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THE IMPACT OF PREVIOUS JOB EXPERIENCE ON EMPLOYMENT ODDS IN SZCZECIN

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Abstract: *The aim of this article is to examine the impact of job experience on the odds. The studies which have been conducted by the authors so far focus on such determinants of finding a job by the unemployed as: gender, age and education. It has been confirmed that they are the features determining both the employment odds and the time devoted to seeking a job. The authors have presented a thesis that an unemployed person's professional experience conditions affect the likelihood of their finding employment. Moreover, the odds are not the same in individual subgroups of a given community. The research tool used in the presented analysis is a model of logistic regression which, following the logit transformation, enables the researchers to determine the odds ratio. The odds ratio makes it possible to compare the employment odds of a person who declares previous employment experience with that of a person who has not been employed before. The authors examined the influence of previous job experience on employment odds in a given community as a whole and in individual subgroups divided by gender, age and education. Statistical data were obtained thanks to a long-term cooperation with the Poviat Labour Office in Szczecin. The analysed data covered 19 398 people who unregistered from the Poviat Labour Office in 2009.*

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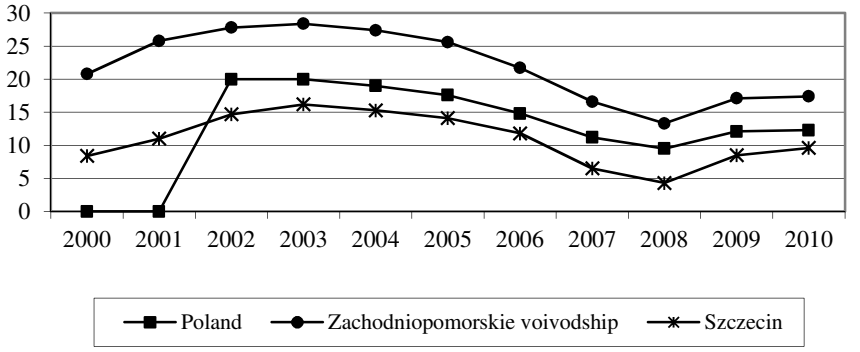
INTRODUCTION

From 2010 to 2012 the authors of this paper were implementing the Ministry of Science and Higher Education research project No N N111 273538, the scope of which includes the influence of the unemployed people's characteristics on their employment odds. Under that project the authors approached the Poviat Labour Office in Szczecin to get access to individual data of people who had unregistered from the Office. So far the research has shown that job seekers' characteristics such as their gender, education and age are the determinants of their employment (Markowicz, Stolorz 2007, pp. 57–65, Markowicz, Stolorz 2010, pp. 126–133). The examined group consisted of a relatively large number of the unemployed who declared that they had had no previous employment experience. The aim of this paper is to examine the impact of previous job experience on the unemployed job seekers' employment odds. The research tool applied in the analysis is the logistic regression model (Hosmer, Lemeshow 2000) which, after logit transformation, allows to determine the odds ratio. Thanks to this ratio, we can compare the employment odds of the unemployed people with and without previous job experience. The importance of job longevity in finding employment was analysed in the examined group in general and in specific subgroups according their gender, age and education.

UNEMPLOYMENT IN SZCZECIN

At the end of 2010 the registered unemployment rate, i.e. the percentage of the unemployed in the total number of people active on the job market (both employed and unemployed), in Szczecin amounted to 9.6 %. In the period of 2000–2010 the unemployment rate dynamics in Szczecin was similar to the situation in Poland and in Zachodniopomorskie voivodship, which is shown Figure 1. In the analysed period the unemployment rate recorded in Zachodniopomorskie voivodship was higher than in the rest of Poland, while in Szczecin, the capital city and a social and business centre of the region, the rate was lower.

Figure 1. The registered unemployment rate in Poland, in Zachodniopomorskie voivodship and in Szczecin in the period of 2000–2010 (as at the end of December) in percentage terms



Source: own study based on the data from the Central Statistical Office (GUS) (http://www.stat.gov.pl) and the Poviat Labour Office in Szczecin (http://www.pupszcz ecin.pl).

