynamics. Secondly, the NES registers people as unemployed according to the Law on Employment, i.e. of working age: 16-55 for women and 16-60 for men, while the LFS's working age for unemployed is 15-70 according to the ILO methodology. Since all labor market measures are provided only by the public organization the National Employment Centre according to the same Law on Employment, we should accept all limitations on the juridical status of unemployed in order to have consistent data set on ALMP. Thirdly, registered data remain the only source for regional patterns of unemployment, vacancies and ALMP, because the LFS sample is too small to provide

[17] Although data on unemployment are available from 1994 (and may be, earlier), we have chosen the sample of 1996-1999 since there was another methodology of reporting vacancies (average monthly number of vacancies) up to 1996.

representative data on oblasts (perhaps, because of fiscal reasons). And finally, Ukrainian LFS information is not reliable so far, because respondents are not always straightforward, and methods of the LFSs are not polished yet.

The necessary and available regional data are the following (at the end of each row is the name of the corresponding variable which we will use later on):

- outflows from unemployment to job during the quarter (i.e. number of job placed unemployed) – OF;
- the stock of workers with unemployment status registered at the local employment centre at the end of the quarter – U;
- the stock of unfilled vacancies reported to the regional employment centers at the end of the quarter – V;
- the number of registered unemployed placed in training/retraining courses during the quarter – TI;
- the number of registered unemployed placed in public works during the quarter – PI;
- cash expenditure on training/retraining during the quarter, in thousands of Hryvna – TE;
- cash expenditure on public works during the quarter, in thousands of Hryvna – PE.[18, 19]

Descriptive statistics for the data set is given in Table A2 (see Appendix). This table documents large variability in stocks and flows, but it doesn't show all dynamics of our variables.

Number of outflows from unemployment during a quarter fluctuates between 104 persons from Chernivtsi oblast in1996:I and 5413 persons from Dnipropetrovsk oblast in 1999:IV. While the regional number of outflows varies during the year from its minimum number at the first quarter to its

[18] Data on expenditures cover only the 1998:I – 1999:IV period because of several changes in funding of labor market policies up to 1998 and thus significant gaps in spending data. Structure of ALMP spending is described in chapter 2.3.

[19] See chapter 3.2 for discussion of the appropriateness of vacancy data reported to the employment centres in transition economies.

maximum number at one of the next quarters (e.g. the second quarter in Crimea or Zaporizhie oblast, the fourth quarter in Volyn or Lviv region during the whole period under review, or changing maximum quarter from year to year in the most regions), we observe the increasing mode of outflows from 1996 to 1999. As to cross-sectional variability, the smallest number of outflows is in Chernivtsi oblast during the whole 16 quarters (with only 989 outflows during 1999:IV which is one half or even one fifth of outflows in other regions). The largest number of outflows is observed in the large industrial regions of the Eastern and Central Ukraine like Dnipropetrovsk (e.g. 5413 in 1999:IV), Kharkiv (e.g. 5181 in 1999:IV), Donetsk (e.g. 5118 in 1999:IV), Kyiv (e.g. 3875 in 1999:IV) or Lugansk (e.g. 3835 in 1999:IV) oblasts. So the dynamics of outflows from unemployment to jobs indicates that the Eastern and Central regions of Ukraine are more successful (absolutely) in the job matching than the Western regions.

Data on the stock of registered unemployed confirm the constantly increasing pattern of unemployment discussed in Chapter 2 with large regional variation. The stocks of unemployed have multiplied up by from 2.92 in Ivano-Frankivsk region to 21.72 times in Dnipropetrovsk region from 1996:I to 1999:IV. The minimum number of unemployed (1839 persons) presented in Table A1 relates to 1996:I and the maximum number of 110080 relates to 1999:IV. The largest stock of unemployed is in Lviv oblast varying from 24802 persons in 1996:I to 110080 in 1999:IV. Along with other western regions some industrialized eastern oblasts like Donetsk, Dnipropetrovsk, Kharkiv and Lugansk oblasts also indicate large stocks of unemployed what can be probably attributed to significant changes in coal mining, metallurgical, engineering and military industries, restructuring of large state enterprises, and restrictions on geographical mobility at the same time. The smallest stocks of unemployed are registered in regions where structural changes and job creation have advanced more rapidly, for example in Kyiv City, Odesa and Kherson oblast.