Table 1 presents unemployed the people by gender, age and educational level in Szczecin, zachodniopomorskie voivodship and Poland (in %).

Table 1. Unemployed persons by gender, age and educational level in Szczecin, zachodniopomorskie voivodship and Poland (in %)

Characteristics	Szczecin	Zachodniopomorskie voivodship	Poland
Gender			
Women	48.2	2.00	1.92
Men	1.48	48.00	48. 08
Age			
<18, 25)	12.70	18.76	21.91
<25, 35)	30.3	28.11	29.21
<35, 45)	18.93	18.63	18.3
<45, 55)	22.67	22.21	20.32
<55, 65)	1.36	12.28	10.21
Education			
– none or incomplete primary education, – primary education, – middle school,	30.47	3.17	28.18

Table 1 Continued

Characteristics	Szczecin	Zachodniopomorskie voivodship	Poland
– basic vocational education,	23.16	28.16	28.45
– general secondary education,	10.29	10.64	10.90
– secondary 4-year vocational education, – secondary vocational education, – general post-secondary education	19.25	17.94	21.99
– higher education (incl. BA)	16.82	8.09	10.47

Source:. "Bezrobocie rejestrowane I-IV kwartał 2010 r.".

The structure of the unemployment in Szczecin is similar to the structure in zachodniopomorskie voivodship and Poland. The percentage of unemployed young people in Szczecin is lower and the percentage of unemployed with higher education is higher.

At the end of 2010 in Szczecin there were 16 500 unemployed job seekers, out of whom 3 460 did not have any previous job experience. In the period of 2000–2010 they comprised about 20% of the total number of the registered unemployed people (see Figure 2).

Figure 2. The total number of the unemployed and the number of the unemployed without previous job experience registered by the Poviat Labour Office in Szczecin in the period of 2000-2010 (as at the end of December)

Source: own study based on the data from the Voivodship Labour Office in Szczecin (http://wup.pl/index.php?id=474#menu_top).

This share seems to be rather big considering the range of the unemployed people's age and education level. The group did not consist solely of young graduates.

THE STUDY RANGE

Statistical data necessary to conduct the analysis were obtained thanks to the authors' many years of cooperation with the Poviat Labour Office in Szczecin. Individual data were generated from PULS information system (used by the Polish Labour Offices) and cover the unemployed who were unregistered in 2009 for various reasons, most common being: finding employment, visit abroad lasting longer than 30 days, missing an obligatory visit to the Labour Office, rejecting a job offer, becoming qualified for the disability benefit or old-age pension. In this analysis, the authors focused on just one reason, i.e. on finding new employment. In the information system, this particular item consists of several detailed descriptions. The authors decided on the following categories (encoded separately by the Labour Offices): finding a job or other form of employment, finding a job in a supported employment enterprise, finding a job as a part of intervention works, finding a job co-financed by the National Disabled Persons Rehabilitation Fund (PFRON), finding a job for a public utility institution, finding a job as a part of costs reimbursement, finding a job under special programmes, finding a short-term seasonal job, finding a job as a part of public works, starting a non-agricultural business activity, receiving a subsidy from a local government start-up fund, termination of the right to the activating benefit.

Apart from the unregistering code, the individual data of 19 398 unemployed job seekers who unregistered from the Szczecin Poviat Labour Office in 2009 contained also the information concerning their registration and unregistration dates, job longevity, gender, education and age. In the study the employment odds were related to the previous job experience and this particular variable was defined as dichotomic with zero-one encoding (see more: : Markowicz, Stolorz (2009, pp. 621–630). Missing previous job experience was encoded as 0, while people with any such experience were marked as 1. The analyses were conducted for the total of the unemployed persons as well as for individual subgroups. The adopted division into groups by age and education corresponded to the one used by labour offices. Apart from two gender subgroups the authors singled out six age subgroups and five education subgroups. The detailed breakdown has been presented in Table 2.

Table 2 . The division of the unemployed into subgroups by age and education used by labour office

Characteristics		Group number
Age	<18, 25)	1
	<25, 35)	2
	<35, 45)	3
	<45, 55)	4
	<55, 60)	5
	<60, 65)	6
Education	– none or incomplete primary education, – primary education, – middle school,	1
	– basic vocational education,	2
	– general secondary education,	3
	– secondary 4-year vocational education, – secondary vocational education, – general post-secondary education	4
	– higher education (incl. BA)	5

Source: own compilation based on the Poviat Labour Office classification.

Out of 19 398 respondents 7 297 (37.62%) declared no previous job experience. This share seems to be rather high and it is similar in both gender subgroups (men – 37.27%, women – 38.03%). When taking into consideration the job seekers age it should be noted that the younger they were, the smaller chance they had to participate in the job market. This is why as much as 69.06 % of the first age subgroup declared no previous job experience. In the further three age subgroups (aged 25-35, 35–45 and 45–55) the proportion decreased and was, respectively: 36.34%, 23.46%, 22.35%. The percentage of people with no job experience aged 55-60 amounted to 26.47%, while the number those over 60 (men only) exceeded 40%. The analysis of education subgroups shows that people with vocational education more often declared previous job experience than those with a different type of education. Among the unemployed with basic vocational education their share was 22%, and in the subgroup of people who completed secondary vocational schools it exceeded 28%. In other education, subgroups the proportion of those with no experience was higher and came to: 48.12% for people with education not higher than middle school, 43.54% – for general secondary school graduates, 40.67% – for people with university education.

Over 36% of the unemployed surveyed unregistered because they found jobs. In the group who had previous job experience there were 43% successful job seekers, while those who declared the lack of such experience did not exceed 25%. The details are to be found in Table 3.

Table 3. The number of the unemployed persons unregistered from the Szczecin Poviat Labour Office in 2009 by a reason and by previous job experience

Reason for un-registering from the labour office	Declared previous job experience		Total
	no job experience	previous job experience	
New job	1 822	5 266	7 088
Other reasons	5 475	6 835	12 310
Total	7 297	12 101	19 398

Source: own compilation based on the data from the Szczecin Poviat Labour Office.

The analysis conducted in individual subgroups shows that in each case job seekers with any job experience re-entered the job market more frequently than those who had not been employed before (see Table 4). Noticeably the number of successful job seekers with no previous job experience was falling as they were getting older, but it grew along with the education levels. A similar trend could be observed among those respondents who declared previous job experience, but the proportion of successful job seekers was significantly higher. Particularly high percentage of people with university education, both with and without job experience, were successful in finding a job (65.56% and 53.35% respectively).

Table 4. The percentage of the unemployed persons who unregistered from the Szczecin Poviat Labour Office in 2009 due to finding employment by gender, age, education and previous job experience

Unemployed persons' characteristics		No job experience	Previous job experience
Gender	Women	30.93	49.11
	Men	19.95	38.96
Age	1	26.47	40.99
	2	30.60	48.12
	3	19.57	43.59
	4	14.41	42.10
	5	14.40	33.50
	6	4.63	20.00
Education	1	12.40	29.84
	2	19.52	37.28
	3	24.61	45.51
	4	28.83	50.35
	5	53.35	65.56

Source: own compilation based on the data from the Szczecin Poviat Labour Office.

STUDY RESULTS

The logistic function can be generally defined as (Cramer 2002):

$$P(Z) = \frac{\exp Z}{1 + \exp Z}, \qquad (1)$$

For the dichotomic dependent variable, as it has been adopted in this paper (unregistering the unemployed person due to a new job and due to another reason), a logistic regression model can be represented by the following:

$$P(Y = 1 \mid x_1, x_2, ..., x_k) = \frac{\exp\left(\alpha_0 + \sum_{i=1}^{k} \alpha_i x_i\right)}{1 + \exp\left(\alpha_0 + \sum_{i=1}^{k} \alpha_i x_i\right)}, \qquad (2)$$

where:
Y – dichotomic dependent variable,
$x_1, x_2, \ldots, x_k$ – independent variables,
α_i – regression coefficients.