Although we use for our estimation the stock of vacancies fluctuating considerably throughout the period 1996:I to 1999:IV from 136 to 12737 offerings, now we describe unemployed-vacancy ratio dynamics since it shows the real situation at the Ukrainian labor market. First of all, it is interesting to note that in Dnipropetrovsk region and in Kyiv City during the first three quarters of 1996 for every unemployed job seeker there were from more than one to near five vacancies. But then, in all regions without exception an increasing shortage of job vacancies has become a worrying feature of the regional labor markets. As was pointed out above in chapter 2 the worst labor market situation is in the western part of Ukraine where the number of unemployed per available vacancy mounts to 324.55 (1998:IV) and 77 (1999:IV) in Ivano-Frankivsk region, 129.4 (1998:IV) and 70 (1999:IV) in Volyn region, 101.63 (1998:IV) and 101.2 (1999:IV) in Lviv region, 82.22 (1998:IV) and 81.45 (1999:IV) in Ternopil region, and 71.87 (1998:IV) and 35.7 (1999:IV) in Chernivtsi region. So we can see that although unemployed-vacancy ratio is still very high in these regions, it decreased by January 2000. The same situation is in the regions with relatively low unemployment-vacancy ratio: this ratio fluctuates during the year with its smallest values in the second or the third quarter, but it increases on average from 1996 to 1998 and then slightly falls by the end of 1999. For example, in Kyiv City unemployed/vacancy ratio is 3.67 (1998:III), 5.65 (1998:IV) and 4.45 (1999:IV), in Odesa region it is 5.22 (1998:II), 12 (1998:IV) and 7.74 (1999:IV).

Number of participants of training/retraining programs and public works also increases on average from 1996 to 1999 with large fluctuations within the year and across regions. The maximum number of training program inflows is in Lviv region (2127 during 1998:IV and 1465 during 1999:IV), and the maximum number of public work inflows is in Kharkiv region (6162 during 1999:II). Comparing number of inflows into training program and public works we can conclude that in the most regions of Ukraine more attention (in terms of participants) is paid to public works except for regions with the great

industrial and educational potential like Dnipropetrovsk, Donetsk, Zaporizhie, Lviv oblasts and Kyiv City.

4.2. ECONOMETRIC SPECIFICATION AND ESTIMATION RESULTS

Although with underlying assumptions about the job-matching process and the form of the matching function in chapter 3 we came to the final specification for our estimation in the form of equation (5) with random individual effects, we began this section by testing some different specifications to avoid unnecessary restrictions on functional forms. We estimated the augmented matching function using a translog form (which nests Cobb-Douglas and other simpler functional forms) as was suggested by Munich et al. (1998):

$$\log OF_{it} = c + c_i + \alpha \log U_{i(t-1)} + \beta \log V_{i(t-1)} + \gamma \log ALMP_{it} +$$
$$+ \alpha_2 (\log U_{i(t-1)})^2 + \beta_2 (\log V_{i(t-1)})^2 + \gamma_2 (\log ALMP_{it})^2 +$$
$$+ \alpha_3 \log U_{i(t-1)} \log V_{i(t-1)} + \beta_3 \log V_{i(t-1)} \log ALMP_{it} +$$
$$+ \gamma_3 \log U_{i(t-1)} \log ALMP_{it} + u_{it}$$

Wald test of Cobb-Douglas nested model, that is test of the hypothesis that H_0: $\alpha_2=\beta_2=\gamma_2=\alpha_3=\beta_3=\gamma_3=0$ showed large *p*-values in both cases of ALMP measure (expenditures and inflows) and thus did not support the choice of translog specification over the Cobb-Douglas form in Ukraine.

Then, after deciding about Cobb-Douglas functional form, we include lagged values of the dependent variable (log*OF*) at the right hand side, allowing for partial adjustment of the matching process:

$$\log OF_{it} = c + c_i + \delta_1 OF_{i(t-1)} + \delta_2 OF_{i(t-2)} +$$
$$+ \alpha \log U_{i(t-1)} + \beta \log V_{i(t-1)} + \gamma \log ALMP_{it} + u_{it}$$

The estimates of this specification with very high and significant coefficients of lagged outflows to jobs (δ_1 and δ_2) but low or insignificant coefficients of other variables have led us to further search of functional form, without lagged endogenous variable.

Then we estimate equation (5), where $ALMP_{it}$ is total expenditures on training and public works at the oblast level during the quarter:

$$\log OF_{it} = c + c_i + \alpha \log U_{i(t-1)} + \beta \log V_{i(t-1)} + \gamma \log TOTEXP_{it} + u_{it}.$$

Column (1) of Table A3 (see Appendix) reports GLS estimates of this equation using the data described in section 4.1. As we have argued in the end of section 2.1. total expenditures on ALMP at the regional level are predetermined at the beginning of the current year, and thus there is no scope for endogeneity. This fact allows us to suggest that the GLS estimates are unbiased and consistent. The estimates display high and significant coefficient on unemployment of 0.72, and much lower but significant coefficient on vacancies of 0.35. The sum of these coefficients indicates increasing returns to scale, but the Wald test supports constant returns to scale restriction. The estimated expenditure elasticity of 0.04 indicates the significant impact of ALMP expenditures on outflows to jobs and implies that 1% increase in expenditures on ALMP generates 0.04% more outflows to jobs.

Column (2) of Table A3 gives GLS estimates of equation (5) with allowing spending on training and public works to enter as separate inputs:

$$\log OF_{it} = c + c_i + \alpha \log U_{i(t-1)} + \beta \log V_{i(t-1)} + \gamma_1 \log TE_{it} + \gamma_2 \log PE_{it} + u_{it}$$

As can be seen from this table 1% increase in expenditures on training generates 0.03% more outflows into jobs than 1% increase in expenditures on public works, meaning that in terms of expenditures training is more effective labor market policy in combating unemployment than public works in Ukraine.

Since we have another measure of active labor market policies (namely, number of people placed into training and public works) we try to estimate equation (5) using this measure to compare the effects of total expenditures and total inflows of participants on the outflows from unemployment. Column (3) of Table A3 provides GLS estimation output of the following specification form:

$$\log OF_{it} = c + c_i + \alpha \log U_{i(t-1)} + \beta \log V_{i(t-1)} + \gamma \log TOTINF_{it} + u_{it}.$$

Significant and positive coefficient on total inflows of 0.1 supports our hypothesis that increasing number of people placed in active labor market policies improves the job-matching process and thus leads to more outflows from unemployment to jobs. As in the above case with total expenditures on ALMP all the arguments of the augmented matching function have positive and significant coefficients, coefficient on unemployment is more than twice larger than coefficient on vacancies.

However, as was discussed in section 3.2. OLS estimates of the effects of ALMP inflows (*TOTINF*) may be biased insofar as active programs cannot be considered to be exogenous variable at the district level. Hence, column (6) of Table A3 reports IV estimates for the coefficient of total inflows into ALMPs (*TOTINF*) in which the predetermined yearly ALMP expenditure allocation and lagged total inflows were used as instruments. As we described at the end of section 2.1., inflows into ALMP at the regional level depend on expenditure allocations that are themselves correlated with local labor market conditions but only at yearly frequencies. Allocations are established at the beginning of the year (after approval of the budget of the NEF) and hence uncorrelated with shocks altering outflows to jobs during the following year, so they may serve as a good instrument. Outflow elasticities estimated under IV do not vary considerably from OLS estimates. This may be attributed to the fact that endogeneity problem is no so serious for inflows into ALMP in Ukraine, because all numbers of projected placements into ALMPs are also predetermined in the National Employment Program, and actual placements (inflows into programs) may change during a year due to a lack of funding (smaller than was planned in the National Employment Program) rather than due to their response to an abrupt change in inflows into unemployment and outflows from unemployment. Moreover, evidence from Ukrainian data on regional outflows from unemployment and inflows into ALMP programs has shown that there is no negative relationship between outflows to jobs and placements into ALMPs, thereby denying another source of endogeneity,

when higher inflows in ALMPs are concentrated in districts with lower expected outflows.