Due to the fact that the preliminary assumptions have not been met (distribution of characteristics is not normal), the logistic regression parameters are estimated not by means of the least square method but with the maximum likelihood method. The notation $p = P(Y = 1)$ describes the likelihood of success (or failure), the expression $\frac{p}{1-p}$ denotes the odds (or the risk) of a specific event to happen (the relation of its occurrence to its non-occurrence). The expression $\ln\left(\frac{p}{1-p}\right)$ is represented by the logit(p) and used in the notation of the logit model (Frątczak, Gach-Ciepiela, Babiker 2005):

$$\text{logit}(p) = \ln\left(\frac{p}{1-p}\right) = \alpha_0 + \sum_{i=1}^{k} \alpha_i x_i \,. \qquad (3)$$

The logit model where the logistic distribution has been adopted is one of the models used in the analysis of the zero-one explanatory variable, i.e. to the so called likelihood models. The model is devoid of the faults of the classic linear regression model estimated by means of the least squares method. These faults are: the opportunity to adopt the likelihood values from outside of the interval of [0; 1] and the likelihood of the random component heteroscedacity (Jajuga 1990). Jajuga also emphasises that in order to achieve effective estimations of both the model parameters and theoretical likelihoods it is necessary to perform a large number of observations for each state of the explanatory variable vector, which is essential from the practical point of view. This particular condition has been met in the present study.

The higher the value of the regression coefficient α_i, the more powerful the impact of the explanatory variable on the likelihood of risk (or failure). For the sake of interpretation, however, it is the odds (or risk) ratio, i.e. $exp(\alpha_i)$ that is used most frequently. In the study presented in this paper, the dichotomic dependent variable (adopting the value of 1 for an unemployed person unregistered due to finding employment) is described by a dichotomic variable adopting the value of 0 in case of none previous job experience and the value of 1, when the previous job experience occurs. Thus, the odds ratio (OR) is the relation of the employment odds of an unemployed person with some job experience to the employment odds of an unemployed person without such an experience. The analysis does not deal with the odds values, but with the value of their ratio, therefore the reference point adopts the value of 1. If the odds ratio is bigger than one, the likelihood of a specific event in an analysed subgroup is larger than in the reference subgroup.

Model (3) has been estimated for the examined group in general (n = 19 398) and for the individual subgroups. The estimation results, computed by means of the *STATISTICA* programme, are presented in Table 5 which contains information about the main parameter α_1, its deviation and the value p indicating the importance of the parameter. Additionally, the Table 5 presents the odds ratio whose interpretation is supposed to explain the influence of the previous job experience on the employment odds of the unemployed job seekers, which is the aim of this study. To make the provided information more intelligible the Table does not include the estimations and deviations of absolute terms, whose values are of no significance to this analysis.

Table 5. The estimation results of the logistic regression models of the relation between the unemployed persons' success in finding a job and their job experience in general and by their characteristics

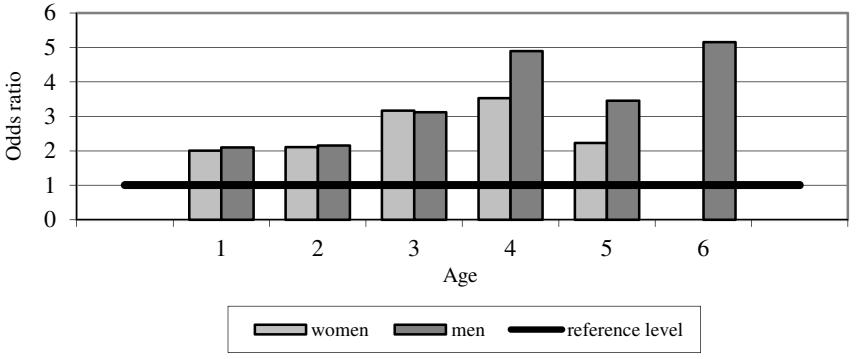
Unemployed persons' characteristics		Parameter α_1	Standard deviation	p	Odds ratio
Total		0.8395	0.0326	0.0000	2.3151
Gender	women	0.7679	0.0463	0.0000	2.1552
	men	0.9403	0.0471	0.0000	2.5607
Age	1	0.6570	0.0728	0.0000	1.9289
	2	0.7434	0.0523	0.0000	2.1031
	3	1.1555	0.1010	0.0000	3.1757
	4	1.4628	0.1074	0.0000	4.3181
	5	1.0964	0.1642	0.0000	2.9934
	6	1.6390	0.4988	0.0012	5.1500
Education	1	1.1003	0.0665	0.0000	3.0051
	2	0.8964	0.0934	0.0000	2.4508
	3	0.9393	0.0936	0.0000	2.5583
	4	0.9179	0.0825	0.0000	2.5041
	5	0.5095	0.0705	0.0000	1.6644

Source: own compilation based on the data from the Szczecin Poviat Labour Office (computed by means of STATISTICA).