Columns (4) and (5) of Table A3 present GLS estimates of the last specifications, in which we use training inflows and public works inflows as separate determinants of the efficiency of the job-matching process. Information from the NEC about the average duration of training/retraining courses of about 5 months and about the average length of one public works scheme of 2 months induces us to include training inflows of lag 2 and public works without lag (column (4)) or with lag 1 (column (5)) into the model to estimate the separate effect of training and public works right after the completion of a program spell. We have found somewhat surprising result that public works program (in terms of inflows) has a larger positive effect on the hiring of the unemployed than training just after the completion the scheme (column (4)), but it has no any effect (not statistically significant) on outflows after some period after the completion of the program. This result can be interpreted that after having ended either a training course or a public works scheme an unemployed person has increased its effectiveness in search of a job, while then with time this person loses this effectiveness and becomes almost indistinguishable from non-participants among the unemployed. The larger effectiveness of public works than of training participants in terms of inflows can be interpreted in a way that the main problem of low outflows from unemployment in Ukraine is not in skill mismatch between available vacancies and the stock of unemployed (with highly accumulated human capital without training), or that training courses do not promote search effectiveness of trainees at the desirable scale because of overly specified training curriculum or because of providing skills oversupplied at the labor market.

Therefore, econometric evidence in Ukraine confirms our statement repeated many times across our study about the marginal influence of ALMPs on the Ukrainian labor market characterized by demand-deficient unemployment (as in other transition countries) since it shows statistically

significant, positive but very small effect of ALMPs on the outflows from unemployment, and thus on the unemployment rate in Ukraine. Nevertheless, this positive effect accompanied by other immeasurable strong points of ALMPs discussed above allow us to conclude that there is a need for expanding existing ALMPs such as training and public works, directed primarily on maintaining or enhancing the human capital, and for giving more attention to such employment promotion programs as self-employment and subsidized employment.

Conclusions

In response to growing unemployment and aggravation of social tensions connected with it, Ukrainian authorities have introduced a wide range of active labor market policies at the initial stage of unemployment. Despite mounting criticisms of the their effectiveness connected with public misconception about their role in reducing unemployment under conditions of a declining labor demand, ALMPs seem to play its prescribed role on unemployment and the labor market in general in Ukraine. We have confirmed this assertion on the basis of the specific facts from the development of the Ukrainian labor market and on the basis of econometric results. Our estimation results of several specifications of an augmented matching function do indicate that more prevailing active policies implemented in Ukraine such as training and public works do have a significant positive, though small, effect on outflows from unemployment to jobs. Thus answering the most topical question about the effectiveness of ALMPs in Ukraine as to improving re-employment probabilities of their participants, leading to promotion of outflows from unemployment to regular jobs, we argue that training and public works programs are effective. Moreover, as estimation of the models with separate inputs for training and public works have shown, these programs (in terms of inflows) are effective (significant) when participants find a match with available vacancies just after the completion of the program. Training/retraining program (in terms of expenditures) seems to be more effective than public works program, that is increase in spending on training generates more outflows to jobs than increase in spending on public works does. At the same time an increase in inflows of participants into training results in less outflows to employment after the completion of this program than in the case of increasing inflows into public works scheme, and we attribute this discrepancy to ineffective design of training system. In response to this situation we would recommend

to refine the system of training and education in favor of more flexible adjustment to demand for skills, improved quality and curricula.

Unfortunately, we can not cover in one study detail discussion of the other questions about the effectiveness of ALMP as to targeting, wages after participation in particular program, distortive effects, and the duration of employment spells induced by ALMPs. Only analyses based on individual work histories and the observation of individuals over very long time period can shed some light on these questions. Also because of limited or even unavailable data we do not discuss the issue of delivery mechanism for ALMPs, which is also very important determinant of the their effectiveness. All these questions can be a subject for further research.

Finally, we would recommend that it may be more cost-effective for the government to implement different ALMP programs on a large scale in conjunction with a tightening of unemployment benefits system before a large and stagnant unemployment pool has developed, remembering the rule that prevention is better than cure.

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