Generally, the chance to find employment by the unemployed job seekers with previous job experience was 2.3 times bigger than in the group of those without such experience. In accordance with the thesis proposed above, the people who have been employed before leave unemployment more often. The same situation takes place in each of the subgroups (Table 5). The influence of the job experience on entering the job market is more noticeable in case of men than women (the odds ratios respectively: 2.56 and 2.16). In the subgroup of the unemployed aged up to 55 the importance of the previous job experience was growing along the age. Exceptionally high value of the odds ratio in a subgroup 60+ (consisting of men only) results from the fact that the subgroup is small and most of its members who found jobs had worked before. By contrast, in the education subgroup the job experience is more important for those at lower levels of education.

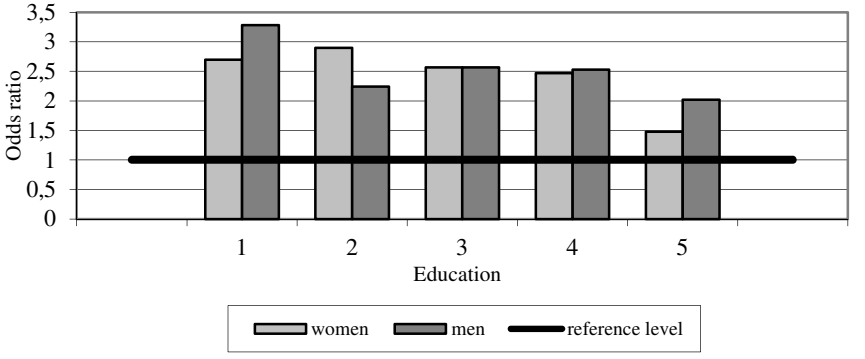
The Figures 3 and 4 illustrate the employment odds ratios for the unemployed job seekers with previous job experience in relation to such odds for those job seekers who had not been employed before, separately for men and women in individual age and education subgroups.

Figure 3. The employment odds ratios for the unemployed declaring previous job experience in relation to the employment odds ratios for the unemployed without previous job experience, separately for men and women in individual age subgroups



Source: own compilation based on the STATISTICA computations.

Figure 4. The employment odds ratios for the unemployed declaring previous job experience in relation to the employment odds ratios for the unemployed without previous job experience, separately for men and women in individual education subgroups



Source: own compilation based on the STATISTICA computations.

In the first three age groups the importance of the previous job experience is similar. In case of men this importance increases after the age of 45. As far as the education subgroups are concerned, similar influence of the job experience of both men and women can be noticed in the subgroup 3 (secondary general education) and the subgroup 4 (secondary vocational education). As

regards the job seekers with middle school and higher education, the job experience was more important for men than for women. Only in case of basic vocational education the previous job experience was more valuable for women.

The conducted analysis proved the authors' thesis stating that previous job experience influences the employment odds of the unemployed job seekers as a whole and in subgroups.

CONCLUSIONS

In 2009 a group of 19 398 job seekers unregistered from the records of the Poviat Labour Office in Szczecin. The authors focused on finding a new job as the reason for unregistering. Out of the total number of the surveyed job seekers as many as 37% did not have any previous job experience. It was not surprising in case of young people, but job seekers new at the job market were present in every age subgroup. Over 43% of the job seekers with previous job experience re-entered the job market, while in the inexperienced group this proportion did not exceed 25%.

The logistic regression model is a tool that enables researchers to compare the likelihood of an event to happen in different two groups. In this paper, the analysed event was finding a job by an unemployed person. The analysis results show that in every gender, age, and education subgroup the employment odds grew depending on their previous job experience. Thus, we can draw a conclusion that employers are more interested in hiring people with previous job experience.

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